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## Role Ambiguity in Sport Teams

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The general purpose of the present study was to examine the nature of role ambiguity in sport teams and to explore the construct validity of the operational definition of role ambiguity developed by Beauchamp, Bray, Eys, and Carron (2002). Role ambiguity was operationalized as a multidimensional construct (Scope of Responsibilities, Behavioral Responsibilities, Evaluation of Performance, and Consequences of Not Fulfilling Responsibilities) that occurs in two contexts, offense and defense. Consistent with the a priori hypothesis, perceptions of role ambiguity exhibited some degree of within-group consistency and group-level variability, but most of the variance in role ambiguity was seen at the individual level. Also, perceptions of role ambiguity decreased from early to late season. Finally, veteran athletes experienced less role ambiguity than first-year athletes at the beginning of the season, but not at the end. Implications of the findings and suggestions for future research are discussed.

**Key Words:** group perceptions, temporal variability, status

Role ambiguity has been defined as the lack of clear, consistent information regarding the expectations associated with one's position (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Not surprisingly perhaps, given the importance of productivity and performance in business and industry, the antecedents, consequences, and correlates of role ambiguity have been examined extensively. When Jackson and Schuler (1985) undertook a meta-analysis of that literature, they found effect sizes in the small to moderate range showing that greater role ambiguity is associated with greater job dissatisfaction (i.e., general dissatisfaction as well as dissatisfaction with supervisors, co-workers, the work itself, pay, and advancement opportunities) as well as increased tension/anxiety, a propensity to leave, and lowered commitment and involvement in the organization. More recently, Beard (1999) reiterated the point that the presence of role ambiguity is a cause of many negative and detrimental consequences such as decreased satisfaction with one's job, increased levels of anxiety, and a greater likelihood to leave the organization.

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The nature of role ambiguity has been discussed thoroughly and a conceptual framework advancing a multidimensional approach was proposed by Kahn et al. (1964) over 35 years ago. In their conceptual model, two major dimensions were differentiated. The first, *task ambiguity*, is concerned with ambiguity related to the performance aspects of one's role responsibilities. Task ambiguity is further divided into three subcategories: (a) ambiguity about the scope of responsibility, i.e., lack of clarity about responsibilities and expectations; (b) ambiguity about the behavioral responsibilities necessary to fulfill expectations; and (c) ambiguity about the hierarchical importance of each responsibility. The second major dimension identified by Kahn and colleagues is *socio-emotional ambiguity*. Generally this refers to ambiguity regarding the psychological consequences and discomfort an individual might experience should he or she fail to fulfill role responsibilities.

Within this general framework, two further distinctions have been made. One is the differentiation between ambiguity associated with informal and formal roles (Mabry & Barnes, 1980). Informal roles are those that arise among group members as a result of natural interactions (Carron & Hausenblas, 1998). For example, this category could include the roles of team clown or an emergent team leader who is not in a captain position. Formal roles are the ones designated directly by the leader or group as a whole. These would include, for example, positional and captaincy roles on sport teams. Typically the research has focused on ambiguity associated with formal roles.

Kahn et al. (1964) also differentiated between objective and subjective components of role ambiguity. Objective role ambiguity refers to an *actual* lack of clear information about one's role responsibilities and is a state of the environment (e.g., limited access to leadership). Subjective ambiguity, on the other hand, refers to the *perception* of ambiguity and is a state of the person. In short, an individual might have unlimited access to the group leader, be repeatedly informed of his or her responsibilities, and yet still feel unclear about what to do and how to do it. Typically, as is the case in the present study, research has focused on subjective role ambiguity.

Recently there has been increased interest in perceptions of role ambiguity on sport teams. Beauchamp and Bray (2001) examined athlete perceptions of multidimensional role ambiguity, role conflict, and role efficacy. Their operational definition of role ambiguity focused on the context, i.e., the level of role ambiguity experienced on both offense and defense. Beauchamp and Bray found that role ambiguity was associated with role-efficacy beliefs and that it mediated the relationship between role conflict and role efficacy. Their results also showed support for the need to consider contextual differences, i.e., offense vs. defense. One limitation in the Beauchamp and Bray approach, however, was the failure to take into account the potential manifestations, or types of role ambiguity, i.e., role ambiguity associated with scope of responsibilities, behaviors, evaluation, and consequences. That is, an individual might clearly understand the scope of responsibilities, for example be the team's enforcer, yet be unclear about the behaviors necessary to carry out those responsibilities (fight opponents, play assertively, etc.).

Eys and Carron (2001) examined the relationship between role ambiguity and both task cohesion and task self-efficacy. The conceptual framework that formed the basis for their operational definition of role ambiguity was the Kahn et al. (1964) multidimensional model described above. Four manifestations of subjective ambiguity associated with an athlete's formal roles were assessed. The first,

*scope of responsibilities*, reflects a lack of clear information as to the extent of an individual's responsibilities. The second dimension, *behavioral responsibilities*, represents the individual's level of clear information as to which behaviors are necessary to fulfill his or her role responsibilities. A third dimension, *evaluation of performance*, concerns the degree to which the athlete perceives a lack of clear information as to how his/her performance of required role responsibilities will be evaluated. Finally, *consequences of not fulfilling responsibilities* represents the individual's perceived lack of clear information as to the consequences of failing to fulfill the requisite role responsibilities.

