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ROLE EFFICACY WITHIN INTERDEPENDENT TEAMS: MEASUREMENT DEVELOPMENT AND TESTS OF THEORY

By

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Abstract

The purpose of this thesis was to examine a newly defined construct—role efficacy (RE) within the context of interdependent sport teams. Role efficacy was conceptualized as a form of efficacy beliefs that reflects the confidence of individuals performing specialized interdependent role functions within groups. In Study One, a theoretically-based measure of RE was developed in which basketball players indicated their efficacy for performing specific role functions. Utilizing Kenny and Lavoie's (1985) statistical technique for detecting the interdependence of responses within groups, it was revealed that RE was an independent belief and distinct from group perceptions of collective efficacy (CE). As predicted by self-efficacy theory, RE was moderated by the amount of direct experience gained by players differing in starting status. It was concluded that this initial attempt to measure and validate the construct held promise for further investigation.

As a second step in developing and validating a new construct, Study Two examined the psychometric characteristics of the RE measure and the divergent validity of RE. Results supporting the psychometric reliability of the RE measure, the consistency of Study One findings, and the distinctness of RE from other role and group related constructs were obtained. In addition, the theorized relationship between RE and perceived role performance effectiveness was supported. Thus, Studies One and Two offered corresponding and complimentary evidence for the conceptual uniqueness and construct validity of RE.

The purpose of Study Three was to further examine the conceptual distinctiveness of RE and investigate theorized mediational and prospective relationships between RE and perceived role performance effectiveness. Role efficacy was found to be distinct from individual task self-efficacy and, as predicted by theory, mediated the relationship between that construct and perceived role performance effectiveness. The predictive validity of RE

was also demonstrated with regards to subsequent perceptions of both role performance effectiveness and RE.

Taken together, the findings of these three studies suggest that RE is a salient perception among members of interdependent sport teams and offer some promising preliminary support for the conceptual uniqueness and theoretical validity of the RE construct. Future researchers are encouraged to examine RE in groups that vary in the amount of task interdependence and determine if RE is amenable to change through intervention as suggested by Bandura (1997).

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One should likely take more than a few minutes to write something such as this. However, unfortunately, that's all the time I have. I would foremost like to thank Dr. Larry Brawley for his guidance and untiring assistance in completing the dissertation and the degree. Larry, don't ever think your extra efforts to help me out during my time at U. of W. have gone unnoticed or unappreciated. You are truly a good friend and an excellent mentor.

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General Introduction

There are many objects of great value to man which cannot be attained by unconnected individuals, but must be attained if at all, by association.

- Daniel Webster

The preceding quote emphasizes the importance of cooperation, communication, coordination, and most especially, teamwork, in the pursuit of many human objectives. In our daily lives, we frequently participate as members of integrated families, work groups, social clubs, athletic teams, and other groups. Each group has its own special significance to its individual members. Groups are an important social phenomenon because of their prevalence in society and because of the influence they exert on our lives. While groups have an impact on our thoughts, feelings, and behavior as individuals, as members we also have an influence on the interactions that occur within the groups to which we belong (Widmeyer, Brawley, & Carron, 1992).

One of the most common group experiences for individuals in Western societies is participation in physical activity as part of a sport group. Numerous authors (e.g., Carron, 1988; Widmeyer, et al. 1992) have pointed out that for many people, apart from their immediate families, sport teams may be one of their most important group affiliations. Indeed, involvement in team sport is highly prevalent in terms of participation as team players, spectators, or volunteers.

From a research perspective, sport teams offer several advantages over laboratory groups and groups in other field settings. Specifically, Schafer (1966; cited in Widmeyer et al. 1992) suggested that because sport teams (a) develop naturally, (b) exhibit a readily developed motivation-level based on zero-sum goals (i.e., one team's victory means the other's defeat), (c) have objective measures of group performance, and (d) inherently control

potentially confounding variables such as size, structure, and rules of conduct, they provide excellent opportunities for studying group dynamics. However, despite these opportunities, research involving sport teams has been relatively sparse compared to both group research in mainstream Social Psychology and individual research in Sport Psychology (cf. Widmeyer, Carron, & Brawley, 1993).

The extant literature on group dynamics in sport has focused almost exclusively on cohesion, leadership, group composition, and group size (Widmeyer et al. 1992) and ignored group characteristics such as status, norms, and roles which are central to conceptual definitions of groups (e.g., Sherif & Sherif, 1969). For example, although an entire chapter was devoted to group roles in Carron's (1988) Group dynamics in sport, the majority of the literature reviewed was either non-empirical, or focused on gender and organizational roles rather than formalized roles that are characteristic of structured athletic teams. Unfortunately, a decade later, the information in the chapter on roles in the Second Edition of Group dynamics in sport (Carron & Hausenblas, 1998) required only modest revision suggesting that little new research has been conducted on this topic.

Roles are important elements in the structure of small groups (e.g., sport teams). The concept of role is somewhat controversial (Neiman & Hughes, 1951; Rommetveit, 1954) and numerous theories pertaining to roles exist (cf. Shaw & Costanzo, 1982). In Role Theory (Thomas & Biddle, 1966), roles are considered to be a set of prescriptions that define what the behaviors of an individual member occupying a certain position should be. Mabry and Barnes (1980) also suggest that two general role categories exist within every group -- formal and informal roles. Informal roles develop through a process of interpersonal interaction within the group. Carron (1988) noted that some examples of informal roles on sport teams include

team leader (e.g., possibly, but not essentially, captain or assistant captain), social director, and team clown. In contrast, formal roles are prescribed to members and are critical to the effective organization and potential effectiveness of a team. Some examples of formal roles in sport groups are the point guard and shooting guard in basketball and the rushing and "stay-at-home" defenseman in ice hockey. Formal roles are strongly influenced by the position each member occupies on the team, however, roles and positions are not synonymous. For example, numerous players occupy the position of defenseman within the game of hockey, but a rushing defenseman will typically have a unique set of formal role responsibilities compared to a "stay-at-home" defenseman within one team's offensive and defensive systems. Other teams may have defensive systems that have neither of these roles, but they may have different roles that suit their specific needs.

Within sport teams, the team's offensive and defensive systems are designed in such a way that formal roles are clearly specified for each member. The importance of clearly established formal roles for the effectiveness of a sport team is illustrated by a quote from ice hockey great, Bobby Clarke, regarding the legendary 1970's Philadelphia Flyers:

> Everyone knew his job ... We were a big, strong team that was not very mobile, so Freddie (Coach, Fred Shero) gave us a system that would work for us... He used to say, "Give a guy a small job and make him do it very, very well". (Clarke, quoted in Swift, 1987, p. 97; cited in Carron, 1988, p. 109).

The Clarke quote suggests that members' effective performance of their formal role functions has important implications for the success of a team. To ensure the effectiveness of

the Philadelphia team, each member was assigned a specific formal role, suitable to his abilities, which made the team systems work.

Although the importance of formal roles within the structure of sport teams seems clear, it is puzzling why few studies have been conducted. The paucity of research on roles in the sport team context may be explained by the absence of a theoretical framework that encompasses roles. While role-related theories do exist in Social, Industrial, and Organizational Psychology (e.g., Bales, 1966; Biddle, 1979) they are complex, diverse, and offer few clearly testable hypotheses (Shaw & Costanzo, 1982). In fact, research on roles in team sport contexts has focused primarily on the two constructs of role clarity and role acceptance as antecedents or consequences of team cohesion (Brawley, Carron, & Widmeyer, 1987; Dawe & Carron, 1990; Grand & Carron, 1982) rather than examining role perceptions as central variables within a theoretical framework.

One psychological construct which is relevant to the concept of roles, and has been the focus of a great deal of theoretically-based research in the athletic domain, is self-efficacy (cf. Bandura, 1997). Individuals have self-efficacy beliefs about their capabilities to execute behaviors required to attain specific types of performances. The findings of numerous studies in both laboratory (e.g., Feltz, 1982; Feltz & Mugno, 1983) and field settings (e.g., Gould, Weiss, & Weinberg, 1981; Mahoney & Avener, 1977; Theodorakis, 1995; Treasure, Monson, & Lox, 1996; Watkins, Garcia, & Turek, 1994) indicate that there is a positive relationship between self-efficacy and motor performance. In addition, research has found that more successful athletes reported higher self-efficacy compared to those who are less successful (Gould, Hodge, Peterson, & Giannini, 1989).

Self-efficacy research in the athletic domain has focused primarily on individuals performing independent sport skills or motor tasks (cf. Bandura, 1997). However, members of teams may also have efficacy expectations regarding a variety of behaviors they perform which are specific to the group environment. For example, experienced members of basketball teams should have beliefs in their capabilities to perform requisite basketball skills that allow them to play the sport proficiently. In addition to these skill-related beliefs, however, team members should have different expectations regarding their ability to carry out unique, specialized, but interdependent formal role functions assigned to them within their team's offensive and defensive systems. Thus, in matters of consequence to the team, it is reasonable to assume that team members develop a sense of role efficacy (RE) with regards to their perceived capabilities to perform their interdependent formal role functions.

Members of interdependent teams (e.g., basketball, hockey) do not practice or perform in social isolation, rather, they carry out their role-related functions while interacting with their teammates. Examining members' efficacy expectations for carrying out their formal role functions affords opportunities to better understand the interaction between the group and the individual in two ways. The first is related to how an individual's sense of RE develops and how such perceptions influence the individual's own thoughts, feelings, and behavior (including perceived role performance effectiveness). The second is related to how an individual member's RE relates to important group phenomena such as cohesion and collective efficacy (i.e., perceptions which are shared among team members).

The purpose of this dissertation is to examine the concept of RE. The sections that follow describe the theoretical and conceptual aspects of RE as these beliefs are observed in members of teams as well as its operationalization. To accomplish this purpose, three studies

were conducted. In order to provide relevant background and give some perspective as to how RE is both similar to and distinct from other forms of efficacy, a brief explanation is instructive.

Efficacy Expectations in the Small Group Environment

Self-efficacy. Bandura (1997) conceptualizes self-efficacy (SE) as an individual's belief in his/her capabilities to organize and execute courses of action that are required to produce given attainments. Self-efficacy beliefs are developed through personal experience, imaginal experience, verbal persuasion, vicarious experiences, and the experiences of physiological and emotional states (Bandura, 1997; Maddux, 1995). In Self-efficacy theory (SET), Bandura (1997)has suggested that SE plays an important role in determining peoples' choice of activities (i.e., how easy/how difficult) and how much effort and persistence they are willing to put forth. Individuals who have high SE have been found to exert more effort and be more persistent, even in the presence of barriers or when faced with failure, while the less efficacious give up easily and demonstrate little tenacity (Bandura, 1997; Wood & Bandura, 1989). The positive relationships between SE and an individual's choice of activity, effort, persistence, and performance have been consistently documented across a wide variety of behavioral and performance contexts including sport and exercise (cf. Bandura, 1986; 1997; Feltz & Chase, 1998; Maddux, Brawley, & Boykin, 1995; Schunk, 1995).

Research in the area of SE focuses on the individual and his/her perceptions of personal abilities. However, the fact that most individual behavior occurs within settings that are influenced by social factors is often overlooked (Gecas, 1989). Indeed, as Zaccaro, Blair, Peterson, and Zazanis (1995) recently suggested "a full understanding of how perceived competence contributes to individual action requires recognition of its social component"

(Zaccaro et al. 1995, p. 306). Social environments can range from minimal situations consisting of a single observer or co-actor to a highly coordinated team environment characterized by continuous interaction among several individuals (e.g., an orchestra or a basketball team). In interactive team environments, members perform concerted tasks that require the execution of individual task skills as well as social processes (i.e., teamwork) to produce team outcomes.

Task and social self-efficacy. Zaccaro et al. (1995) have suggested that in the group environment, SE has two foci: task SE and social SE. Task self-efficacy refers to individual members' efficacy in their personal resources and is directly comparable to Bandura's (1977; 1986) original notion of SE. However, Zaccaro (1996) conceptualized social SE as distinct from task SE in that it is an individual's belief "that he or she can help other team members, or the team as a whole, accomplish collective goals" (Zaccaro, 1996, p. 8). Perceptions of social SE are concerned with one's capabilities to influence the content and patterns of communication, interaction, and overall coordination among fellow group members. An individual's social SE is proposed to be related to, but distinct from perceptions of his/her physical task resources (Zaccaro, 1996). The distinction between task SE and social SE has been supported by research (Zaccaro, Zazanis, Diana, & Greathouse, 1994; cited in Zaccaro, 1996) which demonstrated that measures of social SE and task SE were moderately correlated with each other, but were independent predictors of collective efficacy, individual performance, and team performance.

Collective efficacy. Within interdependent teams, the concept of collective efficacy (CE) is distinct from various forms of SE in that it refers to team members' shared perceptions of the team's confidence in its collective ability to perform group tasks (Bandura,

1997; Lindsley, Brass, & Thomas, 1995; Zaccaro et al. 1995). Like SE, CE is hypothesized to influence the choice of group activities, amount of effort exerted by the group, and group persistence in the face of failure (Bandura, 1986; 1997). Recent research on CE (Dorsch, 1997; Paskevich, Brawley, Dorsch, & Widmeyer, in press; Prussia & Kinicki, 1996; Watson & Chemers, 1998) suggests that members' shared perceptions of the group's capabilities are positively related to group performance.

Role Efficacy: A Necessary Construct

There are various aspects of SE (task, social) and group-related efficacy (CE) that have been identified and investigated. However, the complexity of a group offers a variety of social experiences to its members. Given the specific nature of efficacy beliefs, a reasonable question is whether the efficacy constructs discussed thus far can adequately represent integrated functions that individual members perform for the group as part of their formal role. These functions represent the integration of individual skills into specific functions characterized by interdependency between selected players and, thus, are more than the skills alone. As well, they are less than the integration of the interactions of the entire group as a whole (i.e., CE). Formal role functions involve interactions with other members and are necessary social and task operations that the group depends upon for its overall effectiveness (Carron & Hausenblas, 1998). Efficacy beliefs about these unique interdependent functions have gone unexamined in social and sport psychology. However, to adequately understand whether such beliefs are unique from others already described and have independent influences on behavior within the group, the construct of RE must be developed and measured.

Formal Roles and the Distinctiveness of Role Efficacy

As mentioned previously, roles are important elements in the structure of small groups (e.g., sport teams). Because both informal and formal roles exist within groups (Mabry & Barnes, 1980) it is possible that members have beliefs regarding their capabilities to perform informal and formal role functions. However, within highly motivated, performance-oriented groups such as athletic teams, members' formal performance roles are those that encompass specific, task-related behaviors which are critical to the effective organization and potential effectiveness of a team. As Carron and Hausenblas (1998) noted: "roles are so important to the success of a group that individuals are either trained or recruited to fill them" (Carron & Hausenblas, 1998, p. 157). Role efficacy in the present context refers exclusively to members' formal performance roles and associated role functions and not those associated with informal roles.

In SET (Bandura, 1986; 1997) the appropriate measurement of individual efficacy requires correspondence between abilities in which an individual has confidence and the actual behaviors observed as a dependent variable. With regard to examining SE, Bandura (1997) recently suggested:

> The optimal level of generality at which self-efficacy is assessed varies depending on what one seeks to predict and the degree of foreknowledge of the situational demands. ... in testing theoretical propositions about the processes through which efficacy beliefs affect particular courses of action, one must examine microrelations at the level of particular activities (p. 49).

Thus, in order to operationalize efficacy expectations appropriately with reference to a specific behavior, or set of behaviors, it is important to identify not only the tasks an

individual performs, but also, the level of action at which the individual perceives his/her behavior occurring. For example, the driver of an automobile may have confidence in his/her ability to perform the requisite skills of driving such as turning the key, shifting the transmission, and pressing the accelerator. However, driving efficacy is not represented by such beliefs. Rather, driving efficacy pertains to a driver's perceptions of his/her ability to perform the integrated skills of navigating a car through narrow streets, merging with converging traffic, etc., at varying speeds (cf. Bandura, 1997). Alternatively, consider the gymnastics performer who may be capable of performing independent skills such as handsprings, round-offs, and cartwheels, but when asked to perform these skills in concert as a routine, has difficulty combining and coordinating the skills into an integrated package.

Similarly, in elite, interdependent, team sports such as hockey and basketball, team members perform a wide variety of task-related skills. It is expected that all members are proficient at most basic task-related skills while being exceptional at a few. For example, elite basketball players' abilities to pass the ball, dribble, and shoot the ball from various ranges are parts of each athlete's omnibus ability as a player performing at an elite level. However, each player's primary role functions consist of a complex variety of skills that are related to team strategies, tactics, and personnel characteristics that go beyond the level of basic skills. Specifically, players are selected to different positions and assigned different formal role functions on the basis of (a) the needs of the team's systems, (b) the player's exceptional abilities, and (c) the ability of players to perform essential functions within the team's systems. As a result, certain combinations of skills may be more important for some members and less so for others, depending on their primary role functions. To use the sport of basketball as an example, one of a point guard's primary role functions may be to recognize

the opponent's defense and set up an appropriate offense. Successful execution of this interdependent function involves a complex combination of both task and social-integrative behaviors that are specific to this player's formal role.

Thus, when asked about his/her formal role, its functions, and his/her personal capabilities at performing these, a team members' salient efficacy beliefs may relate more to his/her ability to execute specialized interdependent role functions than his/her ability to perform various sport-specific skills independent of team play. In this conceptualization, RE is a unique form of SE commonly held by players on teams where individuals have well defined or assigned formal performance roles.

The Specificity of Role Efficacy

It is proposed that, in team environments, members have beliefs about their RE, that is, confidence in their capabilities to carry out unique, specialized functions that are characterized by interdependency with teammates and that constitute their formal role on their team. Because role functions are, in part, comprised of combinations of task skills, RE may be related to basic aspects of task SE. However, the strength of these relationships should be determined by the extent to which basic, individual task-related capabilities correspond to role functions. For example, a basketball player may be highly efficacious in his/her ability to perform the basic skills of dribbling the ball, passing accurately, and shooting from various ranges. However, if the player's role prescribes him/her to be a point guard who coordinates the offensive plays of the team, his/her RE may be only related to those basic task skills that comprise the primary interdependent role functions s/he performs -- which, in this case, would be the interdependent actions of directing teammates' positioning and passing the ball appropriately. Members may have SE perceptions with regards to a vast complement of task-

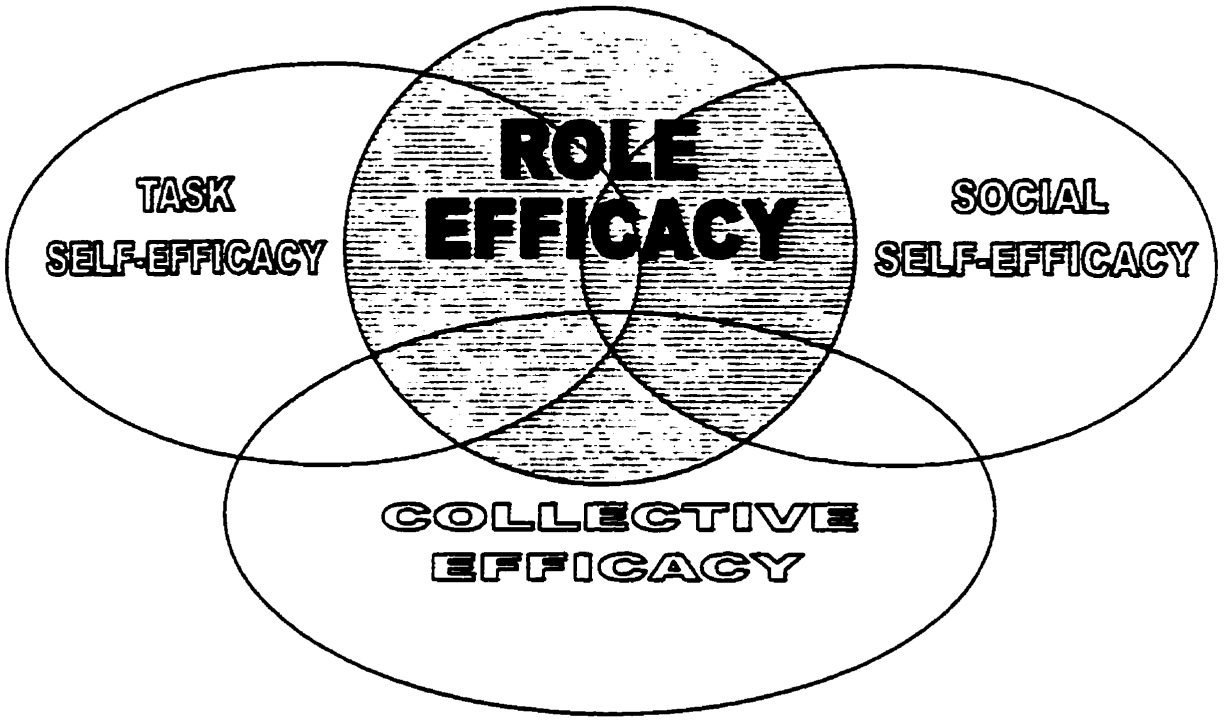
related behaviors, but, if these behaviors are not consistent with formal role functions that are characterized by team member interdependency then they are not behaviors that should be conceptualized and assessed as RE.

Relation of Role Efficacy to Group Phenomena

Although RE is a form of individual efficacy, it occurs within a team environment and is not completely independent of social phenomena that characterize the team such as the amount of cohesiveness present or the group's belief in its collective capabilities. Within interactive sport teams, individual players may not be able to carry out their role functions effectively unless the team also functions effectively as a concerted unit. For example, in basketball or hockey, a zone defense operates on the principle that each and every player must successfully carry out his/her primary role functions and the team must work as a concerted unit overall. If one player fails to perform his/her functions, which by definition requires integration with those of other players, the system breaks down. In Figure 1, a Venn diagram is used to illustrate the proposed relationships among task SE, social SE, CE, and RE.

The cohesiveness of a team may also have an effect on the RE of its members. For example, the extent to which teammates believe they are united in their task-related efforts could potentially influence members' perceptions of their role capabilities. Highly cohesive units characterized by effective integration would encourage confident role performance while teams with lesser perceptions of unity are more likely to host members lacking confidence to execute their integrative responsibilities (Bandura, 1997).

Figure 1. Venn Diagram Depicting the Hypothesized Interrelationships Between Role Efficacy, Task Self-efficacy, Social Self-efficacy, and Collective Efficacy



The Measurement of Role Efficacy

Attempting to conceptually clarify and measure a new construct such as RE should be approached cautiously, heeding the lessons learned in the development of both SE and CE. For example, early research on SE was plagued with the confounding of efficacy expectations with outcome expectancies (cf. Bandura, 1986; 1997; Maddux, 1995). In addition, despite clear recommendations on proper measurement of SE (Bandura, 1977; 1986), a host of methodologies have been employed to measure the construct (cf. Feltz & Chase, 1998; Lee & Bobko, 1994; McAuley & Mihalko, 1998). Furthermore, despite the fact that CE was initially

conceived of in the early 1980's (Bandura, 1982) the conceptualization of CE as an emergent group perception that is shared by members is a relatively new development and developers have heeded the cautions necessary for such development (Bandura, 1997; Lindsley, et al., 1995; Zaccaro et al., 1995). The measurement of the RE concept requires no less attention.

With the aforementioned methodological cautions in mind, three studies were conducted in order to investigate the validity and reliability of the RE construct. Cook and Campbell (1979) have suggested that before construct validity concerns can be addressed, careful conceptual and operational definition links must be established such that definitions are clear and the construct is both salient and understandable. Thus, in Study One an instrument was designed to measure RE and determine whether RE is a salient, independent perception that exists among members of interdependent teams. Role efficacy was also examined with respect to its divergent validity by relating it to CE which is a conceptually distinct, but potentially related, group-based construct. To conclude the initial investigation, a potential moderating variable of RE, team members' starting status, was examined.

A second, logical step in the careful development of a new construct and associated measures involves fulfillment of three important objectives: (a) refining initial measures, (b) examining the reliability of previous findings with a larger sample, and (c) investigating the relationships between the new measure and other distinct or potentially related constructs. Thus, Study Two was conducted to pursue each of these ends. Also, in order to examine RE within the framework of SET (Bandura, 1997), the relationship between RE and role-related behavior (i.e., perceived role performance effectiveness) was assessed.

In Study Three, a sequential process of testing reliability and construct validation continued. A prospective, longitudinal design and hypotheses based on social cognitive

theory (Bandura, 1986) were used to examine the predictive relationships between RE and perceived role performance effectiveness. Also, to extend investigation of RE beyond the descriptive level of research to Level Two (i.e., moderators) and Level Three (i.e., mediators) research questions (Christina, 1987), the potential moderation of RE by group processes (i.e., CE, group task cohesion) and the mediational role of RE in the task SE – perceived role performance effectiveness relationship were examined.

STUDY ONE

Role Efficacy: Construct and Measure Development

Role efficacy is a newly defined construct, therefore investigating its validity was a primary concern in this study. However, before validity concerns could be addressed, it was necessary to establish a careful link between the constitutive definition and operational definition of RE (Cook & Campbell, 1979). The measurement of RE involved having formal role occupants participate as active agents in the process of identifying specific formal role functions and determining whether efficacy to perform role functions was a salient perception among members of interdependent groups. Validity of the RE construct was examined from three independent approaches. First, divergent validity of RE from the conceptually distinct perception of CE was tested. Second, the extent to which RE represented an independent perception was investigated. Third, a potential moderator of RE, team members' playing status was examined. The steps taken to measure RE and examine construct validity are detailed below.

As stated previously, the first step in examining RE was to construct and examine an instrument designed to measure the RE construct employing a strict conceptual – operational definition link. Specifically, the goal was to determine if members of intact, interactively dependent teams perceive their individual contribution to team play in terms of the specialized interdependent role functions they perform within offensive and defensive team systems. It was hypothesized that if it was possible for members to identify the role functions they perform, then it is also conceivable that they should have some degree of confidence in their ability to effectively carry out each of these functions. Thus, the measurement of RE involved group members providing an open-ended description of the specific functions they performed

during competitive play and their corresponding confidence in their abilities to perform each function.

The second purpose of this study was to begin a sequential process of examining the construct validity of RE. The first relationship investigated was that between members' RE and the conceptually separate group perception of CE. It is probable that CE and RE are related because team members' formal role functions are prescribed by their team and successful team performance may depend largely upon successful role performance. As Bandura (1997) has suggested: "In appraising their personal efficacy, individuals inevitably consider group processes that enhance or hinder their efforts" (Bandura, 1997, p. 478). Thus, for example, in the sport of basketball, one of the functions of a guard-forward or swingman is to shoot from inside the three-point line. However, if the team is ineffective at passing, its CE for passing the ball should be weak. As a result, this player's confidence to perform this specific function may be affected because the pass won't be there for her/him.

For groups characterized by simultaneous interdependent action among members, RE and CE should be somewhat interrelated. Previous research in Organizational Psychology (e.g., Jex & Gudanowski, 1992; Riggs & Knight, 1994) has found positive but modest relationships between SE and CE, however, RE, specifically was not examined in these studies. Conceptually, it is important to recognize that CE is a group-level perception of collective capabilities while RE is conceptualized as an individual-level perception. Therefore, the two constructs may not be directly comparable. It was hypothesized that CE and RE are positively related, but are distinct perceptions. Thus, correlations between CE and RE should be weak to moderate.

Role efficacy was also examined with regards to the degree to which the construct is representative of an independent (i.e., individual-level) and/or interdependent (i.e., group-level) perception. Several authors (e.g., Kenny and LaVoie, 1985) have suggested that when non-independent data (e.g., subjects within groups) are examined, both group-level and individual-level effects may exist. The simultaneous study of the group and the individual can be regarded as an exercise in construct validity (Cronbach & Meehl, 1955). Thus, if a construct such as RE which is conceptualized as an independent perception demonstrates individual-level variance, evidence of construct validity is gained.

The extent to which perceptions reflect individual or group-level variation can be assessed by calculating intraclass correlations (ICC) in a "nested" ANOVA design (Kenny & LaVoie, 1985). The ICC indicates the extent to which people within the same group are more or less similar with respect to a specific variable than are people who are members of different groups. Although ICCs can range from $\underline{r} = -1$ to $\underline{r} = +1$ the typical range is between zero and one (Kenny & LaVoie, 1985). If an ICC is one, people within a group share the same score on a specific measure and a strong group effect exists. The closer the ICC is to zero, the less similar and independent scores are (Florin, Giamartino, Kenny, & Wandersman, 1990).