Eys and Carron (2001) found that the various manifestations of role ambiguity were associated with both task cohesion and task self-efficacy, and, equally important, that a multidimensional approach was valuable in examining specific relationships. One limitation in the Eys and Carron approach, however, was the failure to take into account the contextual differences that are characteristic of roles on team sports, i.e., the formal role responsibilities associated with offense vs. defense. That is, an athlete might clearly understand his or her responsibilities on defense but be unclear about the responsibilities on offense.

In an attempt to overcome the limitations inherent in both the Beauchamp and Bray and the Eys and Carron approaches, Beauchamp and colleagues (Beauchamp, Bray, Eys, & Carron, 2002, 2003) used the Kahn et al. conceptual framework and developed an operational definition for role ambiguity in interdependent sport teams. Their measure assesses four dimensions of role ambiguity—scope of responsibilities, behavioral responsibilities, evaluation of role performance, and consequences of not fulfilling responsibilities—in each of two contexts, offense and defense.

In their research, Beauchamp et al. (2002, 2003) found preliminary support for the validity of their measure of role ambiguity in sport. Specifically, content validity was established and some evidence for construct validity was obtained when the factor structure of the inventory, and underlying theoretical model, was supported using confirmatory factor analysis (Beauchamp et al., 2002). Also, predictive validity was demonstrated through the presence of hypothesized relationships between role ambiguity and cognitive state-anxiety (Beauchamp et al., 2003) and both role efficacy and role performance (Beauchamp et al., 2002).

As Nunally (1978) has pointed out, however, the determination of validity is an ongoing process. Thus the general purpose of the present study was to continue to examine the nature of role ambiguity in sport teams and to explore the construct validity of the operational definition of role ambiguity developed by Beauchamp and colleagues (2002, 2003). Within the boundaries of this general purpose, four issues were addressed.

One issue was to investigate the degree to which perceptions of role ambiguity among members of intact teams demonstrate group effects, or groupness. Our motivation to explore this issue was based on considerable discussion in the general literature on group dynamics (e.g., Kenny & La Voie, 1985; Moritz & Watson, 1998; Rousseau & House, 1994) as well as in the specific literature on group dynamics in sport (Bray, 1998; Carron, Brawley, & Widmeyer, 1998; Paskevich, 1995) that has dealt with the treatment and interpretation of non-independent data, that is, data collected from samples of individuals who hold group membership in common.

There is no doubt that a role by its very nature is a group construct. Group

members are assigned responsibilities in regard to collective goals and aspirations by one person or entity, for example the head coach or coaching staff. Nonetheless, coaches and/or coaching staffs vary in level of experience, communication ability, teaching ability, attention to detail, and so on. Thus objective role ambiguity—information provided about role expectations from the environment—among players is likely to be somewhat consistent within each team and yet vary considerably from one sport team to another. It would necessarily follow, then, that perceptions of (i.e., subjective) role ambiguity would show some evidence of consistency among members of the same team and be more similar to one another than to those of players representing different teams.

According to Cronbach and Meehl (1955), the simultaneous study of the group and the individual can be regarded as an exercise in construct validity. In the case of role ambiguity, for the reasons outlined above, the construct should show some evidence relating to consistency across members of the same team and differences between teams. However, although they may be subject to similar environmental stimuli, for example coach behaviors, individual members of teams vary in their levels of experience, attention to detail, and so forth. Consequently, the extent to which an individual experiences subjective role ambiguity is heavily dependent on his or her characteristics as well. Therefore, from a construct validity perspective, it was predicted that role ambiguity in all its manifestations would exhibit some degree of within-group consistency and group-level variability, but that most of the variance in role ambiguity would be seen at the individual level.

A second issue in the present study was to explore the changes in role ambiguity over the course of a season. Sport offers an excellent context in which to examine temporal variability in a construct such as role ambiguity. The regular practices characteristic of sport afford coaches the opportunity to clarify both the scope of each athlete's responsibilities and the behaviors necessary to carry out those responsibilities. Also, the regular competitions characteristic of sport provide athletes an opportunity to determine not only how role performance is evaluated but also the consequences of not fulfilling those responsibilities. It was predicted that, as a result of repeated practices and competitions from early to late season, athletes would show a reduction in all manifestations of role ambiguity over time: scope, behavior, evaluation, and consequences on both offense and defense.

Cronbach (1970) observed that a useful test of construct validity is to "set up hypotheses regarding the meaning of test scores, stating how high scorers and low scorers are expected to differ, or what influences are expected to alter scores" (p. 125). To this end, a third issue in the present study involved comparing the differences in role ambiguity among veterans and first-year members of teams. In his research on role efficacy, Bray (1998) pointed out that members of teams "may have varying degrees of involvement in the collective task-related pursuits of the group. For example, on an elite basketball team, some players hold starting status and other players are non-starters" (p. 19).