It is noteworthy that Kenny and LaVoie (1985) suggest that the significance level of the ICC is not as important as the magnitude of the correlation (i.e., significance levels may be set as liberally as $\underline{p} = .25$ to indicate group-level effects; Myers, 1972). Variables that demonstrate large, positive intra-class correlations greater than $\underline{r} = .50$ should be interpreted as having mainly group-level characteristics, while non-significant ICCs closer to $\underline{r} = .00$ should be interpreted as representing individual-level effects only (Kenny & LaVoie, 1985). Role efficacy refers to individual members' perceptions of their capabilities to carry out

interdependent role functions. Therefore, it was hypothesized that ICCs for RE should be weak and non-significant which would indicate an individual-level effect.

When examining player roles and integrative team systems, consideration must be given to the fact that members 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. Players are usually selected to the starting line-up on the basis of their ability to fulfill major functions within their team systems. Although they are likely to have solid capabilities, non-starters' abilities may not match the functions required by their team's primary offensive and defensive systems as well as those of starting players'. In addition, non-starting players may practice their competitive role functions less often (e.g., running 'dummy' oppositions in practice) and play fewer game minutes than starting players.

According to SET (Bandura, 1986; 1997), an individual's SE is primarily determined by direct mastery experience -- the greater the individual's enactive attainments, the greater his/her SE. As a result of the "back-up" nature of their roles, non-starters essentially gain less experience in executing their role functions in games and, possibly, less experience than starters in systematic practice of their roles in training. Therefore, non-starting team members whose status precludes them from having as many opportunities to experience their role functions directly are predicted to have lower RE than starting members who perform their role functions more often. Unlike an individual member's RE perceptions, CE perceptions are based upon, and measured, concerning the abilities of the group as a whole. Thus, it was also hypothesized that members who perform role functions more frequently do not differ

from those who have fewer opportunities to execute their role functions with regard to perceptions of CE.

Method

Participants

Participants were 52 university varsity basketball players representing five women's teams (n = 38) and one men's team (n = 14) from the Ontario Universities Athletic Association (OUAA). Players had a mean age of 20.85 years (SD =1.42) and had been members of their present team for an average of 2.14 seasons (SD =1.14). Twenty-two players were starters, 23 were non-starters, and seven were practice players.

Eliciting Role Functions

Since RE is a newly conceived construct, no measures presently exist for its measurement. In SE research, where all participants are performing the same task/behavior it is methodologically and psychometrically practical to construct an inventory of efficacy items that is generally representative of the behavior. However, as elaborated upon earlier, RE refers to interdependent role functions that may vary greatly from player to player on the same team and from team to team as well, regardless of the position occupied. In recognition of the variability that could exist across role functions, an orientation of respondents towards their specific role functions was required before their corresponding RE could be assessed.

While the measurement of RE may not lend itself well to an inventory of items such as those which are typically utilized to assess SE, RE may be more appropriately measured utilizing an active agents approach (Sherif, & Sherif, 1969). As active agents, the role-players, themselves, can identify what their primary role functions are and report their efficacy to successfully perform each function. Such an approach consists of a methodology

similar to the measurement of causal attributions. In the attribution literature, efforts were made to construct instruments such as the Causal Dimension Scale (CDS, Russell, 1982; CDS-II, McAuley, Duncan, & Russell, 1992). The CDS and CDS-II were designed in order to avoid what has been termed "the fundamental attribution researcher error" (i.e., making the assumption that the researcher perceives causes in the same way as does the respondent). Embracing an active agents approach to the measurement of RE allows players to identify their specific role functions and corresponding RE rather than rating their efficacy to perform predetermined skills or behaviors that may not correspond exactly to their actual role functions.

The RE questionnaire provided a brief definition of the term role. Recall that roles in this study refer to formal, task performance roles that are related to the team's offensive and defensive systems in contrast to informal roles which may develop as a result of interpersonal interaction. Therefore, a definition of role based on a role theorist's conceptualization of formal roles (Biddle, 1979) was deemed most appropriate for the conceptual aspect of role being examined in this study. Thus, the following passage introduced role: "A role consists of a set of expectations for your behavior (i.e., your job(s) within the team). Each player has a role that is their own, and each role has certain, specific functions associated with it." Once the concept of role had been introduced, participants continued on to complete the RE and CE questionnaires.

Measures

Role efficacy. Players were instructed to indicate, in an open-ended format, what their major role functions were for both offensive and defensive play. Specifically, athletes were encouraged to indicate at least three and as many as five functions for each of: (a) offensive

functions they were most confident performing, (b) offensive functions they were least confident performing, (c) defensive functions they were most confident performing, (d) defensive functions they were least confident performing. Setting an overall minimum limit of six functions for each of offense and defense was suggested by expert basketball coaches as this was thought to be an "average" number of role functions players would be expected to perform on offense and defense. The strategy of asking athletes to list functions they were (a) most confident and (b) least confident in performing was taken in order to encourage athletes to report a broad range of functions instead of a few functions that might first come to mind. In order to help athletes provide realistic and straightforward responses, they were also instructed to describe each function using language that other players or coaches at their level would typically use.

For each of the functions listed, players rated their confidence in their ability to perform the function on scales anchored by 0% (not at all confident), 50% (somewhat confident) and 100% (extremely confident). The mean of the player's specific multiple-item defensive RE scale and the mean of the player's specific multiple-item offensive RE scale formed the RE defense (REDEF) and RE offense (REOFF) scores, respectively.

To give an example of the unique, individualized nature of role functions and RE, consider an individual who carries out the role of point guard on a basketball team. The point guard reports that "a, b, c, and d" were his/her specific role functions on offense and "x, y, and z" were his/her specific role functions on defense. For this player, defensive RE (REDEF) is represented by the mean of his/her efficacy scores to perform functions "x, y, and z", and offensive RE (REOFF) by the mean of his/her efficacy scores to perform functions "a, b, c, and d".

Collective efficacy. The origins of CE can be traced back to Bandura's (1982) reference to "gauging groups' perceptions of their efficacy to achieve varying levels of results" (Bandura, 1982, p. 144) which could be interpreted and operationalized in a variety of ways (cf. Lindsley, et al., 1995). However, more recently, Zaccaro et al. (1995) and Bandura (1997) have advocated a conceptualization of CE as perceptions shared among group members with regard to the group's abilities in response to situational demands. Numerous authors (e.g., Bandura, 1997; Lindsley et al., 1995; Zaccaro et al., 1995) have suggested an approach to measuring CE that emphasizes using individuals as informants to estimate the group's collective efficacy. Thus, following the specific recommendations of Lindsley et al. (1995), a second questionnaire was designed to assess CE for offensive and defensive skills.

The items included in the CE questionnaire were adapted from a CE inventory which had been designed for research with 3-on-3 basketball teams (Paskevich, Dorsch, Brawley, & Widmeyer, 1994). Several modifications were made to the original questionnaire in order to be relevant to the 5-on-5 game. As per the original Paskevich et al. (1994) protocol, modifications to the instrument, applicable to full teams, were based on recommendations of expert varsity basketball coaches. Therefore, the content reflected on the subscales of the instrument was assumed to have strong face validity. The CE questionnaire consisted of 19 items representing two subscales: offensive team skills (10 items); and defensive team skills (9 items). Offensive team skills consisted of items related to passing accurately, handling the ball against defensive pressure, and playing an inside game. Defensive skills included items related to playing a zone defense, defending perimeter attacks, and defending against screens and picks. Players rated their perceptions of their team's confidence in the team's ability to perform each team function on scales anchored by 0% (not at all confident), 50% (somewhat

confident), and 100% (extremely confident). A representative item from these two scales is: "Our team's confidence in our team's overall ability to pass the ball accurately is ___%". The mean of the 10 offense-related items and the mean of the 9 defense-related items formed the CE offense (CEOFF) and CE defense (CEDEF) scores, respectively.

Procedure

The head coaches of the eight men's and eight women's basketball teams competing in the OUAA Western Division were contacted with regards to participating in a study examining "player's role perceptions and team confidence in basketball" four weeks prior to the completion of the 1996-1997 competitive season. Five of the original 16 teams agreed to participate in the research project. Because only two of the five teams who volunteered to participate in the study were located near the investigator's municipality, a protocol was instituted for all other teams where measures were mailed to an agreed upon team representative who administered the questionnaire to players and coaches. The protocol consisted of the investigator forwarding a package containing (a) 16 players' questionnaires, (b) one coaches' questionnaire, (c) players' instructions for completing the questionnaire, and (d) instructions for the administration and return of questionnaires to the team's head coach. Each head coach recruited a volunteer from his/her managerial staff to administer questionnaires to the players. Completed questionnaire packages were returned by inter-university mail or courier. For those teams in the investigator's locale, questionnaires were administered by the investigator using a procedure identical to that for all other teams.

For the administration of the questionnaires, a team representative was provided with a questionnaire administration instruction sheet (See Appendix A) that was read to all participants before questionnaires were distributed. Team representatives were instructed to

administer the questionnaire at a convenient team meeting or practice that was neither immediately before nor after a competition in order to avoid competition specific biases in responses. The importance of independent responses was stressed in instructions at the time of administration. Participants were required to complete their questionnaires on their own and without conversation with teammates.

Confidentiality of participants' responses was ensured by providing each player with his/her own coded envelope in which s/he enclosed and sealed the completed questionnaires. Thus, confidentiality from the team manager, coach, and other players was achieved. All questionnaires took approximately 10 – 15 minutes to complete. In order to facilitate return, teams who had not returned their questionnaires by one-week past the target week were contacted by telephone or electronic mail reminder. The return after this prompt was rapid in all cases.

The questionnaires were completed during a one-week target period approximately three weeks prior to the completion of the teams' regular competitive season (i.e., after approximately 10 weeks of pre-season practice and competition and 12 weeks of regular practice and league competition). The elapsed time (i.e., six months) and team activity (i.e., approximately 12 league and 8 pre-season games had been played) before the data collection was thought to allow for (a) individual roles and functions for competitive play to be well established for players and (b) RE and CE beliefs to develop with respect to the athletes' and teams' current season of play. The report of initial levels of efficacy, for example, is often biased until experience is gained (cf. McAuley & Mihalko, 1998).

Results

Internal Consistency

Internal consistencies of the CEOFF and CEDEF scales were computed. The resulting Cronbach's alphas were acceptable (i.e., .81 and .87 for the CE-defense and CE-offense scales, respectively).

Descriptive Statistics and Correlations

Athletes identified numerous role functions for offensive and defensive play. Specifically, players listed an average of 5.69 (SD = 1.93) role functions for defense and 6.38 (SD = 2.45) role functions for offense. Descriptive statistics for RE and CE are reported in Table 1. Perceptions of CE were moderately high for both offense (M = 71.21%, SD = 9.7) and defense (M = 71.44%, SD = 8.4). Role efficacy was also moderately high, but slightly lower than CE (M = 65.87%, SD = 11.4 and M = 66.84%, SD = 11.1 for offensive and defensive functions, respectively). The moderately high CE and RE scores were anticipated due to the elite level of play at which the athletes participated.

Correlations between RE and CE measures are presented in Table 2. CEOFF and CEDEF were strongly related (r = .69, p < .01), as were REOFF and REDEF (r = .70, p < .01) indicating players' perceptions of their team's CE and their personal RE were similar, but distinct for both offensive and defensive play. However, correlations between CE and RE variables ranged from r = .06 (p > .05) for REOFF – CEDEF to r = .21 (p >.05) for REDEF – CEOFF supporting the hypothesis that RE and CE were distinct perceptions.

Table 1

Descriptive Statistics for Role Efficacy and Collective Efficacy Measures

Measure	M	SD
REOFF	65.87	11.38
REDEF	66.84	11.14
CEOFF	71.21	9.72
CEDEF	71.44	8.40

Note. N=52

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

Table 2

Pearson Correlations Between Role Efficacy and Collective Efficacy Measures

Measure	1	2	3	4
1. REOFF	--	.70**	.14	.06
2. REDEF		--	.21	.18
3. CEOFF			--	.69**
4. CEDEF				--

Note. N=52,
* $p < .05$, ** $p < .01$

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

Individual-level Analysis of RE

Intraclass correlations were calculated for role efficacy (offensive and defensive functions) using the LEVELS of analysis procedure (Kenny & LaVoie, 1985). Recall that ICCs demonstrate the extent to which scores of people within the same group are more or less similar with respect to a specific variable. The ICC's, associated F-ratios and p-values for each of the role efficacy scales are presented in Table 3. ICCs were positive and weak for both REOFF ($r = .11$) and REDEF ($r = .13$). These findings indicate that RE was an independent perception among players in this sample.

Potential Moderator Analyses: Player Starting Status

Descriptive statistics comparing CE and RE for starting players and non-starters are reported in Table 4. As hypothesized, players' collective efficacy for offense and defense did not differ according to starting status on their team. Although CE scores of non-starters were slightly higher than those of starting players, these differences were not significant ($p > .05$). However, because RE is theoretically based upon the direct experiences of individual players, it was hypothesized that there should be variability in RE relative to their starting status. Analysis of variance (ANOVA) indicated starting players had higher RE than non-starters for both offensive ($F(1, 44) = 7.24$, $p = .01$) and defensive ($F(1,44) = 15.20$, $p < .0001$) functions, thus, providing support for this hypothesis as well.

In order to examine players' status relative to their perceptions of RE and CE more thoroughly, a discriminant function analysis (DFA) was performed as a secondary analysis. Results from the DFA revealed that one function significantly discriminated starting players from non-starters (Wilks' Lambda = .695, ChiSq = 13.84, $p < .01$). The complete discriminant function for CE and RE variables correctly classified 74% of the athletes, as

Table 3

Intraclass Correlations for Role Efficacy Measures

Measure	Intraclass r	F-ratio	p-value
REOFF	.11	2.17	.09
REDEF	.13	2.38	.07

Note. N teams = 5, N individuals = 52

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense

Table 4

Means and Standard Deviations for Role Efficacy and Collective Efficacy by Starting Status

	Starters		Non-starters			
Variable	M	SD	M	SD	F	p
REOFF	69.51	8.82	62.60	7.64	7.24	.01
REDEF	73.68	7.61	63.56	8.40	15.20	.01
CEOFF	70.12	8.83	71.23	9.36	.16	ns
CEDEF	70.95	7.42	70.60	7.92	.02	ns

Note. Starting players n = 22, non-starting players n = 23

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

reported in Table 5. However, post-hoc univariate F tests indicated that only the REOFF and REDEF variables contributed significantly to the discriminant function while CE variables were not significant (See Table B1 in Appendix B).

Table 5

Summary of Discriminant Function Analysis of Role Efficacy and Collective Efficacy

		Predicted group membership	
	Status	Starting player	Non-starting player
Original count	Starting player	17	5
	Non-starting player	7	16
Percent	Starting player	77.3	22.7
	Non-starting player	30.4	69.6

Note. N = 45, 73.8 percent of cases correctly classified

Discussion

The purpose of the present study was to examine a group-related efficacy construct, RE, within intercollegiate basketball teams. Because RE was a newly defined construct, the initial goal was to attempt to measure it accurately and then to determine its preliminary validity.

On average, basketball players reported 5.7 role functions for their defensive play and 6.4 functions for offense. These findings indicated that team members could specifically state the functions they performed during competitive play in more than a general fashion. It is noteworthy that players were motivated to provide this much detail about functions central to their role when using an open-ended response strategy. Players also reported a specific strength (i.e., percentage) of efficacy to carry out each of the role functions they had listed for competitive play.

These preliminary results indicated that players perceived (a) their formal roles consisted of specific functions that they performed during offensive and defensive play, and (b) confidence in their abilities to perform each role function at this elite level of skill. Taken together, findings suggest that role efficacy is a construct that can be measured and has more than one dimension (i.e., offense and defense). Some additional analyses were also supportive of the construct validity of RE.

Role Efficacy and Collective Efficacy

It was hypothesized that players' RE should be positively related to their perceptions of their team's CE. This hypothesis was based on (a) Bandura's (1997) assertion that on interactively dependent teams, perceptions of personal efficacy are dependent upon consideration of the capabilities of the group and (b) previous research (e.g., Riggs & Knight,

1994) that has found positive correlations between SE and CE. Correlations between RE and CE were not significant, indicating not only that RE and CE are distinct efficacy perceptions but that, contrary to Bandura's (1997) hypotheses, individual perceptions of interdependent role-related capabilities may not be influenced by or related to the perceived capabilities of their group.

Role Efficacy: An Independent Perception

Role efficacy is conceptualized as an individual player's independent perception and not a shared perception among teammates. Therefore, it was hypothesized that intraclass correlations would be weak and non-significant. Results indicated that ICC's for REOFF and REDEF were weak and close to zero, which represents a primarily independent perception (Kenny & LaVoie, 1985). Thus, although role efficacy may be a perception that forms within a group, results suggest that RE is not a group perception. Moreover, the individual-level variation exhibited by RE lends support to the validity of the construct (Cronbach & Meehl, 1955).

Player Starting Status as a Moderator of Role Efficacy

Examination of RE from the perspectives of starting and non-starting players also provided some initial support for the theoretical validity of RE. Bandura (1986) suggested that perceptions of personal efficacy are primarily determined by mastery experiences within a specific domain. Thus, RE was hypothesized to differ according to players' starting status because starting status dictates the amount of direct experience a player gains during competition (i.e., starting players play more than non-starters). Results indicated that starting players' RE for offense and defense was greater than non-starters'. As well, discriminant function analysis revealed that 74% of starting and non-starting players were correctly

classified on the basis of their RE scores for offense and defense with follow-up tests showing hypothesized differences. These findings offer initial support for the idea that RE, like other forms of efficacy, is determined by direct mastery experiences.

It was also hypothesized that starters and non-starters would not differ with regards to their perceptions of their team's CE. Bandura (1997) and Zaccaro et al. (1995) have suggested that CE beliefs represents confidence in the group's capabilities as shared by team members. Indeed, findings revealed that unlike the observed differences in RE between starters and non-starters, the perceptions of CE reported by all team members were at the same level. These results also lend some preliminary support to the uniqueness of RE perceptions.

Limitations and Caveats of the Measurement of Role Efficacy

The elicitation of role functions and corresponding RE yielded very detailed descriptions of individual player's roles. However, the open-ended nature of the RE instrument had some inherent limitations. The primary difficulty resided in the fact that because players were instructed to list at least six and as many as ten role functions for both offensive and defensive play, a considerable range in the number of responses provided was obtained. As a result of the unequal number of role functions reported by players, a standard set of questionnaire items for the REDEF and REOFF measures were not available for psychometric analysis.

However, in order to obtain a rough estimate of the psychometrics of the RE scales for future modifications to the RE instrument, a preliminary examination of the RE scales was conducted post-hoc. The mean number of role functions reported by athletes were 5.69 (SD = 1.93) and 6.38 (SD = 2.45) for REDEF and REOFF respectively. A closer examination of the

data revealed that fewer than eighty percent of the players were unable to provide more than four role functions for either offense or defense. Therefore, in order to preserve the population of the sample for analysis purposes, modified scales were constructed consisting of the first four role efficacy items listed by each player for each of offensive and defensive functions. Reliabilities (i.e., Cronbach's alpha; Cronbach, 1951) of the modified RE-offense and RE-defense scales were .59 and .73, respectively, demonstrating marginally acceptable internal consistencies (Nunnally, 1978).

Because no two teams have the same personnel occupying the same positions and roles, players' role functions may differ entirely on an individual basis. Thus, a standard set of RE items that would correspond with every player's primary role functions would be difficult to construct. However, these results indicated that a salient representation of role functions and efficacy to perform these functions can be derived from role occupant's open-ended descriptions. Furthermore, adjusting the number of role functions to four for each of offense and defense allowed internal consistency coefficients to be calculated for both REOFF and REDEF scales. Although rough estimates of internal consistency for scales of this kind, Cronbach alphas indicated that a standard number of RE items (i.e., 4) representing their most important role functions could potentially yield a psychometrically reliable measure of RE in future research.

It could also be argued that in the initial RE questionnaire, the examples given in order to prompt athletes towards thinking about their role functions may have focused them on both independent and interdependent functions. This possibility raises a concern about the aggregation of both independent and interdependent responses and which responses had a greater influence on the overall aggregate score. In this initial attempt to measure RE,

because participants were knowledgeable about the exploratory nature of the study, they may have been acting as "good subjects" in providing as many functions as possible. However, in reviewing the responses listed, it was discovered that more responses referred to independent than interdependent functions. Obviously, this suggests that a different tactic should be considered in future studies with regards to both the instructions used to elicit players' responses and the aggregation of responses. There is little doubt that participants were more than willing to provide a rich description of both independent and interdependent role functions in this study which is, perhaps, not unexpected in an exploratory study using this type of elicitation approach. Taking these factors into consideration, one of the goals of Study Two was to improve the instrument and elicitation procedure in order to help prompt athletes to list primary interdependent functions rather than also listing basic skills that are performed independently.

Summary and Conclusion

The results of Study One provided encouraging evidence supporting the measurement and preliminary construct validity of RE. Foremost, players in the interactively dependent sport of basketball reported a level of confidence in their ability to perform numerous specific behaviors they identified as their role functions for offensive and defensive play.

Role efficacy was not significantly related to players' perceptions of the team's CE which supported the conceptualized distinctiveness of these perceptions. Not only was RE distinct from the team perception of CE, it was found to exhibit individual-level properties reflected by the magnitude of intra-class correlations (i.e.,$< \underline{r} = .15$). In addition, players of differing starting status reported significantly different levels of RE and were successfully discriminated from one another on the basis of their RE scores.

Taken together, the results of Study One suggest that RE is a common perception among team members in an interdependent group environment. Given the fact that efficacy expectations are proposed to influence the choice of activities, effort expenditure, and persistence in the face of difficulties (Bandura, 1986; 1997), the potential importance of these behavioral consequences for both individual and team performance argue for further investigation of RE in the team sport context.

The dynamic group environment, offered by a competitive sport team is characterized by interdependence among group members. This interdependence was proposed to contribute to the formation of perceptions of mastery and capability that are distinctive from the perceptions of capabilities an individual experiences when s/he is not a member of a group. In a group environment, mastery experiences – the direct determinants of efficacy expectations – are defined by how members interact; and RE by how well the group, as a whole, and individuals, as integrated members, perform. Thus, the group environment offers a unique opportunity to study perceptions of individual capabilities. Moreover, because the bulk of evidence surrounding efficacy expectations (Bandura, 1997) focuses on the individual and what it does for hi/her motivation, etc., there is relatively little research that has explored other dimensions of an individual's efficacy expectations within a group. This study was a first step in this direction.

Given the fact that a good deal of human functioning occurs in groups, it seems important to investigate the unique perception of RE in relation to both group dynamics and individual efficacy determinants. Therefore, the examination of (a) individual members' role perceptions such as role clarity and role acceptance, (b) perceptions of the group concerning

its cohesion and CE, and (c) experiential factors such as perceived role performance effectiveness are warranted in future research on RE.

Thus, Study Two was undertaken in order to assess the psychometric properties of a modified role efficacy questionnaire and test the reliability of Study One findings with a substantially larger sample of athletes and teams. The sequential examination of the validity of RE was extended by testing relationships between RE and other role-related perceptions. Finally, the relationships between RE and a measure of perceived role performance effectiveness were investigated in order to attempt a link between RE and perceptions of behavior.

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their efficacy for carrying out interdependent functions, several examples of interdependent role functions were presented. Examples of the prompts used to clarify formal roles and the interdependency that characterizes unique role functions can be observed in the instructions in the Study Two instrument (See Appendix J, Study Two). In addition, based on the frequency of role functions elicited from players in Study One, all participants were constrained to list four role functions and corresponding efficacy estimates for each of offensive and defensive play. This strategy allowed for opportunities to examine the statistical reliability of the measures by analyzing (a) inter-item correlations, (b) variance of the items and the scales, and (c) overall estimates of the internal consistency for the RE scales.

Assessing the Construct Validity of Role Efficacy

Divergent validity of role efficacy. According to Cook and Campbell (1979), assessing the validity of a construct requires testing for both a convergence across different measures or manipulations of the same construct and a divergence between measures and manipulations of conceptually distinct constructs. Because RE is a newly defined construct and no convergent measures presently exist, divergent validity was of particular interest in the present study. Divergent validity was assessed by examining relationships between RE and several individual and role-related constructs gleaned from the group dynamics and role literatures. Specifically, relationships between RE and role clarity, role acceptance, role satisfaction, role importance, and an individual measure of team task cohesiveness were examined.

A member's role consists of a set of specific behavioral expectations and each of the role perceptions assessed, including RE, shared this common basis. Thus, it was hypothesized that RE would be positively related to role clarity, role acceptance, role satisfaction, and role

importance. However, because RE is conceptually distinct from each of these constructs, correlations were expected to be weak to moderate in magnitude. In order to make clear the rationale for these hypotheses, a brief description of the constructs being examined is in order. Based upon this theoretical description, the rationale for the hypotheses can be understood.

One of the most widely investigated concepts in Industrial and Organizational Psychology is role ambiguity or its obverse, role clarity (Fisher & Gitelson, 1983). A lack of role clarity is suggested to arise from discrepancies between job-related information that is made available to a role occupant and the ideal information required to assist the individual to adequately perform his/her role (Farber, 1983; Kahn, Wolfe, Quinn, & Snoek, & Rosenthal, 1964; Rizzo, House, & Lirtzmann, 1970). Research has shown role clarity to be related to job satisfaction in industry (cf. Fisher & Gitelson, 1983) and task dimensions of team cohesion as well as team performance in sport (Brawley et al., 1987). In addition, previous research (McEnrue, 1984) found that role clarity was positively related to a construct not unlike RE -- perceived competency at an organizational job. Thus, RE and role clarity should be related.

Role acceptance refers to the degree to which a role occupant feels satisfaction or dissatisfaction, pride or shame, in his/her assigned role behaviors (Carron & Hausenblas, 1998). Research on role acceptance is sparse, however, it has been found to be related to both role clarity and perceptions of team cohesiveness (Dawe & Carron, 1990; Grand & Carron, 1982). It is probable that team members who are highly confident in performing their role functions also derive more satisfaction and pride from those roles. Thus, relationships between RE and role acceptance should be detected.

Role satisfaction refers to formal role functions and the extent to which role functions are intrinsically valuable to the role occupant. Role satisfaction was a measure developed

specifically for this study, however, the measure was a derivative of a similar construct in the Industrial and Organizational Psychology literature: job satisfaction. Job satisfaction has been defined by Locke (1976) as a "pleasurable emotional state resulting from the perception of one's job as fulfilling or allowing the fulfillment of one's important job values" (Locke, 1976, p. 1342). Role satisfaction is an affective outcome that may be very similar to role acceptance. However, no studies were found that compared the two perceptions. It is conceivable that in elite team sport contexts where members are highly motivated, accepting role assignments and being satisfied with them may be unique perceptions. Consider the following example: Player A is a highly skilled rookie point guard and a member of a basketball team. Another member of the team, Player B, is a senior veteran and holds the starting point guard position. Because Player A values his membership on the team and wants to play for it, he accepts his role as a back-up player entirely, but is not satisfied with the functions he is assigned or the amount of playing time he gets. For Player A, role acceptance and role satisfaction may differ substantially. It is probable that team members who are confident performing role functions are more satisfied with their experiences performing these functions. Thus, RE and role satisfaction should be related but only moderate correlations were expected.

The interactive nature of sports such as basketball merits the design of complex interdependent offensive and defensive systems. However, the diversity of roles within such systems could lead members to think of their roles as contributing more or less to their team's overall performance. The concept of role importance represents a link between members' thoughts regarding their role functions and the contribution they make to their team's performance. The perceived importance of one's role may influence other role perceptions.

For example, performing an important task has been hypothesized to contribute more to job satisfaction than does an unimportant one (Ewen, 1967). Being assigned important role functions is likely based on a member's capabilities to successfully carry out his/her role. Thus, RE and role importance should also be moderately related.

In addition to the divergent relationships previously hypothesized between RE and role clarity, acceptance, satisfaction, and importance, the relationship between RE and one aspect of cohesion (i.e., the individual's attraction to the task aspects of the group; ATG-T, Carron, Widmeyer, & Brawley, 1985) was explored. Because both RE and ATG-T are thought to be (a) independent, (b) task-related, and (c) present within the same group environment, it was hypothesized that RE would be positively related to a member's attractions to the task aspects of the group. However, divergence between constructs should be demonstrated by weak to moderate correlations.

Consistency of Study One Findings

The third purpose of the study was to extend the process of construct validation by examining the degree to which the major findings of Study One would be supported in a larger, but still homogenous population of elite basketball teams. The analysis rationale followed that of the first study and suggestions by Kenny and LaVoie (1985) regarding the interdependence of responses among group members.

Recall that in Study One, RE and CE were found to be divergent constructs. In addition, intra-class correlation coefficients (ICCs) for RE measures were found to be weak, offering initial evidence that RE is an individual-level perception. In the present study, the relationship between CE and RE was examined again. RE was also investigated with regards to its independent nature to determine if this finding would be supported.

In the previous study, RE was found to differ between players as a function of starting status, however, CE values were consistent across all players. Starting status dictates the extent to which a team member performs role functions during competition and, possibly, during practice as well. In Study Two, RE and CE were again examined in relation to starting status.

The goal of the aforementioned analyses was to compare results with those obtained in Study One. Therefore, based on previous findings, it was hypothesized that (a) CE and RE would be positively, although moderately related, (b) RE would be an individual-level perception as indicated by weak ICCs, and (c) RE scores for starting players would be higher than those of non-starters but CE scores will not differ.

Role Efficacy and Perceived Role Performance Effectiveness

In social cognitive theory (SCT; Bandura, 1986) and self-efficacy theory (SET; Bandura, 1997), Bandura has proposed that an individual's perception of personal efficacy influences his/her choice of activities, effort expenditure, and persistence in the face of obstacles when adequate incentives exist. Thus, efficacy expectations are theorized to influence an individual's performance accomplishments (Bandura, 1997). Research in the athletic domain has clearly demonstrated a positive relationship between SE and both qualitative and quantitative indices of athletic functioning (cf. Bandura, 1997; Feltz & Chase, 1998). To this point, however, the RE-performance relationship has not been examined in an athletic context. McEnrue's (1984) finding of a significant positive correlation between employee managers' perceived competence at their job and job performance as rated by their supervisors gives some indication that a positive relationship may exist. Taken together, research on SE in Sport Psychology and perceived role competence in Industrial and

Organizational Psychology provides evidence to suggest that an individual's efficacy for performing interdependent role functions in interdependent sport teams should be positively related to his/her perceived role performance effectiveness and serves as the basis for the final hypothesis.

Method

Participants

One hundred and seventy-seven intercollegiate basketball players (84 male and 93 female) volunteered to participate in this study. Athletes represented 16 (7 male and 9 female) varsity teams participating in the OUAA during the 1997-1998 competitive season. On average, players had spent 2.15 (SD = 1.21) seasons playing for their current team. Eighty players were starters, 90 were non-starters, and seven were practice players who did not participate in regular-season competition. Thus, starting players were fully represented for each team (i.e., 5 starters per team) as well as a strong complement of non-starters (M = 5.63 per team).

The purpose of this study was to investigate hypothesized relationships among variables for individuals participating within natural groups in a field setting. Thus, random assignment and controlled selection of participants was not possible. Consistent with the purposes outlined in the introduction, a correlational design was used in order to examine the relationships proposed.

Measures

Role efficacy. Assessing RE consisted of a four-stage process. This process included (a) introducing the concept of roles and focusing players on their overall role on their team, (b) preparing them to differentiate specific interdependent role functions on offense and

defense from their overall role, and (c) having them list their specific interdependent role functions and (d) indicating their efficacy for performing each function accordingly.

First, in order to orient the participants to their overall role on their team and control for a common understanding of the construct being investigated, players were given the following informal description of a role:

> Each player on an intercollegiate basketball team has a specific role to carry out. Your role is combined with your teammates' roles to create effective team systems. Your role is your "package" of job(s) within your team.

In addition, examples of roles on basketball teams were provided. Players were asked to think about their intercollegiate basketball team during competition and state what their role on their team was in an open-ended statement.

Once players had reported their overall role on their team, instructions pointed out to them that their role may be made up of several specific interdependent functions for both offense and defense. Selected examples of specific functions for offense and defense derived from responses to questionnaires in Study One were provided as frames of reference and to promote clarity and a common understanding. Next, players were instructed to list four of their role functions in order from most to least important to their team's play. In order to ensure that meaningful responses were listed, and to capture as realistic an essence of the functions elicited as possible, players were asked to describe their role functions using language they would use to talk to other players or coaches at their competitive level.

Finally, for each role function listed, players rated their confidence in their ability to perform each function using a 0% = not at all confident to 100% = completely confident

Likert-type scale. The mean of the player's specific 4-item defensive role function efficacy scale and the mean of the player's specific 4-item offensive role function efficacy scale formed the RE defense (REDEF) and RE offense (REOFF) scores, respectively, for each individual. The RE questionnaire and questionnaires assessing additional measures are presented in Appendix J.

Collective efficacy. A complete description of the rationale guiding the construction of the collective efficacy instrument was detailed in Study One (cf. recommendations by Bandura, 1997; Lindsley et al., 1995; Zaccaro et al., 1995). An identical CE questionnaire was used in Study Two. Specifically, participants were asked to rate their team's confidence in its ability to perform various overall team basketball skills for both offense (n items = 10) and defense (n items = 9). Confidence in each team skill was rated on a 0 percent ("Not at all confident") to 100 percent ("Extremely confident") scale. A representative item from these two scales is: "Our team's confidence in our team's overall ability to pass the ball accurately is ____%". The mean of the 10 offense-related items and the mean of the 9 defense-related items formed the CE offense (CEOFF) and CE defense (CEDEF) scores, respectively.

Role perceptions. Participants were asked to rate the clarity of, acceptance of, feelings of satisfaction with, and perceived importance of the four offensive and four defensive role functions they had listed previously. For each of offense and defense, players were instructed to consider their responses to all four of their role functions as a whole. Players then rated the clarity of, acceptance of, importance of, and satisfaction with their overall offensive and overall defensive role functions on 11-point scales ranging from a low of 0 to a high of 10 (i.e., all items were scaled the same for parallelism). Each role perception scale is described briefly below.

Role clarity. These scales assessed athletes' understanding of their role functions for offensive and defensive play. Scale items were adapted from Rizzo et al.'s (1970) role ambiguity scale which was originally designed for work settings and has been used extensively in organizational psychology. A representative item of these scales is: "I know exactly what my specific responsibilities are with regard to these functions = 10; I have no idea what my specific responsibilities are with regard to these functions = 0"). The mean of the 3 offense-related questions and 3 defense-related questions formed the role clarity offense (CLAROFF) and role clarity defense (CLARDEF) scores, respectively.

Role acceptance. These scales assessed the degree to which team members accepted their role functions on offense and defense. The 3-item scale was adapted from the group-related role acceptance items from the Team Climate Questionnaire (Grand & Carron, 1982). However, items were re-worded such that they referred to a member's individual role acceptance rather than role acceptance perceived among the members of the team in general. A representative item of these scales is: "I totally accept having to perform these functions = 10; I do not accept having to perform these functions at all = 0). The mean of the 3 offense-related questions and 3 defense-related questions formed the role acceptance offense (ACCEPTOFF) and role acceptance defense (ACCEPTDEF) scores, respectively.

Role satisfaction. The offensive and defensive scales assessing role satisfaction each consisted of three items adapted from several measures of overall job satisfaction borrowed from research in organizational psychology (Brayfield & Rothe, 1951; Seigall & Cummings, 1986; Vroom, 1963). A representative item from these scales is: "I am extremely happy performing these functions = 10; I am not at all happy performing these role functions = 0". The mean of the 3 offense-related questions and 3 defense-related questions formed the role

satisfaction - affect offense (SATOFF) and role satisfaction - affect defense (SATDEF) scores, respectively.

Role importance. These scales assessed a player's beliefs regarding the perceived importance of his/her offensive and defensive role functions to the performance of the team. Each scale was comprised of three items adapted from the task significance sub-scale of Hackman and Oldham's (1975; 1980) Job Diagnostic Survey (JDS). A representative item from these scales is: "I think of these functions as totally essential to my team's performance = 10; I think of these functions as not essential at all to my team's performance = 0". The mean of the 3 offense-related questions and 3 defense-related questions formed the role importance offense (IMPOFF) and role importance defense (IMPDEF) scores, respectively.

Group cohesion: Individual attractions to the group-task. The Group Environment Questionnaire (GEQ: Carron, Widmeyer, & Brawley, 1985) was used to measure member's attractions to the group based upon team task considerations. The instrument contains a total of 18 items which are rated on a 1 ("Strongly Disagree") to 9 ("Strongly Agree") Likert-type scale. The GEQ has been found to be a reliable measure of group cohesion in numerous published studies with estimates of internal consistency for its four sub-scales ranging from .65 to .93 (Cronbach's alpha) for numerous types of samples (cf. Carron, Brawley, & Widmeyer, 1998). Agreement about the conceptual validity of the model upon which the GEQ is based has been reported in both the group dynamics literature (Cota, Evans, Dion, Kilik, & Longman, 1995; Dion & Evans, 1992) and the sport and physical activity literature (Brawley, 1990; Carron, et al., 1998).

The GEQ consists of four sub-scales which assess separate dimensions of group cohesion. The four dimensions of cohesion are: Individual Attractions to the Group – Task

(ATG-T; 4-items), Individual Attractions to the Group – Social (ATG-S; 5-items), Group Integration – Task (GI-T; 5-items), and Group Integration – Social (GI-S; 4-items). Individual Attractions to the Group scales assess a group member's attractions towards the group with respect to the group fulfilling individual task and social needs. Group Integration scales focus on member's beliefs regarding the unity of the team around salient task and social factors.

Perceived role performance effectiveness. Attempting to gather behavioral data on players' role performance during competition poses several difficulties. As was demonstrated in Study One, role functions are both numerous and complex. As a result, objective measures of role performance may not be easily inferred from team or individual performance measures such as points scored or free-throw percentage (i.e., individual performance measures that are not role specific) that are typically recorded during competition. One alternative to seeking out purely quantitative role performance data for individual players is to have independent expert observers rate the performance of role behaviors as is commonly done (e.g., ratings by self, supervisors, and co-workers) in Organizational Psychology research (e.g., Taber & Alliger, 1995). Thus, in the present study, independent expert observers' ratings were used as measures of perceived role performance effectiveness in lieu of direct performance assessments. Specifically, ratings of player effectiveness at performing role functions were obtained from three sources within the team, those of (a) the player him/herself, (b) the team's head coach, and (c) teammates. Each of these measures is described below.

Player role performance effectiveness (self). These were single-item measures which assessed an athlete's perceived effectiveness at performing his/her overall role functions for each of offense and defense. Players rated how effective they were at carrying out the set of

four role functions they had previously listed for each of offensive and defensive play on an 11-point scale anchored as follows: "In terms of my own performance, I am tremendously (100%) effective in executing these functions = 10; In terms of my own performance, I am not at all (0%) effective in executing these functions = 0. For clarity of presentation and interpretation purposes, players' effectiveness ratings were transformed by multiplying each score by the constant 10 in order to create a corresponding percentage (0% - 100%) effectiveness. Because the verbal anchors of the role effectiveness scales included indicators of 0% and 100% that corresponded to 0 and 10 on the 11-point scale, transformation should not have affected the accuracy of the responses. Players' ratings of their own role performance effectiveness formed the role effectiveness offense (SELFOFF) and role effectiveness defense (SELFDEF) scores respectively.

Player role performance effectiveness (coach). These were single-item measures of each head coach's rating of each of his/her player's effectiveness at performing his/her major role functions for offense and defense. Coaches identified each player by his/her player number and listed, in rank order from most to least important, a minimum of two and a maximum of four offensive and defensive functions for each player. After listing each player's major role functions, coaches were asked to consider all of hi/her functions overall (i.e., a set of functions) for each of offense and defense and indicate each player's effectiveness on a scale anchored at 0% = not effective at all and 100% = tremendously effective. The coaches' perceived role performance effectiveness percentages formed the coach effectiveness offense (COACHOFF) and coach effectiveness defense (COACHDEF) scores, respectively.

Player role performance effectiveness (teammate). These were single-item measures of the perceived offensive and defensive role effectiveness of the two teammates with whom each player interacted most during competition when performing his/her personal role functions. Players first identified the player numbers of each teammate and then listed each of their two most important offensive and defensive role functions. After listing each teammate's major functions, players were instructed to consider the set of functions overall for each of offense and defense and rate the target player's effectiveness at performing each set of functions. As with previous measures of effectiveness, scales anchored at 0% = not effective at all and 100% = tremendously effective were used. Teammates' ratings of each player's role performance effectiveness formed the teammate role effectiveness offense (MATEOFF) and teammate effectiveness defense (MATEDEF) scores respectively.

In order to ensure the accuracy ratings for each player, players recorded their own player number and initials and coaches and teammates also recorded the target players' numbers and initials when reporting their ratings. Role performance effectiveness ratings were then matched according to the corresponding player numbers indicated by players, coaches, and teammates for each player.

Procedure

The head coaches of the 15 men's and 15 women's basketball teams competing in the OUAA were contacted with regards to participating in a study examining "player's role perceptions, team confidence, and team cohesion in basketball" prior to the beginning of the 1997-1998 competitive season. Sixteen of the original 30 teams agreed to participate in the research project.

Because not all of the teams who volunteered to participate in the study were located near the investigator's municipality, a protocol was instituted for all other teams where

measures were mailed to an agreed upon team representative who administered the questionnaire to players and coaches. The protocol consisted of the investigator forwarding a package containing (a) 16 players' questionnaires, (b) one coaches' questionnaire, (c) players' instructions for completing the questionnaire, and (d) instructions for the administration and return of questionnaires to the team's head coach. Each head coach recruited a volunteer from his/her managerial staff to administer questionnaires to the players. Completed questionnaire packages were returned by inter-university mail or courier. For those teams in the investigator's locale, questionnaires were administered by the investigator using a procedure identical to that for all other teams.

For the administration of the questionnaires, a team representative was provided with a questionnaire administration instruction sheet (See Appendix C) that was read to all participants before questionnaires were distributed. Team representatives were instructed to administer the questionnaire at a convenient team meeting or practice that was neither immediately before nor after a competition in order to avoid competition specific biases in responses. The importance of independent responses was stressed in instructions at the time of administration. Participants were required to complete their questionnaires on their own and without conversation with their teammates.

Confidentiality of participants' responses was ensured by providing each player with his/her own coded envelope in which s/he enclosed and sealed the completed questionnaires. Thus, confidentiality from the team manager, coach, and other players was achieved. All questionnaires took approximately 10 – 15 minutes to complete. In order to facilitate return, teams who had not returned their questionnaires by one-week past the target date were contacted by telephone or electronic mail reminder. The return after this prompt was rapid in

all but two cases. Two teams returned questionnaire packages one week late, however, players had completed their questionnaires at the same time as all of the other teams.

The questionnaires were completed during a one-week target period approximately three weeks into the team's regular competitive season (i.e., after approximately 10 weeks of pre-season practice and competition). The elapsed time (i.e., two months) and team activity (i.e., 2 league and 8 pre-season games had been played) before data collection was thought to allow for (a) individual roles and functions for competitive play to be well established or re-established for returning players and (b) role perceptions, collective efficacy beliefs, and team cohesion beliefs to develop with respect to the athletes' and teams' current season of play. The report of initial levels of efficacy, for example, are often biased until experience is gained (cf. McAuley & Mihalko, 1998).

Results

Results are presented in four major sections. The first section highlights the descriptive statistics, internal consistencies, and inter-item correlations of the RE scales. Section two presents the descriptive statistics of the role perception variables, scale internal consistencies, and intercorrelations among role efficacy, clarity, acceptance, satisfaction, importance, and individual attraction to the group-task. The third section includes the relationships between RE and the three indices of perceived role performance effectiveness. Finally, analyses regarding the consistency of Study One and Study Two findings are detailed.

Role Efficacy Measures

The RE questionnaire required respondents to identify, in order of priority, their four most important interdependent role functions for defense and offense. Consistent with the goals of the elicitation procedure, role functions characterized by interdependency between

teammates versus basic, independent skills clearly dominated the role functions that were reported. Examples of interdependent role functions listed by players are presented in Appendix D. The mean frequency of responses for the open-ended scales was 4.0 for each of defensive and offensive team play. The mean of the defensive role efficacy scale (REDEF) was 78.51% (SD = 11.52), while the REOFF scale mean was slightly higher at 79.19 (SD = 10.84) percent. The REDEF and REOFF scores ranged from lows of 41.75% and 47.50% to highs of 100% and 100% for each scale, respectively. Although the RE scores may appear high, this was not unexpected due to the elite level of play at which this sample of teams competed and the high skill level of the athletes comprising the teams.

Internal consistencies of the RE scales were examined by calculating Cronbach's Coefficient Alpha for each four-item scale. Alpha coefficients were found to be adequate (i.e., .76 and .79 for REDEF and REOFF respectively). Because the RE scales were open-ended and not formed from standardized items, coefficient alpha may not be interpreted in the same fashion as a common item scale. However, the average relatedness of the four personal items to the personal scale total is represented. The RE data were further analyzed by generating an inter-item correlation matrix for each scale. Inter-item correlation provides a descriptive profile of the individual scale items as well as an estimate of the degree to which the data obtained hung together as representative scales for offensive and defensive interdependent task roles.

Inter-item correlation matrices for REDEF and REOFF appear in Tables 6 and 7, respectively. For REDEF, means for the four items ranged from 76.71 to 79.77 with an overall variance of 2.26 indicating a small range of scores across constituent items. Inter-item correlations

ranged from r =.32 to r =.50 with a mean overall correlation of r =.44, thus demonstrating favorable positive relationships among items. Results of the inter-item matrix for REOFF were similar to and consistent with those obtained for REDEF suggesting that there was a moderate to high degree of consistency and relation among the items within each of the RE scales.

Divergent Validity: Relationships Between Role Efficacy, Role Perceptions, and ATG-T

Descriptive statistics for the role clarity, acceptance, satisfaction, and importance variables appear in Table 8. The scores obtained for each of the scales were high on the 11-point scale, ranging from 7.88 (SD = 1.67) for role acceptance-offense to 8.70 (SD = 1.47) for defensive role importance. These results were not unexpected due to the high level of motivation among players who voluntarily compete at such an elite level.

Estimates of the internal consistencies of the role clarity, role acceptance, role satisfaction, role importance, and ATG-T scales are presented in Table 9. The internal consistencies and descriptive statistics for the remaining three scales of the GEQ, though not reported in the text, are included in Table H1 of Appendix H.

Pearson correlation coefficients between RE, role perception variables, and ATG-T are detailed in Table 10. Correlations between RE and role perception variables were positive and significant ($p < .05$) with the exception of REDEF – IMPDEF which was positive (r = .13) but not significant ($p > .05$). Thus, a total of 15 of the 16 pertinent role-related correlations were significant ($p < .05$) and each were of moderate magnitude, ranging from r = .13 (REDEF – IMPDEF) to r = .47 (REOFF – CLAROFF).

Table 6

Descriptive Statistics and Inter-item Correlations Between Composite Defensive Role Efficacy Scale Items

Measure	M	SD	1	2	3	4
1. Defensive role function 1	79.76	14.42	--	.48	.32	.37
2. Defensive role function 2	79.73	13.83		--	.46	.50
3. Defensive role function 3	77.83	14.34			--	.49
4. Defensive role function 4	76.71	18.00				--

Note. N = 174

Table 7

Descriptive Statistics and Inter-item Correlations Between Composite Offensive Role Efficacy Scale Items

Measure	M	SD	1	2	3	4
1. Offensive role function 1	80.87	14.01	--	.51	.43	.40
2. Offensive role function 2	81.00	12.81		--	.56	.45
3. Offensive role function 3	78.25	14.10			--	.52
4. Offensive role function 4	76.66	14.77				--

Note. N = 174

Table 8

Descriptive Statistics for Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T Measures

Measure	N items	M	SD	Scale midpoint	Scale range	Score range
CLAROFF	3	8.39	1.33	6	0-10	3.33-10
CLARDEF	3	8.58	1.23	6	0-10	1.67-10
ACCEPTOFF	3	7.88	1.67	6	0-10	0.00-10
ACCEPTDEF	3	8.39	1.26	6	0-10	3.33-10
SATOFF	3	7.99	1.81	6	0-10	0.00-10
SATDEF	3	8.07	1.43	6	0-10	0.33-10
IMPOFF	3	7.96	1.72	6	0-10	0.00-10
IMPDEF	3	8.70	1.47	6	0-10	1.00-10
ATG-T	4	6.34	1.79	5	0-9	1.25-9

Note. N = 174

The acronyms for the various measures are as follows:

REOFF - Role efficacy offense
REDEF - Role efficacy defense
CLAROFF - Role clarity offense
CLARDEF - Role clarity defense
ACCEPTOFF - Role acceptance offense
ACCEPTDEF - Role acceptance defense
SATOFF - Role satisfaction offense
SATDEF - Role satisfaction defense
IMPOFF - Role importance offense
IMPDEF - Role importance defense
ATG-T - Individual attractions to the group - task

Table 9

Internal Consistency of Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T Measures

Measure	N items	Cronbach's Alpha
CLAROFF	3	.83
CLARDEF	3	.79
ACCEPTOFF	3	.83
ACCEPTDEF	3	.77
SATOFF	3	.94
SATDEF	3	.88
IMPOFF	3	.93
IMPDEF	3	.91
ATG-T	4	.73

Note. N = 174

The acronyms for the various measures are as follows:

REOFF	- Role efficacy offense	SATOFF	- Role satisfaction offense
REDEF	- Role efficacy defense	SATDEF	- Role satisfaction defense
CLAROFF	- Role clarity offense	IMPOFF	- Role importance offense
CLARDEF	- Role clarity defense	IMPDEF	- Role importance defense
ACCEPTOFF	- Role acceptance offense	ATG-T	- Individual attraction to the group - task
ACCEPTDEF	- Role acceptance defense		

Table 10

Pearson Correlations for Role Efficacy, Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T Measures

Measure	1	2	3	4	5	6	7	8	9	10	11
1. REOFF	--	.69	**.47**	.42	**.40**	.33	**.39**	.31	**.43**	.22	**-.03**
2. REDEF		--	.21	**.44**	.19	**.38**	.19	**.39**	.21	**.13**	**-.03**
3. CLAROFF			--	.46	.66	.41	.65	.27	.61	.34	.10
4. CLARDEF				--	.50	.68	.48	.67	.51	.61	.12
5. ACCEPTOFF					--	.53	.92	.45	.76	.50	.34
6. ACCEPTDEF						--	.48	.83	.49	.61	.33
7. SATOFF							--	.44	.75	.47	.28
8. SATDEF								--	.44	.64	.25
9. IMPOFF									--	.62	.26
10. IMPDEF										--	.30
11. ATG-T											--

Note. $N = 174$, $rs > .20$ $p < .01$, $rs > .16$ $p < .05$

The acronyms for the various measures are as follows:

REOFF	- Role efficacy offense	SATOFF	- Role satisfaction offense
REDEF	- Role efficacy defense	SATDEF	- Role satisfaction defense
CLAROFF	- Role clarity offense	IMPOFF	- Role importance offense
CLARDEF	- Role clarity defense	IMPDEF	- Role importance defense
ACCEPTOFF	- Role acceptance offense	ATG-T	- Individual attractions to the group - task
ACCEPTDEF	- Role acceptance defense		

The strength of the correlations between RE and other role-related variables demonstrated that they were related, but independent constructs (i.e., rs ranged from .13 for REDEF – IMPDEF to .47 for REOFF – CLAROFF). Contrary to hypotheses, correlations between role efficacy measures and individual attractions to the group-task were not significant ($p > .05$). However, these results indicated that RE is also divergent from this aspect of cohesion (ATG-T).

Taken together, findings support the divergent validity hypothesis for RE and role clarity, acceptance, satisfaction, and importance. The non-significant correlation between RE and ATG-T also suggests divergence.

Role Efficacy and Perceived Role Performance Effectiveness

The third major analyses in this study focused on the relationships between RE and subjective estimates of role performance effectiveness. Complete data were obtained for RE measures and players' self-reports of his/her perceived role performance effectiveness. Unfortunately, however, the data obtained from coaches and teammates suffered from inconsistencies and missing responses in two regards. First, not all of the coaches participating in the study completed evaluations of their players' role performance effectiveness. As a result, data from coaches' ratings were available for only 81% of the sample. Second, although most players rated the role effectiveness of two teammates with whom they interacted most during competition, all ratings referred to members of the team's starting lineup. Therefore, data from teammates' ratings of role effectiveness were only available for starting players. For these analyses, coaches' data were used as availability allowed. However, with regards to teammates' ratings, it was reasoned that players who competed for less than 15 of the total 40 minutes per game (i.e., the majority of non-starters)

may have had too little interaction with starting players during competition to form accurate ratings. Thus, only starting players' ratings of their co-starters role performance effectiveness were used to calculate this score.

Table 11 details the means and standard deviations of the subjective ratings of players' effectiveness at performing their role functions from the perspectives of the athlete him/herself, head coaches, and teammates. Due to the incidence of missing data, the number of observations recorded for each measure is also presented. The means of the role performance effectiveness ratings ranged from lows of 70% for offensive and 69% for defensive effectiveness by coaches to highs of 81% for both measures by teammates. Players' ratings of their own effectiveness were more moderate, falling between those of coaches and teammates at 72.5% and 75.5% for defense and offense, respectively. The relatively high role performance effectiveness scores obtained were not unexpected because of the elite caliber and experience of the players in the sample.

A correlation matrix documenting the relationships between RE measures and role effectiveness ratings is presented in Table 12. In light of the variability in frequency of responses across variables, the corresponding number of observations for each correlation is reported in parentheses below the Pearson correlation coefficient. All correlations between RE and perceived role performance effectiveness ratings for the respective offensive and defensive role functions were significant ($p < .05$) and, as expected for elite players, in the hypothesized positive direction. The strongest correlations were observed between RE and athletes' self-estimates of their role performance effectiveness while considerably weaker relationships were obtained between RE and role performance effectiveness ratings by coaches and teammates. With regards to perceived offensive role performance effectiveness,

Table 11

Descriptive Statistics for Players', Coaches', and Teammates' Role Performance Effectiveness Ratings

Measure	n	M	SD	Score range	
SELFOFF	174	75.52	15.58	0.00	100.00
SELFDEF	174	72.50	16.83	0.00	100.00
COACHOFF	141	70.18	16.55	15.00	100.00
COACHDEF	141	69.17	17.48	0.00	95.00
MATEOFF	71	81.14	8.64	60.00	95.00
MATEDEF	71	81.20	9.07	60.00	95.00

Note. Lower ns reflect the incompleteness of coaches' data and the restriction of teammates' ratings to fellow starting players only.

The acronyms for the various measures are as follows:
SELFOFF - Players' self-ratings of role performance effectiveness (offense)
SELFDEF - Players' self-ratings of role performance effectiveness (defense)
COACHOFF - Coaches' ratings of players' role performance effectiveness (offense)
COACHDEF - Coaches' ratings of players' role performance effectiveness (defense)
MATEOFF - Teammates' ratings of players' role performance effectiveness (offense)
MATEDEF - Teammates' ratings of players' role performance effectiveness (defense)

Table 12

Pearson Correlations for Role Efficacy and Perceived Role Performance Effectiveness Ratings

Measure	1	2	3	4	5	6	7	8
1. REOFF	--	.69** (164)	.53** (167)	.22 (167)	29* (135)	.33* (136)	.33* (65)	.27* (65)
2. REDEF		--	.20 (169)	.47** (169)	.19 (136)	.26* (137)	.14 (67)	.26* (67)
3. SELFOFF			--	.07 (174)	.10 (140)	.05 (141)	.15 (68)	.00 (68)
4. SELFDEF				--	.16* (140)	.24* (141)	-.04 (57)	.14 (57)
5. COACHOFF					--	.85** (140)	.17 (57)	.23* (57)
6. COACHDEF						--	.17 (58)	.23* (58)
7. MATEOFF							--	.30* (72)
8. MATEDEF								--

Note. For each statistic, the n of observations is reported in parentheses. Lower ns reflect the incompleteness of coaches' data and the restriction of teammates' ratings to fellow starting players only.
* $p<.05$, ** $p<.01$

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
SELFOFF - Players' self-ratings of role performance effectiveness (offense)
SELFDEF - Players' self-ratings of role performance effectiveness (defense)
COACHOFF - Coaches' ratings of players' role performance effectiveness (offense)
COACHDEF - Coaches' ratings of players' role performance effectiveness (defense)
MATEOFF - Teammates' ratings of players' role performance effectiveness (offense)
MATEDEF - Teammates' ratings of players' role performance effectiveness (defense)

for example, SELFOFF -- REOFF was $r = .53$, while correlations between REOFF and coach and teammate ratings of offensive role performance effectiveness were $r = .29$ and $r = .33$, respectively.