The distinction between a veteran player and a first-year player is similar in this regard. Veterans, over their years of involvement on a team, have more opportunities to carry out their task-related responsibilities in practices and competitions. Consequently they also have more opportunities to receive feedback about role performance. Also, these players have had previous exposure to the expectations of the team regarding technical skills and tactical/strategic planning. There-

fore, in the present study it was predicted that veterans would experience less role ambiguity in all of its manifestations than would first-year athletes at the beginning of the season. It was also predicted that this gap between veterans and first-year players would be reduced or nonexistent toward the end of the season as, by this time, the first-year players would have been able to gain the requisite knowledge regarding what is expected of them.

A fourth issue was related to what Cronbach (1970) referred to as “validity generalization” (p. 434), the need for replication to determine whether a pattern of results is consistent across samples. As Cronbach noted, “periodic checks on validity should be made...follow-up studies are a necessary precaution [for the establishment of construct validity]” (p. 434). To this end, we tested two dissimilar samples of athletes from highly different situations. One sample consisted of relatively elite club and university-level North American soccer players; the other sample consisted of British secondary-school rugby and field hockey players. It was predicted that the pattern of findings would be similar across both samples.

## Method

### *Participants*

As indicated above, two samples were tested. The first sample, from Great Britain, consisted of volunteer ( $N = 403$ ) secondary-school teams: 9 female field hockey teams ( $n = 78$ ) and 24 male field hockey and rugby teams ( $n = 325$ ). The athletes' mean age was 15.44 years ( $SD = 1.54$ ) and they had an average of 5.52 years ( $SD = 2.44$ ) of playing experience in their respective sports. This sample contained 345 starters, 49 nonstarters, and 9 athletes who did not indicate their starting status on the questionnaire.

The second sample, from North America, consisted of volunteer ( $N = 101$ ) club and university-level soccer players representing 4 female teams ( $n = 46$ ) and 4 male teams ( $n = 55$ ). The athletes' mean age was 21.08 years ( $SD = 3.71$ ) and they had an average tenure of 2.46 years ( $SD = 1.92$ ) with their teams. This sample contained 68 starters, 29 nonstarters, and 4 practice roster players.

### *Measure*

Role ambiguity was assessed via a questionnaire developed by Beauchamp et al. (2002) which uses a conceptual model that considers role ambiguity to be multidimensional in nature. Within the model, role ambiguity is considered to include (a) Scope of Responsibilities, the individual's knowledge of the extent of his/her responsibilities; (b) Behaviors Necessary to Fulfill Responsibilities, the individual's knowledge of which behaviors are expected; (c) Evaluation of Performance, the individual's knowledge of how he or she will be evaluated; and (d) Consequences of Not Fulfilling Responsibilities, the individual's knowledge of the frustration/penalties associated with not fulfilling his/her expectations. Each dimension has 5 items and was assessed in two contexts, offensive responsibilities and defensive responsibilities.

The items were presented on a 9-point Likert scale anchored by “strongly disagree” = 1 and “strongly agree” = 9. Higher scores reflected greater perceptions of role clarity (i.e., lower ambiguity), while lower scores reflected lower perceptions of role clarity (i.e., higher ambiguity). Previous research has indicated sup-

port for the factor structure of the questionnaire with athletes similar to Sample 1 in the present study (Beauchamp et al., 2002) and the internal reliabilities of the subscales (Beauchamp et al., 2003). The present study supported the internal reliabilities of the scales. Cronbach's alphas for the role ambiguity dimensions on offense and defense at both Time 1 and Time 2 ranged from .77 to .91, and thus were considered acceptable (Nunnally, 1978). The internal consistency values for each dimension are reported in Table 1.

### Procedure

Approval from the lead author's institutional ethics committee was secured prior to the study. Participants were recruited through initial contact with their respective head coaches. After securing approval from the coach, and informed consent from the parents of individuals under 18 years of age, we administered the questionnaire to the participants at two time periods. Time 1 testing occurred within 4 weeks of the beginning of the competitive season; Time 2 testing was within 4 weeks prior to the end of the competitive season. The athletes were assured of total confidentiality and were offered access to the results at the completion of the study.

**Table 1** Descriptive Statistics for Samples 1 and 2 of Role Ambiguity Scales

Sample Context	Variable	Time 1			Time 2		
		<i>M</i>	<i>SD</i>	Alpha	<i>M</i>	<i>SD</i>	Alpha
Secondary school							
Offense	Scope	6.98	1.17	.81	7.26	1.13	.82
	Behavior	6.91	1.22	.85	7.28	1.11	.88
	Evaluation	6.55	1.45	.90	7.07	1.25	.89
	Consequences	7.17	1.25	.83	7.22	1.29	.86
Defense	Scope	7.09	1.23	.84	7.32	1.12	.86
	Behavior	7.04	1.30	.89	7.30	1.14	.89
	Evaluation	6.79	1.42	.91	7.17	1.26	.91
	Consequences	7.37	1.42	.85	7.39	1.21	.88
Intercollegiate/Club							
Offense	Scope	7.17	1.10	.81	7.64	0.91	.82
	Behavior	7.17	1.16	.84	7.67	0.81	.81
	Evaluation	6.66	1.46	.90	7.14	1.23	.88
	Consequences	7.01	1.33	.83	7.28	1.14	.84
Defense	Scope	7.53	1.02	.79	7.68	0.87	.83
	Behavior	7.50	1.03	.77	7.67	0.92	.83
	Evaluation	6.99	1.50	.91	7.34	1.05	.86
	Consequences	7.47	1.09	.79	7.37	1.00	.77

*Note:* Scope: of responsibilities; Behavior: to fulfill responsibilities; Evaluation: of performance; Consequences: of not fulfilling responsibilities.

In both samples more participants completed the questionnaire at Time 1 than at Time 2. In Sample 1 a total of 272 of the original 403 participants completed both questionnaires (32.5% attrition rate); in Sample 2 a total of 78 out of 101 were present at both time periods (22.8% attrition rate). Attrition is an expected problem in longitudinal designs similar to that employed in the present study (Williams & Podsakoff, 1989). However, given its importance for internal validity, the issue of participant attrition is addressed further in the Results section.

## Results

### *Preliminary Analysis and Descriptive Statistics*

There was a moderate degree of attrition between the two periods for both samples. Since this was a concern for the internal validity of the study, we conducted analyses of the demographic statistics as well as the perceptions of role ambiguity at Time 1 between those who completed both questionnaires and those who did not. For Sample 1, the proportion of males ( $n = 222$ ) to females ( $n = 50$ ) and starters ( $n = 248$ ) to nonstarters ( $n = 21$ ) were comparable to the original sample. We also conducted a one-way MANOVA to determine whether perceptions of role ambiguity at Time 1 differed between those who completed the questionnaire at both times vs. those who did not. The result of the MANOVA was significant (Wilks'  $\lambda = .948$ ,  $F = 2.73$ ,  $p < .01$ ), indicating that there were differences in role ambiguity perceptions between the two groups. Follow-up univariate analyses indicated that those who completed the questionnaire at both times were clearer on 7 of 8 dimensions in regard to their role responsibilities. Consequences of Not Fulfilling Responsibilities on offense was the only dimension that did not show a significant difference.

For Sample 2, similar to Sample 1, the demographic factors for the participants at Time 2 were proportional to the original sample. Specifically, the proportions of males ( $n = 44$ ) to females ( $n = 34$ ) and starters ( $n = 51$ ) to nonstarters ( $n = 24$ ) were similar to those at Time 1. Contrary to Sample 1, however, the one-way MANOVA that was used to determine whether there were differences in role ambiguity perceptions between those who completed both questionnaires and those who did not was not significant (Wilks'  $\lambda = .873$ ,  $F = 1.67$ ,  $p > .05$ ). The relevance of these results is addressed in the Discussion section.

Overall, descriptive statistics for all role ambiguity dimensions are reported in Table 1. Generally, means for offensive role ambiguity dimensions at Time 1 ranged from 6.55 to 7.17; at Time 2 they ranged from 7.07 to 7.67. For defensive role ambiguity, means ranged from 6.79 to 7.53 at Time 1, and 7.17 to 7.68 at Time 2. Thus, in terms of the 9-point scale used, role clarity was on average quite high. These mean values are consistent with previous research using the present role ambiguity measure (e.g., Beauchamp et al., 2002, 2003; Eys, Carron, Bray, & Beauchamp, 2003).

Bivariate correlations are listed in Table 2, secondary-school athletes from Great Britain, and Table 3, university and club-level athletes from North America. As indicated previously, a secondary issue of the study was to examine the temporal pattern of interrelationships among the variable of interest. As can be seen from Tables 2 and 3, there were differences between samples. In the case of the secondary-school athletes, within each time period the role ambiguity dimensions were

**Table 2 Bivariate Correlations Between Role Ambiguity Dimension for Secondary-School Athletes**

Time	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time 1	1. Scope (O)	—	.75	.70	.61	.57	.53	.52	.44	.63	.63	.54	.52	.42	.43	.37	.40
	2. Behavior (O)		—	.71	.59	.55	.66	.59	.49	.58	.64	.54	.52	.46	.46	.39	.46
	3. Evaluation (O)			—	.56	.51	.59	.71	.43	.60	.65	.64	.53	.44	.50	.50	.45
	4. Consequences (O)				—	.40	.42	.41	.49	.47	.47	.47	.52	.27	.30	.29	.38
	5. Scope (D)					—	.79	.72	.66	.45	.51	.41	.37	.57	.56	.50	.49
	6. Behavior (D)						—	.80	.64	.47	.54	.45	.37	.57	.58	.49	.50
	7. Evaluation (D)							—	.61	.50	.58	.52	.41	.57	.59	.60	.53
	8. Consequences (D)								—	.40	.44	.37	.45	.48	.48	.46	.57
Time 2	9. Scope (O)									—	.83	.77	.70	.68	.71	.62	.64
	10. Behavior (O)										—	.80	.70	.70	.75	.66	.68
	11. Evaluation (O)											—	.72	.62	.66	.72	.62
	12. Consequences (O)												—	.58	.62	.61	.74
	13. Scope (D)													—	.87	.77	.78
	14. Behavior (D)														—	.76	.79
	15. Evaluation (D)															—	.75
	16. Consequences (D)																—