Positive correlations were also observed between each of the respective defensive and offensive role performance effectiveness measures. However, only three of six correlations were significant ($p < .05$). It should be noted that all three non-significant relationships correspond to teammates' ratings of effectiveness. Although each of the correlations were positive, the number of observations and therefore the statistical power for the test of the relationship was less than half that observed for the self-report or coaches' estimates.

Support for Study One Findings

Examining the relationships obtained in Study One involved three separate analyses. First, the relationship between RE and CE was examined. Second, the individual-level analysis of RE was computed. Third, starting players and non-starters RE and CE scores were compared.

Descriptive statistics and internal consistencies for the two CE scales appear in Table 13. The values for CE were moderately high (i.e., 72.03 and 72.58 for CEOFF and CEDEF, respectively) and are comparable to those obtained in Study One. As in Study One, both scales demonstrated adequate internal consistency (i.e., Cronbach's alphas were .87 for each scale). Pearson correlation coefficients among the RE and CE measures are presented in Table 14. As hypothesized, relationships between offensive and defensive RE and CE were moderately related (i.e., $r = .33$ and $r = .39$ for REOFF-CEOFF and REDEF-CEDEF respectively, $ps < .01$).

Table 13

Descriptive Statistics and Internal Consistency for Collective Efficacy Measures

Measure	M	SD	N items	Score range		Cronbach's Alpha
CEOFF	72.03	9.51	10	39.80	95.50	.87
CEDEF	72.58	10.06	9	43.78	96.67	.87

Note. N=174

The acronyms for the various measures are as follows:
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

Table 14

Pearson Correlations Between Role Efficacy and Collective Efficacy Measures

Measure	1	2	3	4
1. REOFF	--	.69**	.33**	.27**
2. REDEF		--	.34**	.39**
3. CEOFF			--	.77**
4. CEDEF				--

Note: N=174

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense
** $p<.01$

Role efficacy represents individual members' perceptions of confidence to perform their role functions. Thus, athletes' perceptions of RE should be primarily determined by their individual attributes and substantial variability will be observed between athletes both within and between their respective teams. In this study, intraclass correlations (Hays, 1973; Myers, DiCecco, & Lorsch, 1981) were calculated to test the similarity, or nonindependence, of team member responses for RE.

Because role functions occur in groups and involve interdependent action, it was important to determine the degree to which RE was either group or individual in nature. Intraclass correlations (ICC), F-ratio, and associated p-values for each of the RE measures appear in Table 15. The intraclass correlations for both defensive and offensive RE were weak (i.e., $rs < .13$), indicating that neither of the scales reflected the shared variation characteristic of group beliefs (i.e., responses within the same team were no more similar than those reported across different teams; Kenny and LaVoie, 1985). Thus, as was found in the previous study, RE measures were characteristically independent.

Descriptive statistics were calculated and tests for differences were conducted that compared starting and non-starting players on RE and CE measures. The associated descriptives, F-ratio and p-value for differences between groups, are presented in Table 16. As predicted, starting players reported higher role efficacy values for both offensive and defensive functions compared to their non-starting counterparts, while no differences in CE were observed. The difference in REOFF between starting status groups was significant ($F(2,161) = 6.50$, $p = .01$), however, the difference in REDEF scores approached significance at the conventional $p < .05$ level ($F(2, 161) = 3.26$, $p = .07$). Starting players and non-starters

Table 15

Intraclass Correlations for Role Efficacy Measures

Measure	Intraclass r	F-ratio	p-value
REDEF	.03	1.31	.20
REOFF	.12	2.42	.01

Note. N teams = 16, N individuals = 174

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense

Table 16

Descriptive Statistics and ANOVA Summary for Role Efficacy and Collective Efficacy for Starting and Non-starting Players

	Starters		Non-starters			
Measure	M	SD	M	SD	F	p
REOFF	81.50	10.11	77.16	11.12	6.50	.01
REDEF	80.26	10.66	76.98	12.07	3.26	.07
CEOFF	71.77	9.16	72.26	9.85	.109	.74
CEDEF	72.11	9.67	72.98	10.42	.296	.59

Note. Starting Players n = 75, Non-starting Players n = 87

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

were highly similar in their CE scores for both offensive and defensive team play. For both CE measures, non-starters reported slightly higher values than starters, however, the differences between groups on both measures were not significant (ps > .05). Thus, the finding that status appears to moderate RE, but not CE, supports the findings in the previous study.

Discussion

There were three main foci to the present study. The first was to assess the psychometric reliability of a revised instrument used to measure RE. The second was to extend the construct validation process for RE in two ways: (a) by testing for divergence between RE and other beliefs regarding salient aspects of team members' roles and (b) by examining the reliability of Study One findings. The third focus was to examine the relationship between RE and perceived role performance effectiveness in the context of SCT (Bandura, 1986) and SET (Bandura, 1997).

The Measurement of Role Efficacy

A formal role is a set of shared, task-related behavioral expectations. Thus, each role occupant can have numerous interdependent behavioral responsibilities which are unique to his/her specific role. The strength of members' efficacy to perform their four primary interdependent role functions for offensive and defensive roles represented RE. All of the athletes in the present study were able to report four primary role functions for offensive and defensive team play. Cronbach's alpha coefficient and inter-item correlations were calculated for each RE scale and found to be at an acceptable level (Nunnally, 1978), indicating that the scores for RE items were related to the total RE scale that reflected team members' offensive and defensive role efficacies.

Participants generated their own set of clear and specific role functions. Therefore, we can place a considerable amount of faith in the salience of RE items as representing team members' confidence in their abilities to perform the functions that comprise their offensive and defensive formal roles. Also, from a statistical standpoint, role functions generated by participants were separate, yet demonstrated the collected and related qualities of a

psychometrically reliable measure of RE. Taken together, the salience of personal role functions and the resultant internal consistency (i.e., Cronbach's alpha) of items to their respective scale, gives a preliminary indication that the two, four-item measures reflect aspects of offensive and defensive RE.

Divergence of Role Efficacy from Role Perceptions and ATG-T

Part of the exercise of determining construct validity involves testing for a divergence between a construct and measures of potentially related, but conceptually distinct, constructs (Cook & Campbell, 1979). For the purposes of examining the divergent validity of RE, the relationships between RE and other role-related constructs were assessed. The shared variance between RE and role-related variables was modest (i.e., rs ranged from .13 to .47) reflecting the general uniqueness of RE from the other role constructs, although they were related. It should be noted that because there are no standardized measures of role acceptance and role satisfaction that these constructs could be measured more precisely in future research. The observed relationships between the respective offensive and defensive role acceptance and role satisfaction measures were very high (i.e., > .82) indicating a large amount of shared variance. Considering the earlier conceptual discussion of the constructs, it is conceivable that more uniqueness between these constructs could be observed in less elite teams. However, this question awaits future study. Regardless of the relatedness of these two measures, it is clear that RE is distinct from both. The positive relationship between RE and role clarity also supports previous research in Industrial and Organizational Psychology where McEnrue (1984) found that perceived competence to perform essential job tasks was positively related to job role clarity.

Role efficacy was also found to be divergent from individual's attractions to the group task (ATG-T). However, contrary to hypotheses, a significant RE -- ATG-T relationship was not detected. Thus, despite the fact that both constructs are individually-oriented, task-related perceptions that occur within intact groups, a relationship was not observed in this sample.

Role Efficacy and Perceived Role Performance Effectiveness

Bandura (1997) has suggested that an individual's direct mastery experiences are the primary determinants of his/her efficacy expectations. In addition, efficacy expectations are said to influence subsequent performance. Thus, a reciprocal relationship between efficacy and performance is forged. On the basis of Bandura's propositions, it was hypothesized that RE would be positively related to concurrent measures of perceived role performance effectiveness. This hypothesis was supported by positive, significant relationships between RE and ratings of role performance effectiveness derived from three independent sources -- the player him/herself, the player's coach, and teammates who regularly interacted with each other during competitive play.

According to Bandura (1997), optimistic self-appraisals have important motivational benefits, especially at the elite level. Specifically, Bandura proposed that for experienced athletes: "a strong belief in one's efficacy is essential to mobilize the sustained effort and attentional focus needed to triumph over tough opponents or to stage successful comebacks" (Bandura, 1997, p. 405). Thus, it was not surprising that the high RE values were reported by the athletes in this sample. The strongest correlations were observed between RE and the individual's own ratings of his/her perceived role performance effectiveness. Indeed, it is conceivable that there should be a stronger congruence between the self-derived measures (i.e., RE and perceived role performance effectiveness), compared to those obtained from

coaches and teammates for at least two reasons. First, an individual is more likely to be aware of his/her full compliment of behaviors and focused on the execution of these behaviors compared to an individual who may focus on selective aspects of his/her actions (e.g., a coach who identifies areas of performance that need improvement). Second, because athletes are highly motivated and performance-oriented, they may be equally optimistic in their ratings of both personal efficacy ratings and perceived role performance effectiveness (cf. Bandura, 1997), while others' judgements of their performance effectiveness may be less optimistic.

Support for Study One Findings

As in Study One, positive relationships were observed between members' RE and their perceptions of the team's CE for both offensive and defensive tasks. However, the moderate size of the observed relationships supported the hypothesized divergence between the two constructs. The intraclass correlations obtained for RE were similar to earlier findings, indicating an independent perception rather than a group perception shared by other members. Also, as observed in Study One, starting players reported significantly higher REOFF scores compared to non-starters while differences in REDEF approached significance at $p < .08$. However, no differences in CE perceptions were observed between starters and non-starters.

The differences observed between starters and non-starters for REOFF supported predictions of SCT (Bandura, 1986) based on the differing amounts of direct experience players gain with respect to performing their role functions. Because starting players play for longer durations, they should have more opportunities to develop beliefs in their capabilities to perform their role functions. Post-hoc analyses of self-reported playing time indicated that starters played an average of 29.2 minutes per game while non-starters averaged only 10.7

minutes ($p < .001$), thus, supporting the argument about differential competitive playing experience.

The CE findings also supported Bandura's (1997) and Zaccaro et al.'s (1995) proposition that CE is a perception that is shared among group members. Regardless of their starting status, there were no differences among teammates with regards to their perceptions of their team's CE. Results of a secondary analysis of the intraclass correlations for the CE scores (See Appendix G) indicated that CE scores were representative of a combination of individual and shared group beliefs (i.e., moderate level ICCs; Kenny & LaVoie, 1985). These findings are consistent with Zaccaro et al.'s (1995) suggestion that CE can demonstrate both individual and group-level variation. These results also supported the divergence of CE beliefs from the individualized perceptions of RE (i.e., measures of RE had characteristically low ICCs whereas measures of CE had higher ICCs).

In summary, findings in the present study suggested that RE is a unique, individual-level, construct representing a player's perceived capabilities to perform specialized, interdependent role functions in an interdependent team environment. The conceptual and empirical independence of RE was demonstrated when contrasted with (a) teammates' shared perceptions of the team's CE, (b) salient perceptions associated with a team member's role (i.e., clarity, acceptance, satisfaction, and importance), and (c) the perceived attractiveness of the group with regards to the group's task. Furthermore, the positive relationships observed between RE and concurrent measures of perceived role performance effectiveness provided some preliminary evidence that RE is characteristically related to individual role behavior as would be predicted by social cognitive and self-efficacy theories (Bandura, 1986; 1997).

The findings presented thus far are encouraging with respect to demonstrating preliminary reliability and validation of the RE construct. However, because the focus of the first two studies has been instrument development and validation, our understanding is limited with respect to (a) how RE differs from other forms of individual efficacy, (b) the determinants and consequences of RE as an individual efficacy construct, and (c) the study of individuals' perceptions of RE as they occur in the context of the group as a whole. One notable omission is the absence of a comparison between RE and task SE. While it may be argued that task SE represents an individual's perception of task-related capabilities independent of his/her role or the group context, the process of establishing the uniqueness (i.e., divergent validity) of the RE construct should include an examination of the relationship between task SE and RE. Examining the extent of this relationship and the strength of the relative relationships between each of these perceptions and perceived role performance effectiveness was one of the primary objectives of Study Three.

A recognized limitation of the first two studies is that they are representative of the "snapshot" research that is characteristic of the sport-related literature and, in particular, group sport research (cf. Widmeyer et al. 1993). Although these studies were carefully planned and conducted, each independently examined relationships between variables at only one point in time. In order to investigate the dynamic relationships that exist within groups, and the possibility that group properties and member beliefs change, repeated observations of perceptions and behavior over time are required (Widmeyer et al. 1993). According to SCT (Bandura, 1986), efficacy expectations are cognitive mediators of action and should be examined in relation to subsequent behavior. Furthermore, efficacy expectations themselves are proposed to be determined primarily by prior mastery experiences. Therefore, in order to

better understand RE and its potential influence on role-related behavior (i.e., perceived role performance effectiveness), these relationships should be examined prospectively. Thus, a second objective of Study Three was to prospectively investigate causal relationships between RE and perceived role performance effectiveness over time.

Finally, although RE is formed by the independent and interactive experiences of the individual members within the group, the potential influence of group phenomena (i.e., CE, cohesion) on RE remains unexplored. For example, the shared perception of the group's overall capabilities (CE) could have a moderating effect on the perceived capabilities (RE) of its constituent members. Thus, a final major objective of Study Three was to investigate the potential influence of group-related moderators on RE.

STUDY THREE

Role Efficacy: Study of Prospective and Mediational Relationships

Role Efficacy and Task Self-efficacy: A Necessary Distinction

The focus of the two previous investigations has been on establishing the conceptual and empirical uniqueness of RE. For example, in Studies One and Two, RE was shown to be distinct from the group-based perception of CE. Also, in Study Two, the divergence of RE from other role-related constructs and an individual measure of cohesion was demonstrated. However, one relationship that remains unexplored is that between RE and task-related SE. Although both constructs have been suggested to deal with an individual's confidence to perform behaviors within a particular domain (e.g., basketball), they are necessarily distinct (See General Introduction; cf. Zaccaro, 1996). Role efficacy refers to perceived capabilities regarding the primary interdependent task functions comprising an individual's formal role within his/her group while task SE refers to his/her perceived capabilities to perform requisite task skills independent of his/her role. This distinction does not mean that the two constructs are unrelated. On the contrary, an individual member would have great difficulty performing his/her role functions without requisite task skill capabilities. Thus, it was hypothesized that RE and task SE would be moderately to strongly related.

A logical part of the examination of the proposed RE -- task SE relationship is to consider the uniqueness of the specialized, interdependent functions that each individual member performs (i.e., certain role occupants may perform some task-related skills when executing their specialized set of role functions and not others). For example, in basketball, all players on an elite-level team should be capable of dribbling, passing, and shooting from various ranges. However, a forward player in the high-post role may seldom be called upon

to dribble the ball up-court or shoot from three-point range when carrying out their interdependent role functions. This individual's efficacy in these task skills is likely to have little bearing on his/her RE because they are not interdependent skills s/he performs as part of his/her role.

Thus, by assessing an individual's task-SE for all of the major task skills involved in his/her sport there is a possibility of diluting the importance of specific role-related skills by combining them within a larger package of all skills. As an alternative, if players were able to identify the task skills they performed when executing their role functions during competition versus those not performed, a focussed and potentially more accurate measure of role-related task SE should emerge. In order to examine whether RE is distinct from role-related task self-efficacy, an examination of their relatedness is required. Therefore, it was hypothesized that there should be a relationship between role-related task SE and RE. However, a considerable amount of variance in RE should remain unexplained by role-related task SE.

Role Efficacy as a Mediator Variable

Within interdependent sport teams, each player performs numerous skills which may be difficult to separate from the coordinated actions of several members performing interdependent role functions in unison. For example, setting screens involves passing, ball handling, and positioning oneself on the floor, but must also be coordinated with the actions of teammates. Indeed, it has been hypothesized that the performance of basic task skills may be implicit in, but not identical to, the performance of interdependent role functions. As a result, perceptions of capabilities regarding basic task skills and interdependent role functions should be related. It also seems probable that efficacy for performing basic, independent task skills and interdependent role functions could be related to perceptions of role performance

effectiveness. Thus, the influence of task SE on perceived role performance effectiveness could be mediated through RE. Indeed, Bandura (1997) suggests that efficacy beliefs function as mediators of thought and behavior. It was therefore hypothesized that RE mediates the concurrent relationship between task SE and perceived role performance effectiveness.

Prospective Relationships Between Role Efficacy and Perceived Role Performance Effectiveness

RE is a newly defined construct. As a result, little is known about the determinants of RE expectations. Given that RE is conceptualized as an efficacy construct within Bandura's (1997) self-efficacy theory, RE should be determined by antecedents suggested by that theory. Efficacy expectations are a gestalt representation of all of the efficacy determinants, including mastery experiences, vicarious experiences, verbal persuasion, and other factors outlined in self-efficacy theory (Bandura, 1997; Maddux, 1995). Mastery experiences are proposed to be the most salient determinants of efficacy expectations (Bandura, 1997). After experiencing successful bouts of mastery over time, an individual's resulting efficacy may also be a powerful determinant of future efficacy. In short, previous performance should, theoretically, be predictive of future efficacy. However, because performance is only one of numerous possible efficacy determinants, previous efficacy should be an equal or stronger predictor of future efficaciousness (Bandura, 1997). Thus, it was hypothesized that both RE and perceived role performance effectiveness assessed earlier in a player's season should predict later RE.

One goal of the study of social cognitive variables is to examine their ability to predict future cognitions and behavior. For example, once a causal relationship is determined, the

effect of efficacy-enhancing interventions on subsequent efficacy and behavior can be examined (e.g., Bandura & Cervone, 1986; Taylor, Bandura, Ewart, Miller, & DeBusk, 1985). Several studies have documented a positive relationship between self-efficacy and sport performance (e.g., Feltz & Albrecht, 1986; Martin & Gill, 1991). However, fewer studies have examined the causal relationship. Feltz (1982; 1988) and Kane, Marks, Zaccaro, and Blair (1996) found that previous efficacy beliefs contributed significantly to subsequent performance. In Kane et al.'s study, objective performance outcomes in wrestling were examined as dependent variables, and in Feltz's studies, judges' ratings of springboard diving performance were used. On the basis of these findings, it was hypothesized that earlier RE would predict later perceived role performance effectiveness.

One factor that has complemented the prediction of future behavior (e.g., performance) is past behavior. For example, Feltz (1982) found that by adding participants' prior performance to efficacy expectations in a path analysis, the overall prediction of subsequent performance was enhanced. However, Bandura (1997) has issued a note of caution in these regards, suggesting that performance, in and of itself, is not a determinant of subsequent performance. Rather, the predictive ability of past performance is governed by the extent to which both performances are determined by the same underlying factors. Indeed, Bandura (1997) notes:

> The contribution of efficacy belief to subsequent performance will be artificially reduced when variation in prior performance is statistically controlled without removing the part of that performance attributable to efficacy belief. In such analysis, one is controlling not only for the host of unmeasured performance determinants but also for the influence

> of self-efficacy itself (p. 395).

Thus, it was hypothesized that when combined, past perceived role performance effectiveness and RE should account for more variance in subsequent perceived role performance effectiveness than accounted for by RE alone. However, following Bandura's (1997) advice, in order to derive accurate estimates of the unique and combined predictive capabilities of RE and perceived role performance effectiveness, the amount of variance in subsequent role performance effectiveness explained by RE was statistically controlled before the influence of prior perceptions of role performance effectiveness was examined.

Potential Moderators of Role Efficacy: Collective Efficacy and Group Task Cohesion

It has been demonstrated in Studies One and Two that RE is an independent perception of one's capability to carry out specialized, interdependent role functions. However, RE beliefs are formed in the context of interdependent groups. Therefore, it is possible that RE may be influenced by processes operating within the group such as cohesion and CE. For example, if the team is perceived as lacking confidence as a group, this could undermine the confidence of individual players performing interdependent functions. Indeed, Bandura (1997) recently suggested that beliefs about the group's capabilities (i.e., CE) can influence members' individual efficacy:

> People working interdependently within a social structure do not function as social isolates totally immune to the influence of those around them. Their sense of efficacy is likely to be lower amidst a group of chronic losers than amidst habitual winners. Moreover, the resources, impediments, and opportunities provided by a given system partly determine how efficacious individuals can be... (p. 469).

Thus, it was hypothesized that collectively efficacious teams should be comprised of members with higher RE compared to those belonging to lower CE teams who are likely to have members who reflect lower RE.

Another important property of a group is its cohesiveness (Carron, 1982; Carron et al., 1985). Because formal roles are characterized by behavioral expectations focused around members' integrated functions within the group, the degree to which members perceive they are united in performing group tasks should have an effect on members' RE. Bandura (1997) has made a similar suggestion, noting that:

> Beliefs of personal efficacy are not detached from the larger social system in which members function. In appraising their personal efficacies, individuals inevitably consider group processes that enhance or hinder their efforts. For example, in judging personal efficacy, a football quarterback obviously considers the quality of his offensive line, the fleetness of his running backs, the adroitness of his receivers, and how well they all work together (p. 478; emphasis added).

Thus, it was hypothesized that members of teams who are collectively more task cohesive should have higher RE compared to members of teams with lower task cohesion.

Support for Previous Research

The final goal of the present study was to continue with an examination of the validity of RE by investigating the form and extent of relationships between RE and task and role-related variables. It is important to acknowledge that groups are dynamic entities that can change in form and function (Carron, 1988; Shaw, 1981). For example, within groups such as athletic teams, group-related perceptions (e.g., cohesion, CE) can be influenced by how

successful or unsuccessful the team is over time (Carron et al. 1998). As a result, members' perceptions regarding their own capabilities and those of their team have potential to change over the course of a competitive season.

With regards to RE, a team member gains experience while performing role functions over the course of a season. According to SET, this experience should influence members' RE. If their experiences are positive, RE may increase; if experiences are negative, decreases in RE may result. Although, as Bandura (1997) has noted, established efficacy may be resistant to successive negative experiences. Thus, it was predicted that slight changes in the form and extent of relationships between RE and other variables may be observed in the late season compared to early season. However, it was hypothesized that RE should demonstrate divergence from CE and role-related variables.

Method

Participants

Participants in this study were the original players from the early season (i.e., Study Two; n = 177) assessment and players who completed questionnaires at late season as well (n = 117), which included a total of 108 players who completed questionnaires at both times. The early season sample has been described in Study 2. The late season sample represented men's (n teams = 5, n individuals = 52) and women's (n teams = 7, n individuals = 65) varsity basketball teams competing in the OUAA during the 1997-1998 season. Fifty-one players were starters, 59 were non-starters, and seven were practice players who had not participated in regular-season competition. Players had an average age of 20.75 years (SD = 1.57) and had been members of their respective teams for an average of 2.22 seasons (SD = 1.27).

As outlined in the introduction to the study, one aspect of the study design was the prospective examination of the relationships between role efficacy and role performance effectiveness. Thus, participants were assessed at two separate time periods. Unfortunately, four of the original 16 teams elected not to participate in the second assessment. Losing several teams to attrition raises concerns about self-selection bias, which could pose certain limitations to the prospective analyses. Comparing those individuals who completed both assessments with those who did not revealed that those teams who elected not to participate in the late season assessment had significantly ($p < .05$) lower scores on three of the cohesion variables: ATG-S, GI-S, and GI-T at early season. However, no significant differences were observed on any of the RE, CE, or role-related early season measures. The resulting sample included 108 individuals from twelve teams who completed questionnaires at both assessment periods ($n = 60$ female and $n = 48$ male; mean age = 20.36 years; $SD = 1.58$). Forty-eight players were starters, 55 were non-starters, and five were practice players.

Measures

Role efficacy, CE, role-related perceptions (i.e., clarity, acceptance, satisfaction, importance), perceived role performance effectiveness, and cohesion were assessed in a manner consistent with Study Two. Each of these measures has been thoroughly described in either Study One or Study Two and the reader is referred to these sections for a full description of these measures. The measures for this third study were identical except for the reference to the specific time frame to which they applied (e.g., "at this point in the season") and the additional task SE measures that are outlined below. The questionnaires assessing each of the variables are presented in Appendix I.

In order to investigate hypothesized relationships between RE and task SE, two additional measures relating to each player's confidence in his/her basketball capabilities were assessed in Study Three. First, players rated their SE for performing several major offensive and defensive basketball task skills. A second measure of task SE, adjusted for each player's role was formed using only those skills that were performed frequently by each player when carrying out his/her roles during competitive play.

Basketball task self-efficacy. Assessing task SE consisted of first, orienting players to the SE questions in the context of their specific level of play by providing the following introduction:

> We recognize that you play at an ELITE LEVEL in University basketball. Other levels are: high school, recreational leagues, N.B.A., W.N.B.A., National Team. Your confidence in your ability to play at a recreational level would probably be different than at a professional level. Keeping this in mind, please answer... Consider the level of play at which your team competes. Indicate your confidence ...

Having read the introduction, players were asked to rate their personal confidence in their ability to perform various offensive (n items = 8) and defensive (n items = 4) basketball skills. The items comprising the scales were based upon the agreement of and the recommendations of expert basketball coaches. Therefore, the content reflected on the scales was assumed to have strong face validity. Expert coaches identified a larger number of offensive task skills, suggesting that offensive play was comprised of a greater variety of skills such as shooting from various ranges, passing, and ball handling compared to defense which involved few basic skills such as guarding an opponent and denying shots and passes. Confidence in each

skill was rated on a 0 percent ("Not at all confident") to 100 percent ("Extremely confident") scale. A representative item from the offensive skills scale is: "My confidence in my ability to perform two-point shooting from outside the key during games is ____%". A representative item from the defensive skills scale is: "My confidence in my ability to perform one-on-one defense effectively during games is ____%". The mean of the 8 offensive skill items and the mean of the 4 defensive skill items formed the task self-efficacy offense (SEOFF) and task self-efficacy defense (SEDEF) scores, respectively.

Role-adjusted basketball task self-efficacy. After they had completed the task SE measures, players went on to rate the frequency with which they performed each task skill when carrying out their role functions during games. Frequency of skill performance was rated on a nine-interval, 1 = never perform to 9 = always perform, Likert-type scale. In order to derive a task SE measure which focussed only on frequently performed skills, only those skills that had been rated above the midpoint (i.e., 5) of the frequency scale were included in the calculation of the score for the role-adjusted task SE measure. Thus, the mean of each player's set of offensive skill items and the mean of his/her set of defensive skill items formed the role-adjusted task SE offense (SEOFFrole) and the role-adjusted task SE defense (SEDEFrole) scores respectively. Therefore, each role-adjusted score for each player had a specific number of skills that contributed to the mean score. Similar roles were visually checked for the number of skills contributing to a mean. As was expected, these were approximately equal but not identical.

Procedure

At the beginning of the 1997-1998 season, the head coaches of the 15 men's and 15 women's basketball teams competing in the OUAA were contacted with regards to

participating in a study examining "player's role perceptions, team confidence, and team cohesion in basketball". Sixteen (n individuals = 177) of the original 30 teams agreed to participate in the first assessment. The potential for a prospective design was considered and all teams were contacted with a request for participation. After all teams had completed the first assessment and it became clear that a number of teams might be agreeable to being assessed a second time, a prospective design that constituted Study 3 was implemented. The procedure that follows describes both assessments relative to the design.