*Note:* Scope: of responsibilities; Behavior: to fulfill responsibilities; Evaluation: of performance; Consequences: of not fulfilling responsibilities; (O) = Offensive context; (D) = Defensive context. All  $p < .01$

**Table 3 Bivariate Correlations Between Role Ambiguity Dimension for Intercollegiate/Club Athletes**

Time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time 1																
1. Scope (O)	—	.79**	.72**	.62**	.50**	.52**	.50**	.48**	.00	-.04	-.01	-.02	-.10	.06	-.05	-.12
2. Behavior (O)		—	.68**	.65**	.46**	.56**	.45**	.49**	-.08	-.12	-.11	-.03	-.18	-.03	-.11	-.16
3. Evaluation (O)			—	.63**	.43**	.48**	.67**	.47**	.12	.09	.15	.09	-.18	-.03	-.02	-.14
4. Consequences (O)				—	.29**	.41**	.47**	.60**	-.13	-.13	-.16	-.16	-.26*	-.12	-.23*	-.22
5. Scope (D)					—	.78**	.58**	.53**	-.09	-.16	.09	.11	-.09	.08	.06	-.03
6. Behavior (D)						—	.63**	.72**	-.27*	-.35**	-.09	-.01	-.24*	-.09	-.10	-.14
7. Evaluation (D)							—	.64**	-.09	-.16	.02	-.03	-.26*	-.14	-.09	-.23*
8. Consequences (D)								—	-.26*	-.32**	-.15	-.09	-.30**	-.16	-.15	-.18
Time 2																
9. Scope (O)									—	.76**	.66**	.50**	.28*	.23*	.31**	.32**
10. Behavior (O)										—	.62**	.56**	.29*	.34**	.37**	.46**
11. Evaluation (O)											—	.67**	.15	.18	.49**	.35**
12. Consequences (O)												—	.19	.18	.42**	.51**
13. Scope (D)													—	.84**	.74**	.75**
14. Behavior (D)														—	.70**	.75**
15. Evaluation (D)															—	.77**
16. Consequences (D)																—

*Note:* Scope: of responsibilities; Behavior: to fulfill responsibilities; Evaluation: of performance; Consequences: of not fulfilling responsibilities; (O) = Offensive context; (D) = Defensive context.

\* $p < .05$ ; \*\* $p < .01$

moderately intercorrelated ( $.40 < r < .87$ ). Also, the role ambiguity dimensions at Time 1 were moderately correlated to those at Time 2 ( $.29 < r < .65$ ), indicating that individual differences in role ambiguity were relatively stable over time.

On the other hand, for the sample of club and university-level athletes (Table 3), moderate positive intercorrelations were present within each time period ( $.15 < r < .79$ ), but no relationships were present over time ( $-.35 < r < .15$ ). In short, individual differences in ambiguity were not stable over time.

### *Degree of Groupness in Perceptions of Role Ambiguity*

To assess the degree of group-level vs. individual-level variance in role ambiguity, we calculated an intraclass correlation (ICC) and an associated eta squared ( $\eta^2$ ). Both statistics “provide evidence of the consistency of variance in responses among members of groups nested within a larger sample in relation to the scores of non-group members” (Carron, Bray, & Eys, 2002, p. 122). Intraclass correlations can range from  $-1$  to  $+1$ . Kenny and La Voie (1985) noted that a positive ICC indicates that members of a group are more similar to each other than to nongroup members. If the ICC is negative, it indicates that group members are more dissimilar from each other than from nongroup members. Kenny and La Voie noted that ICC values typically range from  $0$  to  $+1$ . Analyses of variance were conducted to test whether the ICC values differed significantly from zero. A liberal criterion ( $\alpha < .25$ ) has been suggested when testing for group phenomenon (Myers, 1972). Eta squared values can provide complementary information on the extent of the groupness effect, and a criterion value of  $.20$  has been used in previous research (Carron et al., 2002).

The ICC values and  $\eta^2$  values for all variables from the sample of secondary-school athletes are listed in Table 4. All role ambiguity dimensions had ICC values that differed significantly from zero using the liberal criterion  $p < .25$  suggested by Myers (1972). In fact all but two dimensions, Consequences of Not Fulfilling Defensive Responsibilities (at Time 1) and Evaluation of Offensive Role Performance (at Time 2), had ICC values that differed significantly from zero using the more commonly used but conservative alpha value of  $.05$ . However, the eta squared values in this sample, ranging from  $.16$  to  $.27$ , suggested that while a group effect did exist, the *level* of groupness regarding perceptions of role ambiguity was minimal.

The ICC values and  $\eta^2$  values for all variables from the sample of university and club-level athletes are presented in Table 5. As is evident, only 6 of 16 total dimensions showed a significant group effect using the liberal criterion value of  $.25$ , while only two of these dimensions, Evaluation of Role Performance on offense and defense (at Time 1), displayed  $\eta^2$  values suggesting a small degree of group consistency in scores. Considered in concert, the results from both samples tested were consistent with predictions and support the validity of the instrument used to assess role ambiguity.

### *Changes in Role Ambiguity Perceptions Over Time*

*Secondary-School Athletes.* As Table 1 shows, the average values for role ambiguity diminished over time in both samples. It is worth repeating here that with the scale used, higher scores represented greater role clarity/less role ambigu-

**Table 4** Intraclass Correlation and Eta Squared Values for Role Ambiguity Dimensions for Secondary-School Athletes

Time Context	Variable	Intraclass correlation	Eta squared
Time 1			
Offense	Scope	0.17***	.246
	Behavior	0.14***	.216
	Evaluation	0.09**	.183
	Consequences	0.16***	.236
Defense	Scope	0.09**	.182
	Behavior	0.11***	.196
	Evaluation	0.12***	.205
	Consequences	0.18***	.256
Time 2			
Offense	Scope	0.20***	.267
	Behavior	0.17***	.245
	Evaluation	0.12***	.210
	Consequences	0.14***	.222
Defense	Scope	0.07**	.173
	Behavior	0.06*	.164
	Evaluation	0.07*	.166
	Consequence	0.08**	.174

Note: Scope: of responsibilities; Behavior: to fulfill responsibilities; Evaluation: of performance; Consequences: of not fulfilling responsibilities.

\* $p < .25$ ; \*\* $p < .05$ ; \*\*\* $p < .01$

ity. A multivariate repeated-measures analysis was computed to determine whether mean perceptions of role ambiguity changed from Time 1 to Time 2 in the sample of secondary-school athletes. The independent variable was time and the 8 dimensions of role ambiguity (4 dimensions  $\times$  2 contexts) represented the dependent variables. An overall multivariate effect was found,  $F(8, 264) = 9.99$ ,  $p < .01$ , which accounted for 23% of the variance ( $\eta^2 = .23$ ).

Subsequent univariate analyses were then conducted. On offense, athletes indicated greater clarity at Time 2 over Time 1 for the role dimensions of Scope of Responsibilities,  $F(1, 271) = 21.67$ ,  $p < .01$ , Behavior to Fulfill Responsibilities,  $F(1, 271) = 36.94$ ,  $p < .01$ , and Evaluation of Performance,  $F(1, 271) = 55.92$ ,  $p < .01$ . The dimension Consequences of Not Fulfilling Responsibilities did not change significantly across time. On defense, the dimensions Scope of Responsibilities,  $F(1, 271) = 11.77$ ,  $p < .01$ , Behavior to Fulfill Responsibilities,  $F(1, 271) = 14.54$ ,  $p < .01$ , and Evaluation of Performance,  $F(1, 271) = 27.68$ ,  $p < .01$ , differed significantly (i.e., greater role clarity/lesser role ambiguity) from Time 1 to Time 2.

**Table 5** Intraclass Correlation and Eta Squared Values for Role Ambiguity Dimensions for Intercollegiate/Club Athletes

Time/ Context	Variable	Intraclass correlation	Eta squared
Time 1			
Offense	Scope	0.05*	.116
	Behavior	0.02*	.091
	Evaluation	0.18***	.235
	Consequences	0.00	.074
Defense	Scope	0.05*	.113
	Behavior	0.02	.088
	Evaluation	0.21***	.261
	Consequences	-0.03	.039
Time 2			
Offense	Scope	-.02	.071
	Behavior	.05*	.138
	Evaluation	-.05	.047
	Consequences	.05*	.141
Defense	Scope	-.03	.066
	Behavior	-.03	.063
	Evaluation	-.06	.035
	Consequences	-.02	.069

Note: Scope: of responsibilities; Behavior: to fulfill responsibilities; Evaluation: of performance; Consequences: of not fulfilling responsibilities.

\* $p < .25$ ; \*\* $p < .05$ ; \*\*\* $p < .01$

*University and Club-Level Athletes.* A similar analysis was conducted with the sample of university and club-level athletes to determine whether there were mean differences between Time 1 and Time 2. Again, an overall multivariate effect was found,  $F(8, 70) = 2.97, p < .01$ , indicating a significant difference in mean perceptions of role ambiguity over time that accounted for 25% of the variance ( $\eta^2 = .25$ ). Seven of 8 dimensions had higher means at Time 2, indicating greater role clarity, than at Time 1 (see Table 1).

Univariate analyses showed that on offense, athletes significantly perceived greater role clarity at Time 2 for Scope of Responsibilities,  $F(1, 77) = 11.25, p < .01$ , Behavior to Fulfill Responsibilities,  $F(1, 77) = 10.88, p < .01$ , and Evaluation of Performance,  $F(1, 77) = 6.89, p < .01$ . There was no significant difference between Time 1 and Time 2 for the Consequences of Not Fulfilling Responsibilities dimension on offense. On defense, athletes perceived greater role clarity at Time 2 than at Time 1 for the dimension Evaluation of Role Performance,  $F(1, 77) = 4.98, p < .05$ , only. Considered in concert, the results from the two samples showed support for the validity of the instrument used to assess role ambiguity.