Because not all of the teams who volunteered to participate in the study were located near the investigator's municipality, a protocol was instituted for all other teams where measures were mailed to an agreed upon team representative who administered the questionnaire to players and coaches. The protocol consisted of the investigator forwarding a package containing (a) 16 players' questionnaires, (b) one coaches' questionnaire, (c) players' instructions for completing the questionnaire, and (d) instructions for the administration and return of questionnaires to the team's head coach. Each head coach recruited a volunteer from his/her managerial staff to administer questionnaires to the players. Completed questionnaire packages were returned by inter-university mail or courier. For those teams in the investigator's locale, questionnaires were administered by the investigator using a procedure identical to that for all other teams.

For the administration of the questionnaires, a team representative was provided with a questionnaire administration instruction sheet (See Appendix F) that was read to all participants before questionnaires were distributed. Team representatives were instructed to administer the questionnaire at a convenient team meeting or practice that was neither immediately before nor after a competition in order to avoid competition specific biases in

responses. The importance of independent responses was stressed in the instructions at the time of administration. Participants were required to complete their questionnaires on their own and without conversation with teammates.

Confidentiality of participants' responses was ensured by providing all players with their own coded envelope in which they enclosed and sealed their personal, completed questionnaires. Thus, confidentiality from the team manager, coach, and other players was achieved. All questionnaires took approximately 10 – 15 minutes to complete. In order to facilitate return, teams who had not returned their questionnaires by one-week past the target week were contacted by telephone or electronic mail reminder.

The first measurement took place during a one-week target period approximately three weeks into the team's regular competitive season (i.e., after approximately 10 weeks of pre-season practice and competition). The elapsed time (i.e., two months) and team activity (i.e., 2 league and 8 pre-season games had been played) before the first data collection was thought to allow for (a) individual roles and functions for competitive play to be well established or re-established for returning players and (b) role perceptions, collective efficacy beliefs, and team cohesion beliefs to develop with respect to the athletes' and teams' current season of play. The report of initial levels of efficacy, for example, are often biased until experience is gained (cf. McAuley & Mihalko, 1998). Similar design and sampling procedures have been used successfully by researchers to examine temporal change in sport groups (e.g., Brawley, Carron, & Widmeyer, 1993; Dorsch, 1997; Paskevich et al., in press).

After a twelve-week interval, the 16 teams that had taken part in the first assessment were sent a letter thanking them for their participation in the first part of the study and encouraging them to continue their participation (See Appendix F). Twelve (n individuals =

117) of the original 16 teams agreed to participate in the second assessment which took place during a one week target period with approximately one week remaining in the regular competitive season. Administration procedures were the same as those for the first assessment.

The longitudinal design allowed for examination of both concurrent and prospective relationships among the assessed variables. The concurrent analyses were computed separately on the entire early season (n teams = 16, n individuals = 177) and the entire late season (n teams = 12, n individuals = 117) samples. Prospective analyses were conducted using the responses of individuals who completed surveys at both assessments (n teams = 12, n individuals = 108). The average number of players represented on each team was slightly higher at early season (i.e., 11.6) compared to late season (i.e., 9.7). Similarly, the average number of starters and non-starters was slightly higher early in the season (i.e., 5.0 starters and 5.6 non-starters) compared to the later measurement (i.e., 4.3 starters and 4.9 non-starters). In all cases except for one late season team, responses from members of teams were represented by over 75% of the team's roster. Thus, data from all participants were used for the individual-level variable analyses (e.g., RE). However, because it was thought that having a team represented by fewer than 75% of its members could raise concerns about the representation of team beliefs, the one team represented by fewer than 75% of its members was not included in the group (i.e., moderator) analyses of RE. Thus, for these analyses, eleven teams (n individuals = 112) were used.

Results

Results are presented in six sections. In section one, descriptive statistics for the various RE, task SE, CE, role perceptions, and perceived role performance effectiveness

measures at early and late season are presented. The second section displays the internal consistencies of scale measures for late season only. Early season internal consistencies were reported in Study Two (See Table 9). Section three presents the correlational findings for RE and task SE measures. The concurrent tests of the mediational effect of RE on perceived role performance effectiveness at late season are presented in section four. The fifth section reports the regression analyses testing the prospective relationships between RE and perceived role performance effectiveness at early and late season. Section six presents the examination of moderator variable effects on RE.

Comparisons between high and low collective efficacy and group task cohesion groups were made on the full sample at early season (n = 16) and those teams remaining at late season (n = 12). The correlational findings regarding the ICCs for RE and divergence of RE from role-related constructs (i.e., those that are common with Study Two) are consistent with those reported in Study Two and, for the sake of brevity, not displayed in the text. A brief summary of the results is provided, however, complete results may be viewed in Appendix I.

Descriptive Statistics

Most of the descriptives indicate what might be expected from a relatively homogenous elite sample of teams and athletes that have many similar characteristics, particularly those imposed and provided by the competitive environment. In general, the descriptive results showed relatively high values on all measures. In addition, there was little change in any of the measures for the overall sample from early to late season.

Table 17 presents the various means and standard deviations associated with RE and CE measures at early and late season. Also reported in Table 17 are the descriptive statistics

Table 17

Descriptive Statistics for Role Efficacy, Task Self-efficacy and Collective Efficacy Measures

Measure	Early season		Late season	
	M	SD	M	SD
REOFF	79.19	10.84	81.24	11.65
REDEF	78.51	11.52	80.37	10.00
SEOFF	N/A	N/A	72.86	11.53
SEDEF	N/A	N/A	70.67	12.66
SEOFFrole	N/A	N/A	76.54	11.04
SEDEFrole	N/A	N/A	76.64	11.51
CEOFF	72.03	9.51	71.12	11.54
CEDEF	72.58	10.06	72.61	10.36

Note. Early season n = 174, Late season n = 117

The various SEOFF and SEDEF measures were not assessed at early season and, therefore, these data are not available.

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
SEOFF - Task self-efficacy offense
SEDEF - Task self-efficacy defense
SEOFFrole - Role-adjusted task self-efficacy offense
SEDEFrole - Role-adjusted task self-efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

for task SE and role-adjusted task SE measures which were only assessed at late season. Each of the respective efficacy scores was moderately high which was not unexpected given the elite skill and competition level from which the sample was drawn. Role efficacy at late season was high, at 81% for REOFF and 80% for REDEF indicating that players were very confident performing their role functions. These overall mean values were slightly higher, but similar to those observed earlier in the season, indicating that, for the overall sample, RE had not changed over the 12-week period between assessments. Compared to RE, task SE was considerably lower, demonstrating mean values of 73% and 71% for SEOFF and SEDEF respectively. Role-adjusted task SE values were higher than task SE but slightly lower than RE at approximately 76.5% for both SEOFFrole and SEDEFrole. Collective efficacy for offensive and defensive team skills was also similar from early to late season at approximately 72%.

Descriptive statistics for role clarity, acceptance, satisfaction, importance and individual task cohesion for early and late season appear in Table 18. As expected from this elite sample, role-related perceptions were well above the scale midpoint of 6 at both early and late season and ranged from a low of $\underline{M} = 7.77$ for role importance offense at late season to a high of $\underline{M} = 8.70$ for role importance defense at early season. Individual attraction to the group-task decreased slightly late in the season compared to early season levels.

Table 19 reports the early and late season descriptive statistics for perceived role performance effectiveness derived from players themselves, head coaches, and teammates as well as the number of observations upon which each measure was calculated. Players' self-reports of their role effectiveness were high, but not extremely so, at approximately 75% for both defense and offense at late season and are comparable to values observed in the early

Table 18

Descriptive Statistics for Role Efficacy, Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T Measures

Measure	Early season		Late season	
	M	SD	M	SD
CLAROFF	8.39	1.33	8.25	1.34
CLARDEF	8.58	1.23	8.69	1.12
ACCEPTOFF	7.88	1.67	7.80	1.84
ACCEPTDEF	8.39	1.26	8.36	1.39
SATOFF	7.99	1.81	7.97	1.91
SATDEF	8.07	1.43	8.06	1.76
IMPOFF	7.96	1.72	7.77	2.01
IMPDEF	8.70	1.47	8.27	1.39
ATG-T	6.34	1.79	5.86	1.82

Note. Early season n = 174, Late season n =117

The acronyms for the various measures are as follows:

REOFF	- Role efficacy offense	SATOFF	- Role satisfaction offense
REDEF	- Role efficacy defense	SATDEF	- Role satisfaction defense
CLAROFF	- Role clarity offense	IMPOFF	- Role importance offense
CLARDEF	- Role clarity defense	IMPDEF	- Role importance defense
ACCEPTOFF	- Role acceptance offense	ATG-T	- Individual attraction to the group - task
ACCEPTDEF	- Role acceptance defense		

Table 19

Descriptive Statistics for Players', Coaches', and Teammates' Perceived Role Performance Effectiveness Ratings

Measure	Early season			Late season		
	n	M	SD	n	M	SD
SELFOFF	174	75.52	15.58	117	74.62	15.64
SELFDEF	174	72.50	16.83	116	75.22	15.37
COACHOFF	141	70.18	16.55	108	69.08	12.64
COACHDEF	141	69.17	17.48	108	71.48	11.66
MATEOFF	71	81.14	8.64	51	79.82	10.04
MATEDEF	71	81.20	9.07	51	79.52	10.68

Note. Lower ns reflect the incompleteness of coaches' data and the restriction of teammates' ratings to fellow starting players only.

The acronyms for the various measures are as follows:
SELFOFF - Players' self-ratings of role performance effectiveness (offense)
SELFDEF - Players' self-ratings of role performance effectiveness (defense)
COACHOFF - Coaches' ratings of players' role performance effectiveness (offense)
COACHDEF - Coaches' ratings of players' role performance effectiveness (defense)
MATEOFF - Teammates' ratings of players' role performance effectiveness (offense)
MATEDEF - Teammates' ratings of players' role performance effectiveness (defense)

season. At the late season assessment, coaches' role performance effectiveness data were complete except for one team (n = 9 players) at late season. At both assessments, coaches' ratings were markedly lower (i.e., values of approximately 70% for offense and defense) than those reported by players or teammates. At early and late season, teammates reported high role performance effectiveness scores of approximately 80%. However, recall that after the first assessment, due to missing data, only starting players' ratings of their co-starters performance effectiveness were used; this was also the case at late season. Starters are probably the most skilled and experienced players on the team therefore, it was not unexpected that starting players were rated as highly effective by their teammates. Also, it is probable that the higher mean teammate ratings were influenced by the absence of data on non-starters. Not surprisingly, further examination of the data indicated that starters rated themselves significantly ($p < .05$) more effective than non-starters and coaches rated their starting players as more ($p < .05$) effective than non-starters at both assessments.

Internal Consistencies

In Table 20, estimates of the internal consistency of various efficacy scales at early and late season are presented. The two task self-efficacy scales were newly constructed for this study. Consequently, the internal consistencies of these measures required examination. The eight-item SEOFF scale exhibited good reliability (α = .86). The four-item SEDEF scale was found to be internally consistent in an acceptable (Nunnally, 1978) range at α = .67. As discussed extensively in Study Two, Cronbach's alpha coefficient for the RE measures may not be interpreted as it is for scales comprised of a standard set of items. The alphas obtained for the REOFF (α = .83) and REDEF (α = .80) scales at late season were similar to those

Table 20

Internal Consistency of Role Efficacy, Task Self-efficacy, and Collective Efficacy Measures at Late Season

Measure	N items	Cronbach's Alpha
REOFF	4	.83
REDEF	4	.80
SEOFF	8	.86
SEDEF	4	.67
CEOFF	10	.90
CEDEF	9	.85

Note. n = 117

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
SEOFF - Task self-efficacy offense
SEDEF - Task self-efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

observed for the measures earlier in the season. These findings indicated the average relatedness of the four items to the scale total was reasonably high at both assessments. Cronbach's alphas for the late season collective efficacy scales also indicated a good degree of internal consistency (i.e., α's > .80) and were similar to those observed in the early season.

Internal consistencies for late season role-related perception scales and the individual cohesion scale appear in Table 21. Cronbach's alphas for the role perception scales ranged from α = .68 for defensive role acceptance to α = .97 for offensive role importance. The attraction to the group-task sub-scale of the GEQ was also found to have adequate internal consistency (α = .69). The internal consistency coefficients for the remaining cohesion scales (i.e., GI-T, ATG-S, and GI-S) at early and late season are included in Table H1 of Appendix H.

Testing the Relationship Between Role Efficacy and Task Self-efficacy

In Table 22, the relationships between RE, task SE, and role-adjusted task SE are presented. Each of the Pearson correlation coefficients was significant (ps < .01) indicating a moderately high degree of relation among all of the measures. Upon closer examination of the bivariate relationships, it was evident that the respective offensive and defensive RE and task SE measures were moderately to strongly related (e.g., REOFF – SEOFF r = .67). However, correlations were not so strong as to indicate statistical redundancy (e.g., r > .80). Although the role-adjusted task SE measures had an average of 2 fewer items for offense (i.e., M = 6.03, SD = 1.83) and one fewer item for defense (i.e., M = 2.84, SD = 1.0) compared to the basketball task SE scales, the respective offensive and defensive scales were very strongly related (i.e., rs > .86), as might be expected because the role-adjusted scales are a subset of the

Table 21

Internal Consistency of Role Efficacy, Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T Measures at Late Season

Measure	N items	Cronbach's Alpha
CLAROFF	3	.84
CLARDEF	3	80
ACCEPTOFF	3	.85
ACCEPTDEF	3	.68
SATOFF	3	.94
SATDEF	3	.91
IMPOFF	3	.97
IMPDEF	3	.76
ATG-T	4	.69

Note. n = 117

The acronyms for the various measures are as follows:

REOFF	- Role efficacy offense	SATOFF	- Role satisfaction offense
REDEF	- Role efficacy defense	SATDEF	- Role satisfaction defense
CLAROFF	- Role clarity offense	IMPOFF	- Role importance offense
CLARDEF	- Role clarity defense	IMPDEF	- Role importance defense
ACCEPTOFF	- Role acceptance offense	ATG-T	- Individual attraction to the group - task
ACCEPTDEF	- Role acceptance defense		

Table 22

Pearson Correlations Between Role Efficacy, Task Self-efficacy, and Role-adjusted Task Self-efficacy at Late Season

Measure	1	2	3	4	5	6
1. REOFF	--	.64**	.67**	.50**	.68**	.50**
2. REDEF		--	.62**	.66**	.63**	.71**
3. SEOFF			--	.63**	.93**	.66**
4. SEDEF				--	.66**	.87**
5. SEOFFrole					--	.68**
6. SEDEFrole						--

Note. n = 117
* p < .05 ** p < .01

The acronyms for the various measures are as follows:
REOFF - Role efficacy offense
REDEF - Role efficacy defense
SEOFF - Task self-efficacy offense
SEDEF - Task self-efficacy defense
SEOFFrole - Role-adjusted task self-efficacy offense
SEDEFrole - Role-adjusted task self-efficacy defense

basketball task SE measures. Adjusting the task SE scales for role frequency caused only a slight increase in the correlations of these measures with RE (i.e., Δ $\underline{rs}$ = +.01and +.05 for offensive and defensive measures, respectively). The resulting correlations while indicating some relation, also indicate that RE and role-adjusted task SE are clearly different measures, thus supporting divergence between RE and each of task SE and role-adjusted task SE, respectively.

Mediational Effects of Role Efficacy on Perceived Role Performance Effectiveness

Having demonstrated a divergence between RE and task SE, the next step in these analyses was to examine the relationship between task SE and perceived role performance effectiveness and, based on SET (Bandura, 1997), the hypothesized mediational role of RE. Mediational relationships were examined using statistical techniques recommended by Baron and Kenny (1986). Baron and Kenny have suggested the following:

> To test for mediation, one should estimate the three following equations: first, regressing the mediator on the independent variable, second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and the mediator...
> To establish mediation, the following conditions must hold: First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. Perfect

mediation holds if the independent variable has no effect when the mediator is controlled. (p. 1177).

To apply Baron and Kenny's (1986) suggestions to the present study, the various steps to test for mediation are to detect significant relationships between (a) task SE and RE, (b) task SE and perceived role performance effectiveness, and (c) RE and perceived role performance effectiveness. The final step involves regressing perceived role performance effectiveness upon the mediator, RE, as well as task SE. In this equation, RE should account for a significant proportion of the variance in perceived role performance effectiveness when the effect of task SE is statistically controlled. For perfect mediation to occur, the amount of variance in perceived role performance effectiveness accounted for by task SE should no longer be significant when the effects of RE are statistically controlled. Separate, concurrent, mediational analyses were conducted for the respective offensive and defensive constructs using the late season data only.

The mediational analyses for offensive and defensive task SE, RE, and self-reported role performance effectiveness are presented in Tables 23 and 24, respectively. As can be observed in Table 23, the requisite independent relationships between each of the offensive criterion, predictor, and mediator variables were significant ($p < .05$). As hypothesized, when the effect of REOFF was statistically controlled, the contribution of offensive task SE to the prediction of perceived offensive role performance effectiveness was no longer significant (i.e., $\Delta R^2 = .01$, $p > .05$), thus, supporting the mediational role of RE. The second mediational analysis for defensive variables revealed similar findings to those observed for offense (See Table 24). These findings suggest that the effects of task SE on perceived role

Table 23

Role Efficacy Mediation of the Relationship Between Offensive Task Self-efficacy and Perceived Offensive Role Performance Effectiveness

Criterion	Predictor	Beta	R^2	R^2change	F	p
$REOFF_2$	$SEOFF_2$	.67	.45	.45	81.97	.001
$SELFOFF_2$	$SEOFF_2$	.37	.14	.14	16.52	.001
$SELFOFF_2$	$REOFF_2$	.60	.36	.36	58.88	.001
$SELFOFF_2$	$REOFF_2$	.66	.37	.37		.001
	$SEOFF_2$	-.08	.38	.01	30.05	.47

Note. n = 117, mediational analyses were performed on late season data only and are concurrent analyses.

The acronyms for the various measures are as follows:
$REOFF_2$ - Late season role efficacy offense
$SEOFF_2$ - Late season task self-efficacy offense
$SELFOFF_2$ - Late season players' self-ratings of offensive role effectiveness

Table 24

Role Efficacy Mediation of the Relationship Between Defensive Task Self-efficacy and Perceived Defensive Role Performance Effectiveness

Criterion	Predictor	Beta	R^2	R^2change	F	p
$REDEF_2$	$SEDEF_2$	.66	.44	.44	76.86	.001
$SELFDEF_2$	$SEDEF_2$	.49	.24	.24	32.26	.001
$SELFDEF_2$	$REDEF_2$	.63	.39	.39	67.37	.001
$SELFDEF_2$	$REDEF_2$	.51	.38	.38		.001
	$SEDEF_2$	.16	.39	.01	31.58	.13

Note. n = 117, mediational analyses were performed on late season data only and are concurrent analyses.

The acronyms for the various measures are as follows:
$REDEF_2$ - Late season role efficacy defense
$SEDEF_2$ - Late season task self-efficacy defense
$SELFDEF_2$ - Late season players' self-ratings of defensive role effectiveness

performance effectiveness operate through RE. Although these findings are somewhat limited due to concurrent measurement, they offer preliminary support for Bandura's (1997) assertion that efficacy expectations that are specifically linked to the domain in question play a mediatonal role.

Prospective Relationships Between Role Efficacy and Perceived Role Performance Effectiveness

Results of the prospective analyses predicting offensive and defensive RE at late season are presented in Tables 25 and 26, respectively. As predicted for offense, both RE and perceived role performance effectiveness at early season were significantly ($p < .05$) related to RE at late season. However, independent regressions indicated that early season RE ($R^2adj = .48$, $p < .01$) was a stronger predictor of RE at late season compared to early season perceived role effectiveness ($R^2adj = .14$, $p < .01$). The superior predictive power of early season RE was further evidenced when its effect was statistically controlled in a hierarchical multiple regression. In Table 25, early season role effectiveness was no longer significant (i.e., $\Delta R^2 = .00$, $p > .05$) in a model predicting late season RE. Similar results were obtained in the analyses predicting defensive RE at late season.

Both early season REDEF and perceived defensive role performance effectiveness were related to late season RE (i.e., $R^2adj = .36$, $p < .01$ and $R^2adj = .19$, $p < .01$, respectively). However, in slight contrast to the offensive RE findings, perceived defensive role performance effectiveness at early season did contribute significantly (i.e., $\Delta R^2 = .03$, $p = .03$) although modestly, to the prediction of late season REDEF when the effects of early season REDEF were controlled in a hierarchical model (Table 26).

Table 25

Prospective Relationships Between Offensive Role Efficacy and Perceived Offensive Role Performance Effectiveness

Criterion: Late season $REOFF_2$

Predictor	R^2change	Beta		p
$REOFF_1$	.49	.68		.001
$SELFOFF_1$	.00	.04		.65
MODEL	R^2adj	Mult R	F	p
	.48	.70	43.61	.001

Note. n = 102

The acronyms for the various measures are as follows:

$REOFF_1$ - Early season role efficacy offense
$REOFF_2$ - Late season role efficacy offense
$SELFOFF_1$ - Early season players' self-ratings of offensive role effectiveness

Table 26

Prospective Relationships Between Defensive Role Efficacy and Defensive Perceived Role Performance Effectiveness

Criterion: Late season $REDEF_2$

Predictor	R^2change	Beta		p
$REDEF_1$	.37	.51		.001
$SELFDEF_1$	.03	.20		.03
MODEL	R^2adj	Mult R	F	p
	.39	.63	31.97	.001

Note. n = 100

The acronyms for the various measures are as follows:
$REDEF_1$ - Early season role efficacy defense
$REDEF_2$ - Late season role efficacy defense
$SELFDEF_1$ - Early season players' self-ratings of defensive role effectiveness

Tables 27 and 28 present the results of the prospective analyses predicting late season perceived role performance effectiveness. For both offensive and defensive analyses, RE and perceived role performance effectiveness at early season were significant independent predictors of perceived role performance effectiveness at late season. As recommended by Bandura (1997), in order to control for the influence of mastery experiences on previous efficacy, hierarchical multiple regression analyses were performed in which early season RE was entered first followed by early season perceived role performance effectiveness in the predictive model. In the offensive analyses, early season RE and early season perceived role effectiveness were related to late season role performance effectiveness (i.e., $R^2adj = .27$, $p < .01$ and $R^2adj = .15$, $p < .01$, respectively). However, when early season RE was entered first in the model, early season perceived role performance effectiveness was no longer predictive of its late season counterpart (i.e., $\Delta R^2 = .02$, $p > .05$).

In the defensive analyses, early season RE ($R^2adj = .19$, $p < .01$) and early season perceived role performance effectiveness ($R^2adj = .37$, $p < .01$) were related to late season role performance effectiveness. It should be noted, however, that results of the hierarchical regression analyses indicated that early season perceived role performance effectiveness still accounted for additional variance (i.e., $\Delta R^2 = .21$, $p < .01$) in perceived role effectiveness at late season when early season RE was controlled.

Group Related Influences on Role Efficacy

In order to compare RE across teams differing in perceptions of CE and task cohesion, extreme groups were created. Because CE and GI-T are (a) conceptualized and operationalized as members' perceptions of the group as a whole, and (b) because ICC values indicated that a group effect was present (See Table G1 in Appendix G), groups were the

Table 27

Prospective Relationships Between Offensive Role Efficacy and Perceived Offensive Role Performance Effectiveness

Criterion: Late season $SELFOFF_2$

Predictor	R^2change	Beta		p
$REOFF_1$	.27	.44		.001
$SELFOFF_1$	.02	.17		.10
MODEL	R^2adj	Mult R	F	p
	.28	.54	31.54	.001

Note. n = 102

The acronyms for the various measures are as follows:

$REOFF_1$ - Early season role efficacy offense
$SELFOFF_1$ - Early season players' self ratings of offensive role effectiveness
$SELFOFF_2$ - Late season players' self ratings of offensive role effectiveness

Table 28

Prospective Relationships Between Defensive Role Efficacy and Perceived Defensive Role Performance Effectiveness

Criterion: Late season $SELFDEF_2$

Predictor	R^2change	Beta		p
$REDEF_1$	.20	.19		.04
$SELFDEF_1$	.21	.52		.001
MODEL	R^2adj	Mult R	F	p
	.39	.64	19.26	.001

Note: N = 100

The acronyms for the various measures are as follows:
$REDEF_1$ - Early season role efficacy defense
$SELFDEF_1$ - Early season players' self ratings of defensive role effectiveness
$SELFDEF_2$ - Late season players' self ratings of defensive role effectiveness

appropriate unit of analyses. The detection of a group effect meant that traditional methods of creating extreme groups (e.g., tertile split of the entire sample) were not appropriate. Instead, entire teams who were extreme in their team-level perceptions of CE and GI-T were selected as the units of analysis. Thus, for each of CEDEF, CEOFF, and GI-T, extreme groups were created by selecting teams in the upper one-third and the lower one-third of the sample on each measure. Thus, at early season, the extreme groups consisted of five teams each, while at late season, four teams were in the respective higher and lower classifications. The various means, standard deviations, and t-tests for between group differences for the higher and lower CE and GI-T groups are presented in Table 29. As the independent t-tests (with a conservative alpha level of $p < .01$) revealed, this procedure created CEOFF, CEDEF, and GI-T groups that were significantly different from each other at each time point ($ps < .01$). Although the upper and lower 30% of teams were selected on the basis of group CE and GI-T scores, teams within each of the upper and lower extremes could still differ, reflecting heterogeneity between extreme groups. Thus, prior to the comparison of RE between groups, the homogeneity of CE and GI-T scores of individuals within the extreme groups was examined. Groups were the unit of analysis. However, individual scores were used in order to increase the power of the test comparison. For each of CEDEF, CEOFF, and GI-T, separate one-way ANOVA's with Bonferoni post-hoc tests with team as the between groups factor compared across teams within each extreme higher and lower group classification. Results indicated that the teams categorized as either higher or lower on each group perception were homogenous (i.e., scores did not differ significantly from one team to another within an extreme group, $ps > .05$).

Table 29

Descriptive Statistics and Tests for Differences Between Higher and Lower Collective Efficacy and GI-T Extreme Groups at Early and Late Season

Measure	Higher groups		Lower groups			
	M	SD	M	SD	t	p
$CEOFF_1$	77.21	2.73	66.40	4.04	7.06	.01
$CEDEF_2$	77.64	1.64	67.35	2.82	4.96	.01
$GI\text{-}T_1$	7.38	.58	5.33	.34	7.30	.01
$CEOFF_1$	79.50	2.26	62.40	5.12	6.12	.01
$CEDEF_2$	79.09	2.99	65.11	3.43	6.15	.01
$GI\text{-}T_2$	7.15	.48	4.84	.69	5.50	.01

Note. Early season Higher CEDEF n teams = 5,
Lower CEDEF n teams = 5,
Higher CEOFF n teams = 5,
Lower CEOFF n teams = 5,
Higher GI-T n teams = 5,
Lower GI-T n teams = 5,
Late season Higher CEDEF n teams = 4,
Lower CEDEF n teams = 4,
Higher CEOFF n teams = 4,
Lower CEOFF n teams = 4,
Higher GI-T n teams = 4,
Lower GI-T n teams =4,

The acronyms for the various measures are as follows:

$CEOFF_1$ - Early season collective efficacy offense
$CEDEF_1$ - Early season collective efficacy defense
$GI\text{-}T_1$ - Early season group integration - task
$CEOFF_2$ - Late season collective efficacy offense
$CEDEF_2$ - Late season collective efficacy defense
$GI\text{-}T_2$ - Late season group integration - task

Role efficacy is an independent perception as demonstrated by low or negative ICCs (See Table G1 in Appendix G). Thus, the RE of individuals within extreme high and low CE and GI-T groups were compared. Table 30 displays the means and standard deviations for REDEF for each of the extreme CEDEF groups at early and late season while the descriptive REOFF statistics for extreme CEOFF groups at both time points are reported in Table 31. In three of four comparisons, RE of players within teams characterized by higher CE scores were slightly higher than RE reported by lower CE teams. However, contrary to hypotheses, no significant ($p < .05$) differences in RE emerged for any of the between group comparisons at either early or late season.

Descriptive statistics for extreme GI-T groups for both REOFF and REDEF at early and late season are presented in Table 32. As was the case with the extreme CE groups, players' RE scores were unexpectedly similar across higher and lower GI-T groups both early and late in the competitive season. In fact, lower GI-T teams reported slightly higher RE than their higher GI-T counterparts in all but one of the four comparisons, however, none of the differences between groups were significant ($p > .05$).