### *Influence of Player Status on Perceptions of Role Ambiguity*

The question of player status as posed to the athletes was not identical across the two samples. That is, the sample of university and club-level athletes was asked to indicate their tenure on their current team. Conversely, the sample of secondary-school athletes were asked to indicate how many years they had been in their sport. Tenure on a team was not relevant to the younger sample, as each year they move to a new team/age group and their teammates and coaches change. Therefore only the data from the sample of university and club-level athletes could be used to examine the effect of player status/tenure on perceptions of role ambiguity. For analysis purposes we created two categories: rookies who were in their first year on the team, and veteran players who had been with their team for 2+ years.

We computed four MANOVA analyses, one each for offense and defense at both Time 1 and Time 2. Status represented the independent variable while the four dimensions of role ambiguity represented the dependent variables. For offensive role ambiguity at Time 1, Wilks'  $\lambda$  was significant,  $F(4, 96) = 2.39, p < .05, \eta^2 = .09$ , indicating an overall difference in perceptions of role ambiguity between rookies and veterans. Follow-up univariate tests revealed significant differences between rookies and veterans for the role ambiguity dimensions of Scope of Responsibilities,  $F(1, 99) = 8.50, p < .01, \eta^2 = .08$ , Behavior to Fulfill Responsibilities,  $F(1, 99) = 7.76, p < .01, \eta^2 = .07$ , and Consequences of Not Fulfilling Responsibilities,  $F(1, 99) = 3.98, p < .05, \eta^2 = .04$ . For Scope of Responsibilities, veterans perceived greater role clarity than rookies ( $M = 7.43$  vs. 6.80). For Behavior to Fulfill Responsibilities, veterans again perceived greater role clarity than rookies ( $M = 7.43$  vs. 6.80). For Consequences of Not Fulfilling Responsibilities, veterans again perceived greater role clarity than rookies ( $M = 7.23$  vs. 6.70).

There were no significant differences between veterans and rookies for perceptions of role ambiguity on defense at Time 1, or for role ambiguity on defense or offense at Time 2.

## **Discussion**

The general purpose of the present study was to continue to examine the nature of role ambiguity in sport teams and to explore the construct validity of an operational definition developed by Beauchamp and colleagues (2002, 2003). Role ambiguity was conceptualized as a multidimensional construct consisting of four dimensions: Scope of Responsibilities, Behavior to Fulfill Responsibilities, Evaluation of Role Performance, and Consequences of Not Fulfilling Responsibilities. Individual perceptions of these four dimensions were also conceptualized to exist independently on offense and defense.

One strength of the present study was the ability to examine issues of validity using two distinct samples. As noted above, replication provides evidence for validity generalization—whether a pattern of results is consistent across samples (Cronbach, 1970). Although we predicted there would be validity generalization, this was found only in certain instances. Paradoxically, more research is needed to determine whether the pattern of results we found is due to our conceptualization and operationalization of role ambiguity or to the nature of the two samples tested. Our samples differed markedly in terms of sport type (soccer vs. field hockey and rugby), age (secondary-school sample mean age = 15.34 vs. intercollegiate/club

sample mean age = 21.08), and to some extent gender (the younger sample was overwhelmingly male whereas the older sample had a balance of males and females). Thus, context differences in any of these factors might have led to differences in the delivery and receipt of information needed to reduce role ambiguity.

A preliminary issue that had to be addressed was participant attrition. The attrition rates for our Sample 1 and Sample 2 were 32.5% and 22.8%, respectively. As noted, these rates are comparable to others found in the organizational literature for longitudinal designs. While there were no substantial demographic differences in either sample between those who were able to complete both questionnaires and the original sample of participants, we found an interesting result for their initial perceptions of role ambiguity. The younger sample, Sample 1, displayed group differences in role ambiguity perceptions while the older sample did not.

While we were unable to ascertain that those who did not complete the questionnaire in the late season period had quit their respective teams, it is reasonable to suggest an explanation. The maturity of the older, more elite athletes, and their ability to deal effectively with role ambiguity, may account for why perceptions of role ambiguity did not differentiate between those who were still present at late season and those who were not. In a previous study, Eys et al. (2003) found that increased perceptions of role ambiguity were associated with lower athlete satisfaction. Perhaps younger athletes, participating in a less elite environment and experiencing greater role ambiguity and less satisfaction, are more likely to quit the team due to decreased commitment to the organization or an inability to cope with frustrating situations. As we were unable to test for these factors in the present study, these considerations could form the basis for future research on role ambiguity.