Support for Previous Findings

As predicted for the comparison to early season, very slight changes were observed in the form and extent of relationships between RE and other variables at late season. Tables presenting the various bivariate correlations and ICCs for the late season are found in Appendixes H and I. RE demonstrated positive relations, but divergence from CE, role clarity, acceptance, satisfaction, and importance (i.e., Pearson correlation coefficients ranged from $r = .13$ for REDEF – SATOFF to $r = .56$ for REOFF – CLAROFF). As was found in

Table 30

Comparison of Defensive Role Efficacy Between High and Low Defensive Collective Efficacy Groups

Measure	Early season				Late season			
	Higher CEDEF		Lower CEDEF		Higher CEDEF		Lower CEDEF	
	M	SD	M	SD	M	SD	M	SD
REDEF	78.85	9.87	76.15	13.29	80.24	8.58	80.88	11.73

Note. Early season Higher CEDEF n teams = 5, n individuals = 49
Lower CEDEF n teams = 5, n individuals = 55

Late season Higher CEDEF n teams = 4, n individuals = 31
Lower CEDEF n teams = 4, n individuals = 34

The acronyms for the various measures are as follows:
REDEF - role efficacy defense
CEDEF - collective efficacy defense

Table 31

Comparison of Offensive Role Efficacy Between High and Low Offensive Collective Efficacy Groups

Measure	Early season				Late season			
	Higher CEOFF		Lower CEOFF		Higher CEOFF		Lower CEOFF	
	M	SD	M	SD	M	SD	M	SD
REOFF	79.70	11.71	76.76	9.80	82.24	10.75	80.71	13.21

Note. Early season Higher CEOFF n teams = 5, n individuals = 51
Lower CEOFF n teams = 5, n individuals = 49

Late season Higher CEOFF n teams = 4, n individuals = 31
Lower CEOFF n teams = 4, n individuals = 33

The acronyms for the various measures are as follows:
REOFF - role efficacy offense
CEOFF - collective efficacy offense

Table 32

Comparison of Offensive and Defensive Role Efficacy Between High and Low GI-T Groups

Measure	Early season				Late season			
	Higher GI-T		Lower GI-T		Higher GI-T		Lower GI-T	
	M	SD	M	SD	M	SD	M	SD
REDEF	79.09	9.27	78.73	12.73	78.49	7.68	80.88	11.73
REOFF	78.30	10.86	80.25	11.22	79.06	10.94	80.71	13.21

Note. Early season Higher GI-T n teams = 5, n individuals = 50
Lower GI-T n teams = 5, n individuals = 64

Late season Higher GI-T n teams = 4, n individuals = 38
Lower GI-T n teams = 4, n individuals = 34

The acronyms for the various measures are as follows:
GI-T - group integration-task
REOFF - role efficacy offense
REDEF - role efficacy defense

Study Two, neither RE measure was related to ATG-T (See Table I2 in Appendix I). Two notable differences between the late season and early season findings were the ICCs for RE and the correlations between RE and coaches' and teammates' ratings of role performance effectiveness. First, as shown in Table G1, ICCs for both REOFF and REDEF were close to zero, indicating highly individualized scores. Second, correlations between RE and both coaches' and teammates' ratings of role performance effectiveness were considerably weaker than those observed in Study Two (See Table I3 in Appendix I). The only significant ($p <$ .05) correlation was between REOFF and COACHOFF at $r = .25$. Other correlations, while in the hypothesized positive direction, were not significant.

Discussion

The results of the present study expanded our knowledge about RE in four ways. First, RE was found to be distinct from task SE – a distinction necessary to clarify the uniqueness of RE as a construct. As well, RE was a mediator of the task SE-perceived role performance effectiveness relationship. Second, as predicted by SCT (Bandura, 1986) and suggested by the prospective analyses, RE was found to be both determined by, and a determinant of, perceived role performance effectiveness. Third, RE was not moderated by the group phenomena of CE or group task cohesion as was hypothesized and tested using an extreme groups analysis. Finally, players' RE was sustained at a high level over an entire season of play. While this might be expected for experienced players on elite teams who need to maintain their confidence in the face of challenges (i.e., win/loss), it had not been demonstrated by any research. It is however, consistent with what Bandura (1997) would predict.

Role Efficacy and Task Self-efficacy

As discussed in the introduction to this study, task SE and RE are necessarily distinct perceptions. Task SE refers to an individual's efficacy to perform certain domain-related skills independently (Zaccaro, 1996) while RE refers to a team member's efficacy to perform his/her specialized interdependent role functions. In the present study, RE was positively related to task SE, however, correlations were moderate. Moreover, even when task SE was adjusted to accommodate the relative frequency with which skills were executed by each athlete when performing his/her role, a strategy that should have made this measure more closely approximate RE, a moderate RE – role-adjusted task SE relationship prevailed. Positive relationships between RE and task SE were anticipated because interdependent role-related capabilities should have some basis in the requisite independent task skills upon which they are built. However, performing role functions involves more than the performance of basic task skills. Indeed a measure of RE requires more than the simple summation of task-related self-efficacies because elements of various interdependent role functions are not considered. Role functioning represents the synthesis of many skills and the capability to integrate interdependent skills within a team system in a particular domain. Thus, it is a distinct perception from task SE.

Earlier, it was maintained that $r = .80$ would reflect statistical redundancy between measures. This rule of thumb is one that is commonly used by statisticians to denote the possibility of multicollinearity between measures that will be used as predictors in procedures such as multiple linear regression. The measures share too much common variance to be useful independent predictors. However, it is important to remind oneself that in measuring constructs, it is also important to judge both the content of what is represented by the

constructs being examined and the degree to which they reflect shared variance with and unique variance from other measures. Thus, in the process of construct validation, researchers may feel that an $r = .75$ (i.e., shared variance = 56%) between two measures indicates a conceptual relation that is not sufficiently unique. In the present study, it has been argued that RE and task SE are related, but do not share so much common variance as to be considered (a) statistically redundant or (b) the same construct. At this preliminary stage of the research, the two constructs are related, but distinct as hypothesized. This is clearly borne out when one considers the findings presented in Table 22. It can be observed that the shared variance between RE and task SE measures was 44% for offense and 45% for defense, compared to that observed between SE and SErole measures which ranged from 77% to 87% for defense and offense respectively. Thus, the latter measures share more in common that the former. The unique variance (notwithstanding that accounted for by measurement error) not reflected in the RE – task SE correlation is 56% for offense and 55% for defense. These observations suggest that these constructs are much more distinct than the two SE measures. Furthermore, their distinctiveness should be demonstrated if both measures are examined for their unique contribution (i.e., R^2 change) to the prediction of a criterion measure.

When RE and task SE were examined in relation to perceived role performance effectiveness, significant relationships were observed. However, because effective role functioning represents the integration of interdependent task skills, it was hypothesized that RE could mediate the task SE-perceived role effectiveness relationship. Recall that the rationale for the test of mediation was that although both task SE and RE should be related to perceived role performance effectiveness, task SE that stems from the mastery of skills gained when performing role functions during competition should function through RE when

influencing perceived role performance effectiveness. The most immediate relation of RE should be to its behavioral counterpart, role performance effectiveness. However, given the impossibility of a direct measure of role performance effectiveness, a measure of individuals' self-reported role performance effectiveness was used. Results supported the mediational role of RE in the task SE-perceived role performance effectiveness relationship. When considered together, the divergence between RE and task SE and the mediational relationships observed support the distinctiveness of the RE construct.

Although these were encouraging findings, it should also be noted that a more robust test of mediation should involve the mediator occurring temporally between the predictor and the criterion variables (Baron & Kenny, 1985). Because each of the measures in the mediation analyses were only collected concurrently, temporal relationships could not be tested. Future research is needed to determine whether the mediational role of RE is reliable in a temporal analysis of task SE and perceived role performance effectiveness. Also, future research should examine the reliability of the mediational role of RE when objective measures of role effectiveness are included in the analyses.

Prospective Relationships

The present investigation has also demonstrated that RE is influenced by perceived role performance effectiveness. These findings support SET, in which Bandura (1997) proposed that mastery experiences are the most potent antecedents of efficacy expectations (Bandura, 1997; Maddux, 1995). However, mastery experiences are among a number of efficacy determinants (e.g., vicarious experiences, verbal persuasion). While other sources of RE were not examined in this study, it was reasoned that perceptions of RE at one point in time are a representation of the collected sources of RE and should, therefore, be a predictor

of RE measured at a later time. Results supported this line of reasoning albeit that previous perceived role performance effectiveness did contribute slightly to the explained variance in later defensive RE even when early season RE was controlled.

Role efficacy was also found to predict future perceived role performance effectiveness. These findings support the predictions of SET, in which Bandura (1997) has noted that although efficacy beliefs may take different forms, they "have similar sources, serve similar functions, and operate through similar processes" (Bandura, 1997, p. 478). Results also paralleled those of prospective self-efficacy research in individual sports (e.g., Kane et al., 1996) and complex motor tasks (e.g., Feltz, 1988) as well as past findings regarding collective efficacy (e.g., Paskevich et al., in press) in which efficacy beliefs measured at an earlier point in time were predictive of later performance. Thus far, it has been demonstrated that RE is divergent from, but related to (i.e., a significant amount of variance was shared) other efficacy and role-related perceptions. It was also found that RE was positively related to concurrent ratings of role effectiveness. However, until this point, when RE was examined prospectively, the causal influence of RE on future role behavior had not been determined. According to Bandura (1997), one of the important characteristics of efficacy expectations is the ability of these social cognitions to influence future behavior. The findings of this study provided some initial evidence that RE may have predictive utility with regards to subjectively rated role behaviors. A future step in examining RE would be to investigate the influence of RE on objective behavioral measures of role performance effectiveness.

An interesting additional finding in this study was that the amount of explained variance in late season defensive role performance effectiveness was increased considerably

when early season role effectiveness ratings were added to RE in the predictive model. However, such was not the case for perceived offensive role performance effectiveness. This finding is similar in part to previous research that found past athletic performance added to the prediction of future athletic performance beyond that predicted by SE (Feltz, 1982; 1988). While it is difficult to interpret the divergence of the offensive and defensive findings, it could be suggested that these results emerged because offensive play and defensive play are characteristically different in basketball.

Offensive play is very dynamic over the course of a season and tactics may change dramatically as new plays and role assignments rapidly evolve when new opponents are confronted (i.e., a team usually develops an expanding variety of offensive plays from early to late season). In comparison, defenses are fewer and tend to remain more basic and consistent (i.e., full-court and half-court, man-to-man or zone) over the course of one or many seasons.

Bandura (1997) has suggested that previous performance is likely to account for additional variance in later performance beyond that accounted for by efficacy expectations only when the behaviors involved in each performance are highly similar. Such was the case in Feltz's research cited earlier. In her studies, participants performed a modified back dive from a springboard repeatedly and rated their self-efficacy before each attempt. Thus, it is conceivable that the discordance between offensive and defensive results in the present study could be explained by the greater heterogeneity of behaviors on offense compared to defense. The inability of past behavior to predict future behavior beyond that accounted for by efficacy expectations when the direct actions or circumstances surrounding the behavior are unique also supports Bandura's (1997) reasoning.

Potential Group Moderators of Role Efficacy

Results of Studies One and Two indicated that RE reflects beliefs that tend to be more individualized in nature than shared among members. Although the determinants of these beliefs are found in the group environment and are partly a product of group interaction, when responses were considered with respect to being a shared group versus individual perception, the ICCs (intraclass correlations) indicated the data reflected independent (i.e., less shared variance) responses. It may be argued that group phenomena moderate RE primarily when the groups are extreme in their perceptions about the unity of the group or the group's CE. Thus, it was hypothesized that group phenomena (i.e., CE and cohesion) would have an impact on members' RE. These hypotheses were based on Bandura's (1997) suggestion that personal efficacy beliefs are inextricably linked to the social system in which members function. The range of CE and cohesion scores obtained from teams at both time points allowed for comparisons between groups of teams that were characteristically higher or lower on each of these team perceptions. Surprisingly, RE was consistently high across the members of these teams regardless of the relative strength and homogeneity of their CE and of their group task cohesion. This finding underscores Bandura's (1986; 1997) contention that a resilient sense of personal efficacy is important in the maintenance of effort and persistence towards intrinsically meaningful goals.

Resiliency of Role Efficacy

One additional finding that is worthy of discussion relative to Bandura's (1997) notion of "resiliency" is the degree to which role efficacy perceptions changed over time. A comparison of RE at early versus late season revealed that these perceptions did not change a great deal over an entire season of competitive play. Overall, the scores of the entire

prospective sample were only two percentage points higher between early and late season RE measures. Although teams had varying degrees of success over the season, with several teams qualifying for league playoffs and others not qualifying, players' perceptions of RE remained high. Post-hoc within-subjects ANOVAs indicated that REOFF did change significantly ($F(1,104) = 6.02$, $p < .02$) while REDEF did not ($p > .05$). These findings also support the notion that RE perceptions for offensive functions may be based on a greater variety of complex skills than defense, thus, there may be greater opportunity for change.

Bandura (1986; 1997) has stated that efficacy beliefs must be resilient in order for individuals to sustain their efforts and persist in the face of obstacles to their success. Therefore, the present results are not surprising when one considers the elite level at which these teams and players competed. The fact that the sample was comprised of very experienced athletes who had clear roles suggests that players' interdependent role capabilities were highly developed to the point where their RE was not likely to change a great deal over the course of a single season. Indeed, considering the elite level of play at which these teams competed, it would have been surprising to have found a major change in RE over time for a majority of players. It is probable that RE is more prone to change among less experienced athletes who compete at novice levels compared to expert, elite-level competitors.

General Discussion

The overriding objective of the series of studies comprising this dissertation was to conceptualize, measure, and investigate a form of efficacy that reflects the confidence of individuals performing specialized interdependent role functions within interdependent groups. This concept, called role efficacy can be conceptualized and studied within the context of self-efficacy theory (SET; Bandura, 1986; 1997). The study of SE in sport has been extensive over the past 20 (cf. Bandura, 1997; Feltz & Chase, 1998). However, although numerous forms of individual efficacy (i.e., task, social; Zaccaro, 1996) and group efficacy (i.e., collective; Bandura, 1997; Zaccaro et al., 1995) that could occur in the group environment have been identified, the efficacy associated with the performance of functions required by clearly specified group roles has not been considered. When one considers the very limited amount of both group and role research in sport, the fact that a construct such as RE has gone unrecognized is not at all surprising.

The RE examined in the present series of studies referred to a group member's beliefs in his/her capabilities to successfully perform his/her specialized interdependent role functions. In his discussion of CE and the interaction of the individual within the group, Bandura (1997) described members' roles and their confidence to perform required tasks. For example, in regards to the measurement of CE, Bandura stated: "...in judging the efficacy of the team as a whole, members certainly consider how well key teammates can execute their roles" (Bandura, 1997, p. 478). The fact that Bandura (1997) theorized that role capabilities are influential with respect to CE appraisals suggests that efficacy beliefs based on role capabilities may not only be unique perceptions, but also implies that they could be important considerations for group functioning. The three studies previously reported demonstrate that

RE (a) can be measured as a salient belief among interdependent team members, (b) is related to but distinct from other efficacy, role, and group-related constructs, and (c) functions in the manner hypothesized for efficacy beliefs in the larger context of SET.

Support for Self-efficacy Theory

Role efficacy is conceptualized as a unique form of SE that is the product of a unique social context – the group. It should operate in a manner consistent with that hypothesized for the parent construct and be determined by the same general categories of determining factors (Bandura, 1997). The results of all three studies supported the specific contentions of SET (Bandura, 1997) and SCT (Bandura, 1986). Hypothesized moderating (i.e., starting status) and mediating (i.e., RE as a mediator) relationships were observed. As well, the question of a temporal and experiential influence for group moderators (i.e., CE and cohesion) was identified following their failure to influence RE. These conclusions are supported by the following synopsis of the results.

Study One was a preliminary effort to operationally define RE. In this study, the operational definition was carefully attended to in order to (a) accurately reflect the constitutive definition of RE (Cook & Campbell, 1979) and (b) incorporate Bandura's (1997) suggestion that efficacy should be measured according to both the specificity of the behavior and the social context in which the behavior occurs. Specifically, efficacy for performing specialized, interdependent role functions within a group was conceptualized as something different than (a) individual efficacy for performing independent task skills, and (b) the efficacy of the group as a whole.

Through an elicitation process that recruited subjects as active agents (e.g., Sherif & Sherif, 1969), basketball players demonstrated that they understood, could articulate, and

report their associated efficacy for at least four specific functions that comprised their roles for the offensive and defensive play on their particular team. Preliminary evidence was obtained which indicated that RE was multidimensional (i.e., offense and defense). Kenny and Lavoie's (1985) statistical technique for detecting the interdependence of responses within groups revealed that RE was an independent belief – that it did not reflect the interdependent responses characteristic of group phenomena (e.g., the shared variance reflective of CE).

Role efficacy was positively, but not significantly related to perceptions of the team's CE. It is noteworthy that these findings appear similar to those of research in Organizational Psychology that have found individual SE and CE to be positively, but modestly related (e.g., Jex & Gudanowski, 1992; Riggs & Knight, 1994). However, RE was not specifically assessed in any of these studies and, as argued in this dissertation, is a unique form of individual efficacy. Results also indicated that players' starting status was a moderator of RE. As predicted by SET, more experienced starting players reported characteristically higher RE scores than non-starters who had less direct experience performing role functions during competition.

Considered together, the findings of Study One indicated that RE was a salient and measurable construct among members of interdependent teams and supported the conceptualization of RE as a distinct individual-level perception that develops within the group environment. Although some support for the construct validity of RE was obtained, these preliminary findings using an unrefined measure to examine a small sample of individuals and teams required further investigation. However, this initial attempt to develop a valid construct to operational definition link appeared to hold promise for future studies.

The development of scientific confidence about a theoretical construct and its operational definition is built upon the demonstration of reliable evidence derived from studies that tend to show consistent findings. Thus, the objective of Study Two was to examine the psychometric characteristics of a refined RE measure and describe the consistency of Study One's findings in a comparatively larger, but still homogenous sample of elite basketball teams. Also, to advance the construct validation process, the relationships between RE and other role-related and group cohesion constructs were tested to determine divergent validity. Finally, a fundamental theoretical relationship, that between efficacy expectations (i.e., RE) and perceptions of corresponding behavior (i.e., perceived role performance effectiveness) was examined.

The findings of Study Two provided additional initial support for the psychometric reliability of the RE measure. The four-item scales used to assess RE demonstrated good internal consistency and inter-item correlations. Similar to the findings observed in Study One, RE was clearly an independent perception that was moderated by starting status and related to, but distinct from CE. The conceptual independence of the RE construct from other role-related measures and from another group-related construct – individual task-related cohesion was also demonstrated, emphasizing the uniqueness of role efficacy beliefs. Finally, the fundamental theorized relationship between efficacy beliefs and concurrently measured indicants of personal role performance effectiveness was observed.

Studies One and Two offered overlapping and complimentary evidence of the conceptual uniqueness and preliminary construct validity of RE. Moreover, results to this point had demonstrated that RE was an independent perception that was (a) influenced by the amount of direct mastery experience gained in a specific domain and (b) related to concurrent

measures of behavior, supporting the premises of SET (Bandura, 1997) and SCT (Bandura, 1986).

Although the results of the first two studies were promising, validating the uniqueness of the RE concept is an ongoing process. Another clearly necessary distinction remained to be demonstrated if RE merits unique conceptual status. Thus, a comparative examination of RE and SE to perform essential task skills was required. In addition, determining whether RE functions according to theory necessarily demanded a prospective examination of RE and perceived role behavior over time. Finally, two other aspects of inquiry typically associated with construct validation within the bounds of theory are moderation and mediation research questions. With regards to moderation, Bandura (1997) has suggested that both CE and the extent to which the group was united in performing its tasks should influence the personal efficacy of group members. Also, Bandura proposed that all forms of efficacy beliefs function as mediators of behavior. Thus, addressing the aforementioned distinction and hypothesized relationships was the purpose of Study Three.

Bandura (1997) does not make reference to a theoretical distinction between an individual's SE and their efficacy to carry out specialized, interdependent role functions. However, conceptually this is an important distinction because it deals with separating a group member's beliefs about his/her confidence in specific, independent task-related capabilities from his/her beliefs in his/her abilities to perform the specialized and interdependent functions expected of him/her within the team's systems. Metaphorically, one could liken the comparison to that between an actor's efficacy in his/her generic acting abilities and his/her efficacy in his/her ability to play a specific role such as Shakespeare's Hamlet. Are these two efficacies one and the same or are they distinct as a function of the

context in which the part is played? The unique challenges of the role, the incentive to perform the specific functions related to one's part in the play, and finally, the integration of one's behavior within the interdependent cast in order to deliver the production involves more than executing generalized acting capabilities. Therefore, efficacy beliefs formed within the social context of the group and an individual's interdependent role in the group's organizational structure should be clearly more than an individual's efficacy beliefs about the skills that s/he can demonstrate individually.

Study Three results demonstrated that while task SE and RE in basketball were moderately related they were clearly distinct constructs. An attempt to adjust task SE so that it conformed directly to only those role-related skills that were performed on a regular basis during competition did not markedly increase the correlation between task SE and RE. These results supported the hypothesized divergence of the two constructs. Although basketball players' abilities to perform specific roles may depend to a large extent on their individual basketball task skills, their belief in their capabilities to execute an integrated package of role functions within an interdependent team framework is different than the sum of efficacy beliefs about basketball skills.

In SET, Bandura (1997) posits that efficacy expectations influence cognitive, affective, motivational, and selective processes that impact future behaviors and, by extension, future efficacy. In the competitive context of elite basketball, the present study found that early season RE predicted both later season RE and perceived role performance effectiveness. Interestingly however, when there was opportunity to test both early season RE and perceived role performance effectiveness in the same model predicting either late season perceived role performance effectiveness or RE, in each model the contribution of RE

surpassed or equaled that of early season perceived role performance effectiveness. At this level of competition, it is perhaps the overriding confidence in one's role capabilities that is the best predictor of future perceived role performance effectiveness.

Potential moderators of RE suggested by Bandura (1997) did not influence the level of expressed RE. Contrary to theorized expectations that CE and task cohesion might influence the perceived efficacy of group members (Bandura, 1997), no effect on individual members' RE was detected. However, these findings may also be explained by theory in that efficacy expectations among experienced athletes are proposed to be highly resilient (Bandura, 1997). Their unwavering efficacy is an important part of what keeps athletes pushing towards their athletic goals despite team losses, personal failures, and other setbacks. Thus, while group factors probably do influence the personal efficacy perceptions of members in less skilled samples, or among those who are not highly task-oriented, it is understandable that a homogenous sample of experienced elite athletes may not have demonstrated theorized differences.

The mediation hypothesis in the third study focused on whether the relationship between task SE and perceived role performance effectiveness was mediated by RE. In SET, efficacy expectations are proposed to function as mediators and the results of Study Three offer initial support for RE in fulfilling that function.

Measurement Considerations

Conceptualizing RE as a perception that is peculiar to individuals' formal performance roles in groups presented the challenge of identifying the specific, interdependent role functions of each group member. Not all members of a team have the same role and thus the functions carried out by each member should be both specialized and unique. Thus, a scale

consisting of a standard set of items for all players would not suffice as an accurate representation of RE. This challenge was met by having players serve as active agents in the research process (e.g., Sherif & Sherif, 1969) who identified their salient and unique, interdependent role functions. Using this elicitation approach, where players responded to personally identified role functions helped to focus efficacy responses towards the interdependent functions most specific to each player's role. However, what is gained in this specificity in responses may produce typical psychometric results (e.g., Cronbach's alpha) that are less interpretable than the psychometric properties of scales that offer the same set of items to every respondent.

Overall, it can be suggested that role functions are specific to each member of a basketball team, but they can be divided into offensive and defensive functions for each person (i.e., each player identified numerous functions for each). These highly individualized, interdependent role functions and associated efficacy offer a strong operational measure of what RE may be. Certainly, it was clear from the findings of Study Three that task SE and RE were distinct constructs. However, it could be argued from the comparison between RE and role-adjusted task SE that a measure of task SE "weighted" with respect to individual roles might be a good indicant of RE given the fairly strong correlation. This requires future study.

In the development of any instrument, a question that arises is whether the measurement can be improved in any way or be made more specific? At this preliminary stage of investigation about the RE concept, any answer to this question must be accompanied by an adjoining caveat -- the degree to which the measure might be altered depends upon the generality or specificity of the research question being asked, or, what one seeks to predict.

Some examples of how the instrument could be altered involve asking questions which extract the context-dependent nature of RE in reference to highly specific environments such as playing against the best team in the league, or the worst team in the league. A second type of example would perhaps use Bandura's (1986; 1997) hierarchical levels of measurement approach (i.e., efficacy magnitude) which could specify other conditions within the context such as the percentage of instances that a player could effectively perform certain functions in high-pressure game situations (e.g., percent confidence in capability to score from 5 feet, 10 feet, 20 feet, 30 feet from the basketball hoop).

Research questions such as those exemplified above are certainly important. However, the investigator needs to be mindful of being innovative not only in the questions asked, but also the number of questions that participants can be expected to respond to without creating subject burden, thus reducing responsiveness, and potentially compromising the completeness of the data. For example, in Study Two, respondents reported their RE with regards to four interdependent role functions on each of defense and offense in general (i.e., 8 responses in total). Had they been asked to list their RE for these functions with reference to playing against the best team and worst team in the league as well as in general, this would have required 24 responses. If the questionnaire had been designed to examine additional context-specific RE for each function, the number of required responses would have risen dramatically (i.e., 24 X the number of contexts proposed). Thus, investigators must remain cognizant of the readiness of their participants to respond and the demands of the research question prior to planning and administering a questionnaire.

Limitations, Caveats, and Future Directions

One recognizable limitation of the present research is that it was conducted in the context of one specific interactive sport (i.e., basketball) and involved participants who were a homogenous group of experienced and elite-level athletes. Thus, findings are not generalizable to other populations. To obtain a clearer picture of how RE operates and is influenced by other variables (e.g., CE) future research should examine the construct across diverse samples consisting of less skilled performers and group contexts that vary in the degree of task interdependence among members.

Second, the mediational analyses involving task SE, RE, and perceived role performance effectiveness were confined to concurrent measurements of each construct. A prospective test of mediation would provide stronger evidence of RE's hypothesized function as a theoretical construct (Baron & Kenny, 1986). Thus, it is recommended that future research on RE should involve multiple assessments over the course of a team's competitive season.

A final caveat involves the use of subjective, perceived measures of role behavior versus more objective, quantifiable measures. As mentioned in Study Two, self-reports of role performance effectiveness may be influenced by an optimistic bias. Quantifiable ratings of role performance effectiveness derived from objective external sources (e.g., coaches external to the team) may be useful. Ratings by the coach of the player's team, however, could tend to focus on areas of performance that need improvement and ratings by teammates may also be selective. Thus, subjective measures of role performance effectiveness from other group members or leaders may not be the most valid or reliable indicators of role

behavior. For these and a variety of other reasons the data from these measures were not used in the present study.

One other alternative to subjective ratings would be to establish objective role-behavior criteria for each player that could be scored during games much like the tracking of points scored, assists, rebounds, and fouls. By obtaining objective measures of role behaviors a clearer understanding of the individual and mediational relationship between RE, perceived role performance effectiveness, and objective role performance might emerge. In addition, as suggested by Widmeyer et al. (1993), the examination of social cognitive variables such as RE could certainly be extended by assessing measures and observing individual and team behavior during practice rather than focusing exclusively on competition. The effectiveness of players when scrimmaging and performing interdependent drills would also be informative indicants of role-related behavior.

Conclusion

In conclusion, RE is a specific form of efficacy, not unlike many forms of efficacy that have already been identified in other contexts (e.g., exercise; McAuley & Mihalko, 1998 and health; Bandura, 1997). As theorized by Bandura (1997) all forms of efficacy "have similar sources, serve similar functions, and operate through similar processes" (Bandura, 1997, p. 478) and therefore, RE may be useful as a theoretical construct to understand the perceptions of members functioning within groups. The types of research questions that might be raised in the investigation of RE in the future are as follows: Does RE play some part in determining why some people flourish and others struggle in performing their role within their group? Do individuals' perceptions of RE mitigate either their external selection for, or their personal pursuit of certain roles within a group and not others? Does RE function as something that

helps people persist and take on further challenges, like making the move from the second string of a basketball team to the starting lineup?

As a final comment, the interested reader is referred to either Fimrite's (1977) or Bandura's (1997) eclectic reflections on Coach Shaughnessy's triumphant metamorphosis of the 1940 Stanford football team. By these accounts, Shaughnessy transformed a beleaguered losing team by reviving the unique 'T' formation and "insightfully reassigning players to positions that capitalized on what they could do best and kept clear of their shortcomings...Stanford went undefeated that season and crowned their phenomenal metamorphosis with a victory at the Rose Bowl" (Bandura, 1997, p. 400). It is probable that an intervention such as this, which creates a positive sense of each player's RE would play no small part in a team's success. Future investigation of RE may help us to determine if RE is amenable to change through intervention as suggested by Bandura (1997). Answers to these questions offer interesting research challenges for those who assume the "role" of investigator in future RE studies.

References

Bales, R. F. (1966). Task roles and social roles in problem solving groups. In B. J. Biddle & E. J. Thomas (Eds.), Role theory: Concepts and research. New York: John Wiley.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W. H. Freeman & Co.

Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. Organizational Behavior and Human Decision Processes, 38, 92-113.

Baron, R. M., & Kenny, D. A. (1985). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.

Biddle, B. J. (1979). Role theory: Expectations, identities, and behaviors. New York: Academic Press.

Brawley, L. R. (1990). Group cohesion: Status, problems and future directions. International Journal of Sport Psychology, 21, 355-379.

Brawley, L. R., Carron, A. V., & Widmeyer, W. N. (1987). Assessing the cohesion of teams: Validity of the Group Environment Questionnaire. Journal of Sport Psychology, 9, 275-294.

Brawley, L. R., Carron, A. V., & Widmeyer, W. N. (1993). The influence of the group and its cohesiveness on perceptions of group goal-related variables. Journal of Sport & Exercise Psychology, 15, 245-260.

Brayfield, A. H., & Rothe, H. F. (1951). An index of job satisfaction. Journal of Applied Psychology, 35, 307-311.

Carron, A. V. (1982). Cohesiveness in sport groups: Interpretations and considerations. Journal of Sport Psychology, 4, 123-138.

Carron, A. V. (1988). Group dynamics in sport. London, Ontario: Spodym.

Carron, A. V., Brawley, L. R., & Widmeyer, W. N. (1998). The measurement of cohesiveness in sport groups. In J. L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp. 213-226). Morgantown, WV: Fitness Information Technology Inc.

Carron, A. V., & Hausenblas, H. (1998). Group dynamics in sport 2nd Edition. Morgantown, WV: Fitness Information Technology Inc.

Carron, A. V.,Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. Journal of Sport Psychology, 7, 244-266.

Christina, R. W. (1987). Motor learning: Future lines of research. In M. J. Safrit & H. M. Eckert (Eds.), The cutting edge in physical education and exercise science research (pp. 26-41). Champaign, IL: Human Kinetics.

Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design & analyses issues for field settings. Boston: Houghton Mifflin Co.

Cota, A. A., Evans, C. R., Dion, K. L., Kilik, L., & Longman, R. S. (1995). The structure of group cohesion. Personality and Social Psychology Bulletin, 21, 572-580.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychological Bulletin, 52, 281-302.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. Psychological Bulletin, 52, 281-302.

Dawe, S. W. L., & Carron, A. V. (1990, October). Interrelationships among role acceptance, role clarity, task cohesion, and social cohesion. Paper presented at the meeting of the Canadian Society for Psychomotor Learning and Sport Psychology. Windsor, Ontario.

Dion, K. L., & Evans, C. R. (1992). On cohesiveness: Reply to Keyton and other critics of the construct. Small Group Research, 23, 242-250.

Dorsch, K. D. (1997). Examining aggressive behaviour from a group perspective. Unpublished doctoral dissertation, University of Waterloo, Waterloo, Ontario.

Ewen, R. (1967). Weighting components of job satisfaction. Journal of Applied Psychology, 51, 68-73.

Farber, B. A. (1983). Stress and burnout in the human service professions. New York: Pergamon.

Feltz, D. L. (1982). Path analysis of the causal elements in Bandura's theory of self-efficacy and an anxiety-based model of avoidance behavior. Journal of Personality & Social Psychology, 42, 764-781.

Feltz, D. L. (1988). Gender differences in the causal elements of self-efficacy on a high avoidance motor task. Journal of Sport & Exercise Psychology, 10, 151-166.

Feltz, D. L., & Albrecht, R. R. (1986). The influence of self-efficacy on the approach/avoidance of a high-avoidance motor task. In J. H. Humphrey, & L. Vander Velden (Eds.), Psychology and sociology of sport (pp. 3-25). New York: AMS Press.

Feltz, D. L., & Chase, M. A. (1998). The measurement of self-efficacy and confidence in sport. In J. L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp. 65-80). Morgantown, WV: Fitness Information Technology Inc.

Feltz, D. L. & Mugno, D. A. (1983). A replication of the path analysis of the causal elements in Bandura's theory of self-efficacy and the influence of automomic perception. Journal of Sport Psychology, 5, 263-277.

Fimrite, R. (1977). A melding of men suited to a T. Sports Illustrated, 47,(10), 90-100.

Fisher, C. D., & Gitelson, R. (1983). A meta-analysis of the correlates of role conflict and ambiguity. Journal of Applied Psychology, 68, 320-333.

Florin, P., Giamartino, G. A., Kenny, D. A., & Wandersman, A. (1990). Levels of analysis and effects: Clarifying group influence and climate by separating individual and group effects. Journal of Applied Social Psychology, 20, 881-900.

Gecas, V. (1989). The social psychology of self-efficacy. Annual Review of Sociology, 15, 291-316.

Gould, D., Hodge, K., Peterson, K., & Giannini, J. (1989). An exploratory examination of strategies used by elite coaches to enhance self-efficacy in athletes. Journal of Sport and Exercise Psychology, 11, 128-140.

Gould, D., Weiss, M., & Weinberg R. S. (1981). Psychological characteristics of successful and non-successful Big Ten wrestlers. Journal of Sport Psychology, 3, 69-81.

Grand, R. R., & Carron, A. V. (1982). Development of a team climate questionnaire. In L. M. Wankel & R. B. Wilberg (Eds.), Psychology of sport and motor behaviour: Research and practice. Edmonton, AB: Department of Recreation and Leisure Studies, University of Alberta.

Hackman, R. J., & Oldham, G. R. (1975). Development of the job diagnostic survey. Journal of Applied Psychology, 60, 159-170.

Hackman, R. J., & Oldham, G. R. (1980). Work redesign. Reading, MA: Addison-Wesley.

Hays, W. L. (1973). Statistics for the social sciences. New York: Holt, Rinehart, & Winston.

Jex, S. M., & Gudanowski, D. M. (1992). Efficacy beliefs and work stress: An exploratory study. Journal of Organizational Behavior, 13, 509-517.

Kahn, R. L., Wolfe, D. M., Quinn, R. R., Snoek, J. D., & Rosenthal, R. (1964). Organizational stress: Studies in role conflict and ambiguity. New York: Wiley.

Kane, T. D., Marks, M. A., Zaccaro, S. J., & Blair, V. (1996). Self-efficacy, personal goals, and wrestlers' self-regulation. Journal of Sport and Exercise Psychology, 18, 36-48.

Kenny, D. A., & LaVoie, L. (1985). Separating individual and group effects. Journal of Personality and Social Psychology, 48, 339-348.

Lee, C., & Bobko, P. (1994). Self-efficacy beliefs: Comparison of five measures. Journal of Applied Psychology, 79, 364-369.

Lindsley, D. H., Brass, D. J., & Thomas, J. B. (1995). Efficacy-performance spirals: A multilevel perspective. Academy of Management Review, 20, 645-678.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally.

Mabry, E. A., & Barnes, R. E. (1980). The dynamics of small group communication. Englewood Cliffs, NJ: Prentice-Hall.

Maddux, J. E. (1995). Self-efficacy theory: An introduction. In J. E. Maddux (Ed.), Self-efficacy, adaptation, and adjustment: Theory, research, and application (pp. 3-33). New York: Plenum.

Maddux, J. E., Brawley, L. R., & Boykin, A. (1995). Self-efficacy and healthy behavior: Prevention, promotion, and detection. In J. E. Maddux (Ed.), Self-efficacy, adaptation, and adjustment: Theory, research, and application (pp. 305-328). New York: Plenum.

Mahoney, M. J., & Avener, M. (1977). Psychology of the elite athlete: An exploratory study. Cognitive Theory and Research, 1, 135-141.

Martin, J. J., & Gill, D. L. (1991). The relationships among competitive orientation, sport-confidence, self-efficacy, anxiety, and performance. Journal of Sport & Exercise Psychology, 13, 149-159.

McAuley, E., Duncan, T.E., & Russell, D. (1992). Measuring causal attributions: The revised Causal Dimension Scale (CDSII). Personality and Social Psychology Bulletin, 18, 566-573.

McAuley, E. & Mihalko, S. L. (1998). Measuring exercise-related self-efficacy. In J. L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp. 371-390). Morgantown, WV: Fitness Information Technology Inc.

McEnrue, M. P. (1984). Perceived competence as a moderator of the relationship between role clarity and job performance: A test of two hypotheses. Organizational Behavior and Human Performance, 34, 379-386.

Myers, J. L. (1972). Fundamentals in experimental design (2nd ed.). Boston, MA: Allyn & Bacon.

Myers, J. L., DiCecco, J. V., & Lorsch, R. F. Jr. (1981). Group dynamics and individual performances: Pseudogroup and quasi-F analyses. Journal of Personality and Social Psychology, 40, 86-98.

Neiman, L. J., & Hughes, J. W. (1951). The problem of the concept of role: A resurvey of the literature. Social Forces, 30, 141-149.

Nunnally, J. C. (1978). Psychometric theory. New York: McGraw-Hill

Paskevich, D. M., Brawley, L. R., Dorsch, K. D., & Widmeyer, W. N. (in press). Relationships between collective efficacy and team cohesion: Conceptual and measurement factors. Group Dynamics: Theory, Research, and Practice.

Paskevich, D. M., Dorsch, K. D., Brawley, L. R., & Widmeyer, W. N. (1994). Collective efficacy in 3-on-3 basketball. Unpublished manuscript. University of Waterloo, Waterloo, ON.

Prussia, G. E., & Kinicki, A. J. (1996). A motivational investigation of group effectiveness using social cognitive theory. Journal of Applied Psychology, 81, 187-198.

Riggs, M. L., & Knight, P. A. (1994). The impact of perceived group success-failure on motivational beliefs and attitudes: A causal model. Journal of Applied Psychology, 79, 755-766.

Rizzo, J., House, R., & Lirtzman, S. (1970). Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 15, 150-163.

Rommetveit, R. (1954). Social norms and roles. Mineapolis: University of Minnesota Press.

Russell, D. (1982). The Causal Dimension Scale: A measure of how individuals perceive causes. Journal of Personality and Social Psychology, 42, 1137-1145.

Schunk, D. H. (1995). Self-efficacy, motivation, and performance. Journal of Applied Sport Psychology, 7, 112-137.

Seigall, M., & Cummings, L. L. (1986). Task role ambiguity, satisfaction, and the moderating effect of task instruction source. Human Relations, 39, 1017-1032.

Shaw, M. E. (1981). Group dynamics: The psychology of small group behavior (3rd Ed.). New York: McGraw-Hill

Shaw, M. E., & Costanzo, P. R. (1982). Theories of social psychology 2nd Ed.. New York: McGraw-Hill.

Sherif, M., & Sherif, C. W. (1969). Social psychology. New York: Harper & Row.

Taber, T. D., & Alliger, G. M. (1995). A task-level assessment of job satisfaction. Journal of Organizational Behavior, 16, 101-121.

Taylor, C. B., Bandura, A., Ewart, C. K., Miller, N. H., & DeBusk, R. F. (1985). Exercise testing to enhance wives' confidence in their husbands' cardiac capabilities soon after clinically uncomplicated acute myocardial infarction. American Journal of Cardiology, 55, 635-638.

Theodorakis, Y. (1995). Effects of self-efficacy, satisfaction, and personal goals on swimming performance. The Sport Psychologist, 9, 295-300.

Thomas, E. J., & Biddle, B. J. (1966). The nature and history of role theory. In B. J. Biddle, & E. J. Thomas (Eds.), Role theory: Concepts and research (pp. 3-19). New York: John Wiley.

Treasure, D. C., Monson, J., & Lox, C. L. (1996). Relationship between self-efficacy, wrestling performance, and affect prior to competition. The Sport Psychologist, 10, 73-83

Vroom, V. H. (1963). Some personality determinants of the effect of participation. Englewood Cliffs, N.J.: Prentice-Hall.

Watkins, B., Garcia, A. W., & Turek, E. (1994). The relation between self-efficacy and sport performance: Evidence from a sample of youth baseball players. Journal of Applied Sport Psychology, 6, 21-31.

Watson, C. B., & Chemers, M. M. (1998, August). The rise of shared perceptions: A multilevel analysis of collective efficacy. Paper presented at the annual convention of the Academy of Management, San Diego, CA.

Widmeyer, W. N., Brawley, L. R., & Carron, A. V. (1992). Group dynamics in sport. In T. Horne (Ed.), Advances in sport psychology. Champaign, IL: Human Kinetics.

Widmeyer, W. N., Carron, A. V., & Brawley, L. R. (1993). Group cohesion in sport and exercise. In R. N. Singer, M. Murphey, & K. L. Tennant (Eds.), Handbook of research in sport psychology. New York: MacMillan.

Wood, R. E., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. Journal of Personality and Social Psychology, 56, 407-415.

Zaccaro, S. J. (1996, October). Social contextual considerations of efficacy beliefs: Defining multiple forms of social efficacy. Paper presented at the annual meeting of the Association for the Advancement of Applied Sport Psychology, Williamsburg VA.

Zaccaro, S. F., Blair, V., Peterson, C., & Zazanis, M. (1995). Collective Efficacy. In J. E. Maddux (Ed.), Self-efficacy, adaptation, and adjustment: Theory, research, and application (pp. 305-328). New York: Plenum.

APPENDIX A

Study One

Coaches' Contact Letter

Coaches' Questionnaire Administration Sheet

Dear Coach,

We realize that you are bombarded with requests to have your team participate in research projects. However, we are hopeful that you might find this study particularly interesting and helpful to you because it has important implications for identifying strengths on your team and team building. Specifically, we are interested in surveying and providing you with feedback on your players' perceptions of their confidence to carry out their role responsibilities how confident players feel the team is, as a whole, in its ability to perform team skills.

What your players have to do:
Complete a written questionnaire (20 minutes) requiring them to indicate:

- what their role functions are and the confidence they have for performing these functions
- their perceptions of the team's confidence in several aspects of offensive and defensive play

What the coach has to do:

- I will contact you again within the next week to see if your team will participate in the project – at which time we will make further arrangements to mail a questionnaire package or travel to administer the questionnaires ourselves if possible
- If corresponding by mail, recruit a member of the team's managerial staff to administer the questionnaires to players
- Set aside a 20 minute period (e.g., on a bus trip, or before a practice) in which your players can fill out a questionnaire
- Mail the completed package back as soon as you can

Upon examination of the data we will send you a summary of the findings for your team as quickly as possible.

We hope you feel that participating in this study will be beneficial to your team. We certainly appreciate your consideration of this request for assistance.

Sincerely,

Steven Bray M.A., University of Waterloo
Neil WidmeyerPh.D., University of Waterloo: widmeyer@healthy.uwaterloo.ca 519 885-1211 x3955
Larry Brawley Ph.D, University of Waterloo: lrbrawle@healthy.uwaterloo.ca 519 885-1211 x3153

Please correspond with Steven Bray: e-mail srbray@healthy.uwaterloo.ca 519-885-1211 ext. 3865

Dear Team Manager,

Thank you very much for participating in this research project. Please convey our appreciation to the coach and players as well.

Please note that in order to obtain quality data for feedback purposes it is imperative that players complete every question on the survey.

There are no specific instructions other than those outlined on the questionnaire itself.

Package Contents:

- 16 player questionnaires (in individual envelopes)
- 1 master return envelope in which to enclose completed questionnaires

Administration:

Plan a 15-minute team meeting at a convenient time neither before nor after a game to distribute the questionnaires and read the informed consent letter attached to this letter.

Instruct players

1. to read the instructions carefully
2. to complete every question on the survey
3. that their responses should be privately written down and questionnaires should be sealed in the envelope provided when they are finished

Collect the individual envelopes and enclose them in the master return envelope.

Sending the questionnaires back to us:

The master return envelope is already addressed and stamped for transfer in the Inter-University Transit System (I.U.T.S.).

Please make sure all completed and non-completed questionnaires are in the master return envelope and place the envelope in the I.U.T.S. bin in your intercollegiate athletics office as soon as the questionnaires have been completed.

In the event that your team is unable to complete the questionnaires, please return the package anyway.

Again, thank you very much for your help. We look forward to contacting you again very soon with feedback from our findings. Good luck in the remainder of the season.

Sincerely,
Steven Bray, Larry Brawley, and Neil Widmeyer, University Of Waterloo

APPENDIX B

Study One

Complete Post hoc Analyses of Variables Contributing to the Discriminant Function Analyses

Table B1

Complete Post hoc Analysis of Role Efficacy and Collective Efficacy Variables Contributing to the Discriminant Function Analysis

Measure	Wilks' Lambda	F (df 1, 40)	p
REOFF	.74	14.33	.001
REDEF	.76	12.49	.001
CEOFF	.99	.09	.772
CEDEF	.99	.18	.672

Note. N = 45.

The acronyms for the various measures are as follows:

REOFF - Role efficacy offense
REDEF - Role efficacy defense
CEOFF - Collective efficacy offense
CEDEF - Collective efficacy defense

APPENDIX C

Study Two

Coaches' Contact Letter

Coaches' Instructional Package

Dear Coach,

We realize that you are bombarded with requests to have your team participate in research projects. However, we are hopeful that you might find this study particularly interesting and helpful to you because it has important implications for identifying strengths on your team and team building. Specifically, we are interested in surveying and providing you with feedback on your players' perceptions of their (a) role clarity, (b) confidence to carry out their role responsibilities, (c) acceptance of their roles, and (d) personal enjoyment of their playing experience. We will also be able to provide information on (a) how confident players feel the team is as a whole in its ability to perform team skills and (b) how cohesive players feel your team is with regard to both task and social aspects.

We would like to measure these perceptions on two occasions: during the early part of your competitive season in late November, and during late-season in early March. By taking two measurements we will be able to give you valuable feedback early in the season that you can use to identify potential strengths or weaknesses as well as monitor how these team-related perceptions develop over time.

What your players have to do:
Complete a written questionnaire (20 minutes) requiring them to indicate:

- what their role functions are
- the clarity, confidence, & acceptance they feel about these functions
- their perceptions of the team's confidence in several aspects of offensive and defensive play
- how cohesive the team is
- how much they enjoy their team experience

What the coach has to do:

- I will contact you again within the next week to see if your team will participate in the project – at which time we will make further arrangements to mail a questionnaire package or travel to administer the questionnaires ourselves if possible
- If corresponding by mail, recruit a member of the team's managerial staff to administer the questionnaires to players
- Set aside a 20 minute period (e.g., on a bus trip, or before a practice) in which your players can fill out a questionnaire
- Mail the completed package back as soon as you can

Upon examination of the first set of data we will send you a summary of the findings for your team as quickly as possible. After we have collected the time-two data we will send a combined summary that will demonstrate the development of these important team variables from early to late-season.

We hope you feel that participating in this study will be beneficial to your team. We certainly appreciate your consideration of this request for assistance.

Sincerely,

Steven Bray M.A., University of Waterloo**srbray@healthy.uwaterloo.ca 519-885-1211x3865**
Neil Widmeyer Ph.D.,University of Waterloo: widmeyer@healthy.uwaterloo.ca 519885-1211x3955
Larry Brawley Ph.D, University of Waterloo: lrbrawle@healthy.uwaterloo.ca 519 885-1211x3153
Please correspond with Steven Bray

Dear Team Manager,

Thank you very much for participating in this research project. Please convey our appreciation to the coach and players as well.

Please note that in order to obtain quality data for feedback purposes it is imperative that players complete every question on the survey.

There are no specific instructions other than those outlined on the questionnaire itself.

Package Contents:

- 16 player questionnaires (in individual envelopes) **WHITE**
- 1 coach questionnaire (attached to its own envelope) **YELLOW**
- 1 master return envelope in which to enclose completed questionnaires

Administration:

Plan a 15-minute team meeting at a convenient time neither before nor after a game to distribute the questionnaires and read the informed consent letter attached to this letter.

Instruct players

1. to read the instructions carefully
2. to complete every question on the survey
3. that their responses should be privately written down and questionnaires should be sealed in the envelope provided when they are finished

Collect the individual envelopes and enclose them in the master return envelope.

Sending the questionnaires back to us:

The master return envelope is already addressed and stamped for transfer in the Inter-University Transit System (I.U.T.S.).

Please make sure all completed and non-completed questionnaires are in the master return envelope and place the envelope in the I.U.T.S. bin in your intercollegiate athletics office as soon as the questionnaires have been completed.

In the event that your team is unable to complete the questionnaires, please return the package anyway.

Again, thank you very much for your help. We look forward to contacting you again very soon with feedback from our findings. Good luck in the remainder of the season.

Sincerely,
Steven Bray, Larry Brawley, and Neil Widmeyer, University Of Waterloo

APPENDIX D

Study Two

Examples of Interdependent Role Functions Listed by Players

Examples of Interdependent Role Functions Listed by Players in Study Two

Offense	Defense
Setting screens	Maintain good help-side defense
Helping get shooters open	Helping teammates and talking
See the open man and get him the ball	Being in help position
Help the ball handler or bring up the ball	Direct players into traps
Organize the offense	Call screens
Set up plays	Keep everyone talking
Create plays	Tandem play on the line for help
Finding the open player	Communicate in the press
Get the ball inside to the post	Helping squeeze the lanes
Set good screens	When pressing, close the trap
Distribute the ball	Lead the talk on defense
Recognize who's the hot shooter and get them the ball	Force the ball-handler to the baseline for a trap
Screen and look for my partner	Communicate in transition
Get kick-out passes to perimeter shooters	Stay in middle until partner is there
Pass inside	Rotate to help
Push the ball up to the headman	Double team and trap
Recognize the situation and communicate	Double team in corners
Create fast-break opportunities	Rotate on the shooters
Set up others to score	Cover when a teammate gets beat
Feed the low post	
Get other players open	
Set and come off screens effectively	
Keep moving within the offense	
Penetrate and dish	
Free up primary shooters	
Create scoring opportunities for teammates	
Set screens to get teammates open	
Call plays and organize the floor	

APPENDIX E

Study Two

Group Analysis of Collective Efficacy at Early Season

Group Analysis of Collective Efficacy

As an additional analysis, ICCs for CE and group cohesion measures were also calculated. Recall that only five teams participated in Study One. Because of the small number of teams in that study, meaningful ICCs for CE could not be analyzed. Recruitment of a larger number of teams for Study Two allowed for a group-level analysis of CE.

The non-independence (i.e., shared variance) of teammates' perceptions of CE was examined. Unlike their perceptions of RE, athletes' perceptions of CE are conceptualized as being shared among group members (Bandura, 1997; Zaccaro et al. 1995). If teammates' perceptions of CE are more similar to one another than to athletes outside their team, a sharing of beliefs in the group's capabilities exists. Intraclass correlations for CE are presented in Table E1. As hypothesized, data from the sixteen teams in this study did show significant ($p < .01$) intraclass correlations for both CEOFF ($r = .21$) and CEDEF measures ($r = .16$). Thus, ICCs for both CE scales indicate a sharing of CE perceptions among members of discrete teams at the group level (Kenny & LaVoie, 1985).

Table E1

Intraclass Correlations for Collective Efficacy Measures at Early Season

Measure	Intraclass r	F-ratio	p-value
CEDEF	.16	3.07	.001
CEOFF	.21	3.94	.001

Note. N teams = 16, N individuals = 175

The acronyms for the various measures are as follows:

CEDEF – Collective efficacy defense
CEOFF – Collective efficacy offense

The intraclass correlations for the CE scores supported the notion of shared beliefs among team members. The obtained ICCs were less than r = .30, which has been suggested by Kenny & LaVoie (1985) to indicate a group-level phenomenon. However, the values did indicate that CE scores were representative of both individual and shared beliefs. These findings are consistent with Zaccaro et al.'s (1995) suggestion that CE is a perception that should demonstrate both individual and group-level variation and previous findings with respect to team skill dimensions of CE (Dorsch, 1997; Paskevich, 1995).

APPENDIX F

Study Three

Coaches, Instructional Package

Dear Team Manager,

Thank you very much for participating in the final phase of this research project. Please convey our appreciation to the coach and players as well.

Please note that in order to obtain quality data for feedback purposes it is imperative that: (a) the same players (hopefully all) who completed the first questionnaire complete this one as well, and (b) players complete every question on the survey.

As with the first questionnaire, there are no specific instructions other than those outlined on the questionnaire itself.

Package Contents:

- 16 player questionnaires (in individual envelopes) **WHITE**
- 1 coach questionnaire (attached to its own envelope) **YELLOW**
- 1 master return envelope in which to enclose completed questionnaires

Administration:

Plan a 15-minute team meeting at a convenient time neither before nor after a game to distribute the questionnaires and read the informed consent letter attached to this letter.

Instruct players

1. to read the instructions carefully
2. to complete every question on the survey
3. that their responses should be privately written down and questionnaires should be sealed in the envelope provided when they are finished

Collect the individual envelopes and enclose them in the master return envelope.

Coach Questionnaire

Complete the questionnaire at a convenient time, preferably prior to the time players complete their questionnaires.

Sending the questionnaires back to us:

The master return envelope is already addressed and stamped for transfer in the Inter-University Transit System (I.U.T.S.).

Please make sure all completed and non-completed questionnaires are in the master return envelope and place the envelope in the I.U.T.S. bin in your intercollegiate athletics office as soon as the questionnaires have been completed.

In the event that your team is unable to complete the questionnaires, please return the package anyway.

Again, thank you very much for your help. We look forward to contacting you again very soon with feedback from our findings. Good luck in the remainder of the season.

Sincerely,
Steven Bray, Larry Brawley, and Neil Widmeyer, University Of Waterloo

APPENDIX G

Study Three

Intraclass Correlations for Role Efficacy, Collective Efficacy, and Cohesion Measures at Early and Late Season

Table G1

Intraclass Correlations for Role Efficacy, Collective Efficacy, and Cohesion Measures at Early Season and Late Season

Measure	Intraclass r	F-ratio	p-value
	Early season[a]		
REDEF	.03	1.31	.206
REOFF	.12	2.42	.003
CEDEF	.16	3.07	.001
CEOFF	.21	3.94	.001
ATG-T	.16	3.03	.001
GI-T	.26	4.82	.001
ATG-S	.23	4.23	.001
GI-S	.47	10.78	.001
	Late season[b]		
REDEF	-.02	.80	.637
REOFF	.01	1.07	.398
CEDEF	.23	3.82	.001
CEOFF	.36	6.26	.001
ATGT	.23	3.88	.001
GIT	.33	5.76	.001
ATGS	.30	5.02	.001
GIS	.57	13.69	.001

Note. [a] Early season n teams = 16, n individuals = 175. [b] Late season n teams = 12, n individuals = 116

Acronyms for the various measures are as follows:

REDEF	- Role efficacy defense
REOFF	- Role efficacy offense
CEDEF	- Collective efficacy defense
CEOFF	- Collective efficacy offense
ATG-T	- Individual attractions to the group - task
GI-T	- Group integration - task
ATG-S	- Individual attractions to the group - social
GI-S	- Group integration - social

APPENDIX H

Study Three

Descriptive Statistics and Internal Consistency of Cohesion Measures at Early and Late Season

Table H1

Descriptive Statistics and Internal Consistencies for Group Environment Questionnaire Measures (Excluding ATG-T) at Early and Late Season

Measure	Early season[a]			Late season[b]		
	M	SD	Cronbach Alpha	M	SD	Cronbach Alpha
GI-T	6.34	1.79	.77	5.86	2.04	.79
ATG-S	6.86	1.59	.71	6.84	1.78	.76
GI-S	6.18	1.82	.80	6.08	1.75	.85

Note. [a] Early season n teams = 16, n individuals = 174. [b] Late season n teams = 12, n individuals = 117.