One major issue addressed in the present study was the degree to which perceptions of role ambiguity are consistent among group members. A considerable amount of literature has focused on levels of analysis issues, the relative independence vs. interdependence of individuals within groups (e.g., Kenny & La Voie, 1985; Moritz & Watson, 1998). Most statistical analyses assume the independence of observations. However, the interactions that are characteristic of groups may make members of a particular group more similar to each other than to nonmembers or members of other groups. Kenny and La Voie (1985) stated that interdependence among members is a reality for naturally forming groups and, therefore, "the goals of group research should include the study, and not the elimination, of non-independence" (p. 339).

The procedure advocated by Kenny and La Voie (1985) to determine the extent of interdependence was used in the present study to test questions of construct validity. The results supported the hypothesis that, while perceptions of role ambiguity are inherently individual, group-level variability is present. The secondary-school athletes displayed a greater degree of groupness, or group-level variability, on more dimensions of role ambiguity than did the older intercollegiate and club athletes. Nonetheless, the evidence for group variability in role ambiguity was not strong in terms of the statistical criteria suggested by previous researchers (Carron et al., 2002; Myers, 1972). Consequently, future studies on role ambiguity, as conceptualized in the present study, should examine perceptions at an individual level while being cognizant of the possibility that interactions within the team, i.e., coaching style or athlete experience, may affect the amount of varia-

tion among group members to some degree. Another research direction may be to incorporate a more complex multilevel theoretical model of role ambiguity to examine individual and group level variance.

The second major issue we examined involved changes in individual perceptions of role ambiguity over the course of a season. Generally, the results supported the hypothesis that the amount of role ambiguity an athlete experiences would decrease over the span of the competitive season. Both intercollegiate/club and secondary-school athletes perceived higher role ambiguity at the beginning of the season than at the end. The fact that athletes perceived less role ambiguity at the end of a season may be due to an increased exposure to persons responsible for defining their role, i.e., coaches and teammates. The beginning of a season with a competitive sport team raises a number of questions and uncertainties regarding playing position, responsibilities, and leadership expectations. The clarification of these uncertainties may come through the practice/game experiences and the personal communications with other players and coaches throughout the season. Thus the assessment of role ambiguity should reflect an increased understanding of one's role in the framework of the team as the season progresses.

The results of the present study are not consistent with previous research. Bray (1998) assessed a variety of role dimensions such as role ambiguity, role satisfaction, role acceptance, and role importance across a competitive season and found no significant changes in any of these perceptions over time. However, this discrepancy may be accounted for by differences in data collection between the Bray study vs. the present study. The first measurement Bray obtained was within the first 3 weeks of the teams' competitive season, but, as Bray acknowledged, after approximately 10 weeks of preseason practice and competition. In the present study we obtained the first measurement of role ambiguity within 4 weeks of the formation of the group. Thus it seems likely that individuals were being assessed at a time when ambiguity would naturally be high among team members.

A third main issue of the present study involved an examination of perceptions of role ambiguity relative to players' status on their teams. The characteristic of status we examined was athlete tenure on the team, first-year vs. veteran players. Data from the beginning of the season showed moderate support for our hypothesis: first-year players perceived higher levels of role ambiguity than veteran players, but only on offense. No a priori hypotheses were advanced for potential differences between the two contexts of offense and defense. Eys and Carron (2001), in their research on the relationship between task self-efficacy and role ambiguity with college basketball players, also found a different pattern of results for offense and defense. Their proposal that differing task demands might have accounted for their results may also apply here. As they noted, offense involves a "larger number and wider variety of responsibilities and decisions" (Eys & Carron, 2001, p. 371). Thus the potential for a new member of a team to experience role ambiguity on offense compared with defense should be greater.

Consistent with our a priori hypothesis, veterans and first-year players did not differ in perceptions of role ambiguity at the end of the season. It is likely that by the end of the season the rookies would have had time to obtain the requisite information as to what is expected of them. Future research should look to replicate the current study to examine differences similar to those found here between veteran and first-year players in samples of different sport type and competition

level. Future research should also investigate potential differences in multidimensional role ambiguity in regard to another aspect of player status, starting and nonstarting players. Beauchamp and Bray (2001) found that nonstarters reported significantly higher levels of role ambiguity than starters. Although these ambiguity differences were consistent for offensive and defensive role responsibilities, it remains to be seen whether any differences exist in terms of different *types* of ambiguity that were assessed in the present study (Scope of Responsibilities, Evaluation of Role Performance, etc.). This aspect of status was not examined in the present study due to the overwhelming number of participants who indicated they were starters.

In conclusion, the present study has provided additional evidence for the validity of the multidimensional conceptualization of role ambiguity in a sport setting. First, perceptions of role ambiguity were shown to exist at an individual level while displaying a minor degree of groupness. Second, the degree of perceived role ambiguity decreased over the course of the season. Finally, there were differences between veteran and first-year players at the beginning of the season on offense, but not at the end of the season on either offense or defense. Future research should continue to examine the relationships between role ambiguity and other important constructs such as athlete satisfaction, team and individual performance, and individual differences—age, competitive level, player status—using the multidimensional approach employed in the present study. Also, continued validation should be conducted to confirm the factor structure of the role ambiguity questionnaire used in the present study.

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