Acronyms for the various measures are as follows:
GI-T - group integration - task
ATG-S - individual attractions to the group - social
GI-S - group integration - social

APPENDIX I

Study Three

Pearson Correlations for Late Season Role Efficacy and Collective Efficacy

Pearson Correlations for Late Season Role Efficacy, Role-related, and ATG-T Measures

Pearson Correlations for Role Efficacy and Players', Coaches', and Teammates' Role Performance Effectiveness Ratings at Late Season

Table 11

Pearson Correlations for Role Efficacy and Collective Efficacy at Late Season

Variable	1	2	3	4
1. REOFF	--	.64**	.22*	.23*
2. REDEF		--	.22*	.31*
3. CEOFF			--	.81**
4. CEDEF				--

Note. n = 117
* p < .05, ** p < .01

The acronyms for the various measures are as follows:
REOFF - role efficacy offense
REDEF - role efficacy defense
CEOFF - collective efficacy offense
CEDEF - collective efficacy defense

Table I2

Pearson Correlations for Role Efficacy, Role Clarity, Role Acceptance, Role Satisfaction, Role Importance, and ATG-T at Late Season

Measure	1	2	3	4	5	6	7	8	9	10	11
1. REOFF	--	.64	.56	.48	.35	.28	.31	.16	.29	.40	-.05
2. REDEF		--	.33	.41	.14	.40	.13	.41	.15	.50	-.02
3. CLAROFF			--	.60	.63	.38	.57	.23	.52	.38	.20
4. CLARDEF				--	.65	.43	.50	.51	.43	.67	.16
5. ACCEPTOFF					--	.51	.90	.32	.76	.41	.26
6. ACCEPTDEF						--	.52	.78	.48	.86	.28
7. SATOFF							--	.38	.80	.42	.21
8. SATDEF								--	.38	.68	.11
9. IMPOFF									--	.48	.21
10. IMPDEF										--	.17
11. ATG-T											--

Note. n = 117; rs > .20, p < .05, rs > .25, p < .01

The acronyms for the various measures are as follows:

REOFF	- Role efficacy offense	SATOFF	- Role satisfaction offense
REDEF	- Role efficacy defense	SATDEF	- Role satisfaction defense
CLAROFF	- Role clarity offense	IMPOFF	- Role importance offense
CLARDEF	- Role clarity defense	IMPDEF	- Role importance defense
ACCEPTOFF	- Role acceptance offense	ATG-T	- Individual attraction to the group - task
ACCEPTDEF	- Role acceptance defense		

Table I3

Pearson Correlations for Role Efficacy and Players', Coaches', and Teammates' Ratings of Perceived Role Performance Effectiveness at Late Season

Measure	1	2	3	4	5	6	7	8
1. REOFF	--	.64** (116)	.60** (116)	.30** (115)	.25* (93)	.11 (.93)	.21 (48)	-.00 (48
2. REDEF		--	.39** (116)	.63** (116)	.10 (94)	.20 (94)	.02 (49)	.09 (49)
3. SELFOFF			--	.35** (115)	.25* (94)	.06 (94)	.14 (49)	.14 (94)
4. SELFDEF				--	.03 (116)	.22* (93)	-.04 (49)	.10 (49)
5. COACHOFF					--	.64** (94)	.44** (51)	.43** (51)
6. COACHDEF						--	.35* (51)	.38** (51)
7. MATEOFF							--	.74** (61)
8. MATEDEF								--

Note. For each statistic, the n of observations is reported in parentheses. Lower ns reflect the incompleteness of coaches' data and the restriction of teammates' ratings to fellow starting players only.
* p<.05, ** p<.01

The acronyms for the various measures are as follows:
SELFOFF - Players' self-ratings of offensive role effectiveness
SELFDEF - Players' self-ratings of defensive role effectiveness
COACHOFF - Coaches' ratings of players' offensive role effectiveness
COACHDEF - Coaches' ratings of players' defensive role effectiveness
MATEOFF - Starting players' ratings co-starters' offensive role effectiveness
MATEDEF - Starting players' ratings co-starters' defensive role effectiveness

APPENDIX J

Questionnaires

Study One Questionnaire

Basketball Confidence Questionnaire

This research project has been approved by the Office of Human Research at University of Waterloo.
Your completion of this questionnaire is entirely voluntary.

Each player on a team has at least one, specific role to play within the team. **A role involves a set of expectations for your behavior (e.g., your job(s) within the team). These expectations for your role behavior are shared by you and the others on your team, including your coach.**

Roles are often assigned, but can also be decided mutually.

Each player has a role that is his/her very own, and **each role has certain specific responsibilities associated with it.** Some players have a few responsibilities and others have a lot.

For example, one aspect of a point-guard's <u>defensive role</u> on his/her team might be to recognize the defense and set up an appropriate offensive play.

Roles involve the behaviors players fulfill, not the outcomes these behaviors are hoped to bring about.

For example, another aspect of a point guard's <u>offensive role</u> may be to take the open shot at an appropriate time, it doesn't matter how many points s/he actually get, his/her responsibility is to have good shot selection!

We realize that some aspects of your role and responsibilities may change slightly from game to game. **What we are most interested in are the specific aspects of your role for competition situations (i.e., during games) that <u>do not</u> change much from game to game. Please restrict your responses to these situations.**

On this questionnaire we will ask you to answer 5 things:

1) Your confidence in your abilities to fulfill your own responsibilities on offense -
(a) those you are most comfortable with and
(b) those you are least comfortable with
2) Your confidence in your abilities to fulfill your own responsibilities on defense -
(a) those you are most comfortable with and
(b) those you are least comfortable with
3) Your own perception of your team's confidence in its team basketball abilities

Please take a few moments to consider how you perceive your own role on your team. Then answer the following questions with respect to that role.

Thank You Very Much for your assistance with this project.

Date: _____ **Age:** _____ **Position:** _____

Length of time played on your team including this season: _____ **years**

Playing status: starter _____ **non-starter** _____ **practice player** _____

Please list at least 3 of the **major aspects of your role** on the team for **offensive play** that you are **most comfortable with** (the next page asks about aspects of offensive roles that you are least comfortable with).

Using the 100% confidence scale below as a reference, indicate how confident you are in your ability to perform each behavior in the slot beside each response.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident					Somewhat Confident					Extremely Confident

- **Please be as clear and specific as possible.**
- **Use language that coaches, teammates, and other basketball players at your level would understand.**

Confidence

1. _____
   _____ _____ %

2. _____
   _____ _____ %

3. _____
   _____ _____ %

4. _____
   _____ _____ %

5. _____
   _____ _____ %

Please list at least 3 of the **major aspects of your role** on the team for **offensive play** that you are **least comfortable with.**

Using the 100% confidence scale below as a reference, indicate how confident you are in your ability to perform each behavior in the slot beside each response.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident					Somewhat Confident					Extremely Confident

- **Please be as clear and specific as possible.**
- **Use language that coaches, teammates, and other basketball players at your level would understand.**

Confidence

1. _____
   _____ _____ %

2. _____
   _____ _____ %

3. _____
   _____ _____ %

4. _____
   _____ _____ %

5. _____
   _____ _____ %

Please list at least 3 of the **major aspects of your role** on the team for **defensive play** that you are **most comfortable with** (the next page asks about aspects of defensive roles that you are least comfortable with).

Using the 100% confidence scale below as a reference, indicate how confident you are in your ability to perform each behavior in the slot beside each response.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident					Somewhat Confident					Extremely Confident

- **Please be as clear and specific as possible.**
- **Use language that coaches, teammates, and other basketball players at your level would understand.**

Confidence

1. _____
   _____ _____ %

2. _____
   _____ _____ %

3. _____
   _____ _____ %

4. _____
   _____ _____ %

5. _____
   _____ _____ %

Please list at least 3 of the **major aspects of your role** on the team for **defensive play** that you are **least comfortable with**

Using the 100% confidence scale below as a reference, indicate how confident you are in your ability to perform each behavior in the slot beside each response.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident					Somewhat Confident					Extremely Confident

- **Please be as clear and specific as possible.**
- **Use language that coaches, teammates, and other basketball players at your level would understand.**

Confidence

1. _____
   _____ _____ %
2. _____
   _____ _____ %
3. _____
   _____ _____ %
4. _____
   _____ _____ %
5. _____
   _____ _____ %

The following questions refer to what you think your team's confidence in its ability to do certain things is. Please answer with respect to what you believe your team thinks about its confidence.

Please rate the strength of your team's confidence in its skills and abilities with respect to the following questions. Using the 100% confidence scale below, place the appropriate confidence value in the space to the right of each statement. Try to be as accurate as possible for each skill.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident					Somewhat Confident					Extremely Confident

Our team's confidence in our:	**Confidence**
ability to pass the ball accurately is	_____ %
ability to handle the ball in our 1/2 court offense is	_____ %
ability to handle the ball against defensive pressure is	_____ %
ability to accurately shoot the ball at the basket from under **5** feet is	_____ %
ability to accurately shoot the ball at the basket from between **5** and **20** feet is	_____ %
ability to accurately shoot the ball at the basket from the **3-pt. line** is	_____ %
ability to rebound offensively is	_____ %
ability to execute our offensive plays is	_____ %
ability to play an inside game is	_____ %
ability to play an outside game is	_____ %
ability to block opponent's shots is	_____ %
ability to rebound defensively is	_____ %
ability to play man-to-man defense is	_____ %
ability to play zone defense is	_____ %
ability to contain our opponent's top player is	_____ %
ability to defend screens or picks is	_____ %
ability to defend perimeter attacks is	_____ %
ability to defend inside attacks is	_____ %
ability to pressure our opponents is	_____ %

Study Two Questionnaire

Intercollegiate Basketball Questionnaire

Dear Intercollegiate Basketball Player,

We appreciate you taking the time to fill-out this questionnaire. In filling out this questionnaire, please base your responses on how you think and feel about things at this point in the season. Please make sure you read each question carefully and respond to every question. It will take approximately 10 minutes of your time. Please make sure you indicate your player number and initials on the first page so we can match-up this questionnaire with the second one. Once the questionnaires have been matched-up, your number and initials will be deleted and replaced with an ID number.

If you have any concerns regarding this study please contact the Office of Human Research and Animal Care, University of Waterloo (519 885 1211 Ext. 5217). Upon completion of the study, a summary of the findings will be available from your coach, or, if you wish, you may contact us directly at the address below. Thank you very much.

Steve Bray, M.A. Neil Widmeyer, Ph.D. Larry Brawley Ph.D.
Department of Kinesiology, University of Waterloo, Waterloo, ON N2J 3G1 (519) 885-1211 (Ext. 3153)

Your Player # and Initials: _____ _____

Today's Date _____ Your Age: _____ yrs.

Position: _____

Starting Status: Starting Player _____ Non-Starter _____ Practice Player _____

How many minutes do you typically play per game? _____ minutes (e.g., 30-35 min.)
Approximate # of games played this season _____
How many seasons, including this season, have you been a member of your team? _____ seasons

---

Basketball Player Role Characteristics

Each player on an intercollegiate basketball team has a specific role to carry out. Your role is combined with **your teammates' roles** to create **effective team systems.**

Your **ROLE** is your ***"package"*** of job(s) within your team. It is associated with your position, but may be more than the "usual" functions of that position.

Examples of **OVERALL ROLES** are (a) being the primary ball handler bringing the ball up-court, (b) being the primary outside shooter, and (c) being a strong inside player. There are many roles on a team.

Think about your intercollegiate basketball team during competition:

1. What is YOUR OVERALL ROLE on your team: _____

_____

2. Your ROLE may be made up of several specific **FUNCTIONS** **for both defense and offense.**

e.g., ON DEFENSE
- in a man-to-man defense functions might include (a) forcing your check to the baseline, (b) being in the passing lane, etc.
- in a zone press some functions might be to (a) push the ball to the sideline, (b) take the middle pass away, (c) trap with a teammate, etc.

Things that are NOT FUNCTIONS but just basic skills are: pass, dribble, shooting from various ranges, etc.).

Please list 4 of your FUNCTIONS for *DEFENSIVE PLAY* in order from MOST to LEAST IMPORTANT to YOUR TEAM'S play in the spaces provided. Also, use the spaces to the right to indicate your confidence (%) in your ability to perform each function. In describing each function, please use language you would use to talk to other players or coaches at your level.

Confidence in
MY ABILITY to perform each function
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
not at all completely

	MY CONFIDENCE
Def. Function 1 _____	_____ %
Def. Function 2 _____	_____ %
Def. Function 3 _____	_____ %
Def. Function 4 _____	_____ %

3. Now, considering <u>all four defensive functions together</u>, please tell me how strongly you feel about them by circling a value that best applies to you.

CIRCLE THE NUMBER THAT BEST APPLIES TO YOU

My defensive functions are **extremely clear** to me	10 9 8 7 6 5 4 3 2 1 0	My defensive functions are **not clear to me at** all
My defensive functions are **extremely important to my team's** performance	10 9 8 7 6 5 4 3 2 1 0	My defensive functions are **not at all important** to my team's performance
My defensive functions **match with** my abilities extremely well	10 9 8 7 6 5 4 3 2 1 0	My defensive functions are a **very poor match with my abilities**
I am **extremely happy** performing these functions	10 9 8 7 6 5 4 3 2 1 0	I am **not at all happy** performing these functions
I **totally accept** having to perform these functions	10 9 8 7 6 5 4 3 2 1 0	I **do not accept** having to perform these functions at all
I **know exactly** what **my specific responsibilities are** with regard to these functions	10 9 8 7 6 5 4 3 2 1 0	I **have no idea** what **my responsibilities are** with regard to these functions
I think of these functions as **totally essential** to my team' s performance	10 9 8 7 6 5 4 3 2 1 0	I think of these functions as **not** essential at **all** to my team's performance
I **really like** these functions as part of my role	10 9 8 7 6 5 4 3 2 1 0	I **really dislike** these functions as part of my role
I **would not like to change <u>any</u>** of these functions	10 9 8 7 6 5 4 3 2 1 0	I **would like to change <u>all</u>** of these functions
My performing these functions is **critical to my team's performance**	10 9 8 7 6 5 4 3 2 1 0	My performing these functions is **not critical to my team's performance at all**
I could describe these functions to other intercollegiate basketball players very **easily**	10 9 8 7 6 5 4 3 2 1 0	I would have **great difficulty** describing these functions to other intercollegiate basketball players
I **enjoy** performing these functions tremendously	10 9 8 7 6 5 4 3 2 1 0	I **do not enjoy** performing these functions **at all**
In terms of **my own performance, I am tremendously (100%) effective** in executing these functions	10 9 8 7 6 5 4 3 2 1 0	In terms of **my own** performance, I am not at all effective (0%) in executing these functions

4. Your **ROLE** may be made up of several specific **FUNCTIONS** for offense as well.

e.g., ON OFFENSE:
- a primary inside player's functions may be to post-up, be strong on the block, etc.,
- a primary ball handler has to recognize the defense to (a) set up the offense and (b) know if they have to pass, etc.
- an outside shooter has to get open on the wing for a shot, etc.

Please list 4 of your FUNCTIONS for *OFFENSIVE PLAY* in order from MOST to LEAST IMPORTANT to YOUR TEAM'S play in the spaces provided. Also, use the spaces to the right to indicate your confidence (%) in your ability to perform each function. In describing each function, please use language you would use to talk to other players or coaches at your level.

Confidence in
MY ABILITY to perform each function
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
not at all completely

	MY CONFIDENCE
Off. Function 1 _____	_____ %
Off. Function 2 _____	_____ %
Off. Function 3 _____	_____ %
Off. Function 4 _____	_____ %

5. Now, considering <u>all four offensive functions together</u>, please tell me how strongly you feel about them by circling a value that best applies to you.

[redacted]

My offensive functions are **extremely clear** to me	10	9	8	7	6	5	4	3	2	1	0	My offensive functions are **not clear to me at** all
My offensive functions are **extremely important to my team's** performance	10	9	8	7	6	5	4	3	2	1	0	My offensive functions are **not at all important** to my team's performance
My offensive functions **match with** my abilities extremely well	10	9	8	7	6	5	4	3	2	1	0	My offensive functions are a **very poor match with my abilities**
I am **extremely happy** performing these functions	10	9	8	7	6	5	4	3	2	1	0	I am **not at all happy** performing these functions
I **totally accept** having to perform these functions	10	9	8	7	6	5	4	3	2	1	0	I **do not accept** having to perform these functions at all
I **know exactly** what **my specific responsibilities are** with regard to these functions	10	9	8	7	6	5	4	3	2	1	0	I **have no idea** what **my responsibilities are** with regard to these functions
I think of these functions as **totally essential** to my team' s performance	10	9	8	7	6	5	4	3	2	1	0	I think of these functions as **not** essential at **all** to my team's performance
I **really like** these functions as part of my role	10	9	8	7	6	5	4	3	2	1	0	I **really dislike** these functions as part of my role
I **would not like to change <u>any</u>** of these functions	10	9	8	7	6	5	4	3	2	1	0	I **would like to change <u>all</u>** of these functions
My performing these functions is **critical to my team's performance**	10	9	8	7	6	5	4	3	2	1	0	My performing these functions is **not critical to my team's performance at all**
I could describe these functions to other intercollegiate basketball players very **easily**	10	9	8	7	6	5	4	3	2	1	0	I would have **great difficulty** describing these functions to other intercollegiate basketball players
I **enjoy** performing these functions tremendously	10	9	8	7	6	5	4	3	2	1	0	I **do not enjoy** performing these functions **at all**
In terms of **my own performance, I am tremendously (100%) effective** in executing these functions	10	9	8	7	6	5	4	3	2	1	0	In terms of **my own** performance, I am not at all effective (0%) in executing these functions

1. Please indicate the **player #** and **initials** of the **two** teammates you interact with the most **during competition**

2. Please list each player's **most important role functions as you did with your own** for offense and on defense

3. Considering their most important role functions **together**, use the 0% - 100% scale and **indicate each teammate's effectiveness**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
not at all effective										tremendously effective

TEAMMATE #1

PLAYER # _____ **INITIALS** _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____

DEFENSE #1 _____
#2 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**

DEFENSIVE FUNCTIONS all together _____ **% effective**

TEAMMATE #2

PLAYER # _____ **INITIALS** _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____

DEFENSE #1 _____
#2 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**

DEFENSIVE FUNCTIONS all together _____ **% effective**

The following questions refer to what you think <u>your team's confidence</u> in its ability to do certain things is. Please answer with respect to what <u>you believe your team thinks about its confidence</u>.

Please rate the strength of your team's confidence in its skills and abilities with respect to the following questions. Using the 100% confidence scale below, place the appropriate confidence value in the space to the right of each statement. Try to be as accurate as possible for each skill.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all Confident										Extremely Confident

Our team's confidence in our:	**Confidence**
ability to pass the ball accurately is	_____ %
ability to handle the ball in our 1/2 court offense is	_____ %
ability to handle the ball against defensive pressure is	_____ %
ability to accurately shoot the ball at the basket from under 5 feet is	_____ %
ability to accurately shoot the ball at the basket from between 5 and 20 feet is	_____ %
ability to accurately shoot the ball at the basket from the 3-pt. line is	_____ %
ability to rebound offensively is	_____ %
ability to execute our offensive plays is	_____ %
ability to play an inside game is	_____ %
ability to play an outside game is	_____ %
ability to block opponent's shots is	_____ %
ability to rebound defensively is	_____ %
ability to play man-to-man defense is	_____ %
ability to play zone defense is	_____ %
ability to contain our opponent's top player is	_____ %
ability to defend screens or picks is	_____ %
ability to defend perimeter attacks is	_____ %
ability to defend inside attacks is	_____ %
ability to pressure our opponents is	_____ %

Study Three Questionnaire

Intercollegiate Basketball Questionnaire

Dear Intercollegiate Basketball Player,

We appreciate you taking the time to fill-out this questionnaire a second time. Our purpose in assessing your perceptions of your roles, role functions, team confidence, and team unity at two time points is to get a more complete picture of the season. In filling out this questionnaire, please base your responses on how you think and feel about things at this point in the season. Please make sure you read each question carefully and respond to every question. It will take approximately 10 minutes of your time. Please make sure you indicate your player number and initials on the first page so we can match-up this questionnaire with the previous one. Once the questionnaires have been matched-up, your number and initials will be deleted and replaced with an ID number.

If you have any concerns regarding this study please contact the Office of Human Research and Animal Care, University of Waterloo (519 885 1211 Ext. 5217). Upon completion of the study, a summary of the findings will be available from your coach, or, if you wish, you may contact us directly at the address below. Thank you very much.

Steve Bray, M.A. **Neil Widmeyer, Ph.D.** **Larry Brawley Ph.D.**
Department of Kinesiology, University of Waterloo, Waterloo, ON N2J 3G1 (519) 885-1211 (Ext. 3153)

Your Player # and Initials: _____ _____

Today's Date _____ **Your Age: _____ yrs.**

Position: _____

Starting Status: Starting Player _____ Non-Starter _____ Practice Player _____

How many minutes do you typically play per game? _____ minutes (e.g., 30-35 min.)
Approximate # of games played this season _____
How many seasons,
including this season, have you been a member of your team? _____ seasons

---

Basketball Player Role Characteristics

Each player on an intercollegiate basketball team has a specific role to carry out. Your role is combined with **your teammates' roles** to create **effective team systems.**

Your **ROLE** is your ***"package"*** of job(s) within your team. It is associated with your position, but may be more than the "usual" functions of that position.

Examples of **OVERALL ROLES** are (a) being the primary ball handler bringing the ball up-court, (b) being the primary outside shooter, and (c) being a strong inside player. There are many roles on a team.

Think about your intercollegiate basketball team during competition:

1. What is YOUR OVERALL ROLE on your team: _____

_____

Please complete this FINAL page in order from #1 to #2:

We recognize that you play at an ELITE LEVEL in University basketball. Other levels are: high school, recreational leagues, N.B.A., W.N.B.A, National Team. Your confidence in your ability to play at a recreational level would probably be different than at a professional level. Keeping this in mind, please answer 1 and 2.

1 DO THIS FIRST:

Consider the level of play at which your team competes. Indicate your confidence, in general, about your individual ability to effectively perform each skill at this level DURING GAMES.

Confidence in **MY ABILITY** to perform each skill effectively DURING GAMES										
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
not at all										completely

2 DO THIS SECOND:

You may or may not perform all of these skills as part of your role on the team. Please indicate (1-9) the frequency with which you perform each of these skills when carrying out your role functions DURING GAMES.

1	2	3	4	5	6	7	8	9
never		infrequently				frequently		always

_____	**Passing accurately**	_____%
_____	**Dribbling the ball**	_____%
_____	**Shooting from inside the key**	_____%
_____	**2-pt. Shooting from outside the key**	_____%
_____	**3-pt. Shooting**	_____%
_____	**Foul shooting**	_____%
_____	**Offensive rebounding**	_____%
_____	**Receiving passes**	_____%
_____	**One-on-one defense**	_____%
_____	**Boxing-out**	_____%
_____	**Blocking shots**	_____%
_____	**Getting into the passing lanes**	_____%

Coaches' Questionnaire

FOR THE COACH

Each of your players has indicated how effective they feel they are in performing their most important role functions on both offense and defense.

SOME EXAMPLES OF FUNCTIONS GIVEN TO YOUR PLAYERS WERE:
e.g., ON DEFENSE
- in a man-to-man defense functions might include (a) forcing your check to the baseline, (b) being in the passing lane, etc.
- in a zone press some functions might be to (a) push the ball to the sideline, (b) take the middle pass away, (c) trap with a teammate, etc.

e.g., ON OFFENSE
- a primary inside player's functions may be to post-up, be strong on the block, etc.
- a primary ball handler has to recognize the defense to (a) set up the offense and (b) know if they have to pass, etc.
- an outside shooter has to get open on the wing for a shot, etc.

What we need you to do is

1. Identify in rank order at minimum the top 2 and at maximum the top 4 offensive and defensive functions each player performs, and
2. **Considering all of their functions together for each of offense and defense, using the 0% to 100% scale, please indicate each player's effectiveness:**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
not at all effective										tremendously effective

PLAYER # _____ **INITIALS** _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____
#3 _____
#4 _____
DEFENSE #1 _____
#2 _____
#3 _____
#4 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**
DEFENSIVE FUNCTIONS all together _____ **% effective**

PLAYER # _____ **INITIALS** _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____
#3 _____
#4 _____
DEFENSE #1 _____
#2 _____
#3 _____
#4 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**
DEFENSIVE FUNCTIONS all together _____ **% effective**

PLAYER # _____ **INITIALS** _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____
#3 _____
#4 _____
DEFENSE #1 _____
#2 _____
#3 _____
#4 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**
DEFENSIVE FUNCTIONS all together _____ **% effective**

PLAYER # _____ INITIALS _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____
#3 _____
#4 _____
DEFENSE #1 _____
#2 _____
#3 _____
#4 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**
DEFENSIVE FUNCTIONS all together _____ **% effective**

PLAYER # _____ INITIALS _____

ROLE FUNCTIONS: **OFFENSE #1** _____
(rank order) **#2** _____
#3 _____
#4 _____
DEFENSE #1 _____
#2 _____
#3 _____
#4 _____

HOW EFFECTIVE? **OFFENSIVE FUNCTIONS all together** _____ **% effective**
DEFENSIVE FUNCTIONS all together _____ **% effective**

Group Environment Questionnaire

Group Environment Questionnaire

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

1. I do not enjoy being a part of the social activities on this team.

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

2. I'm not happy with the amount of playing time I get.

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

3. I am not going to miss the members of this team when the season ends.

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

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

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

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

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

6. This team does not give me enough opportunities to improve my personal performance.

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

7. I enjoy other parties more than team parties.

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

8. I do not like the style of play on this team.

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

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

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

The following questions are designed to assess **your perceptions** of **YOUR TEAM AS A WHOLE**. Please **CIRCLE a number** from 1 to 9 to indicate your level of agreement with each of the statements.

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

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

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

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

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

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

13. Our team members rarely party together.

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

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

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

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

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

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

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

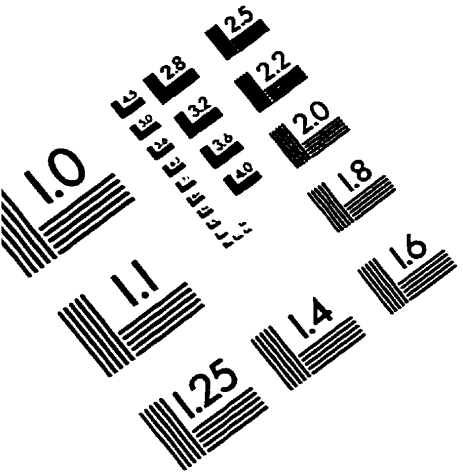
17. Members of our team do not stick together outside of practices and games.

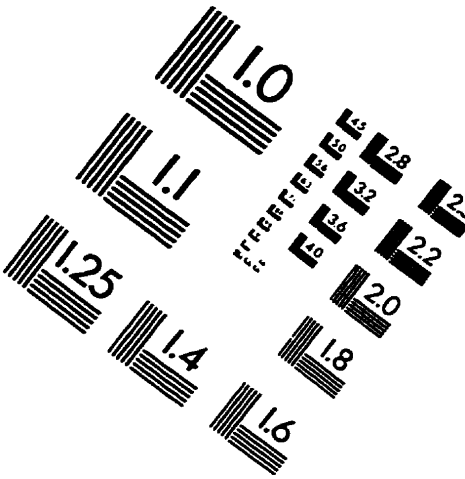
1 2 3 4 5 6 7 8 9
Strongly Agree Strongly Disagree

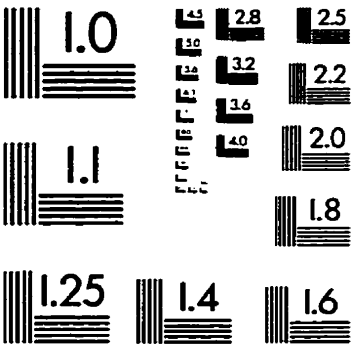
18. Our team members do not communicate freely about each athlete's responsibilities during competition and practice.

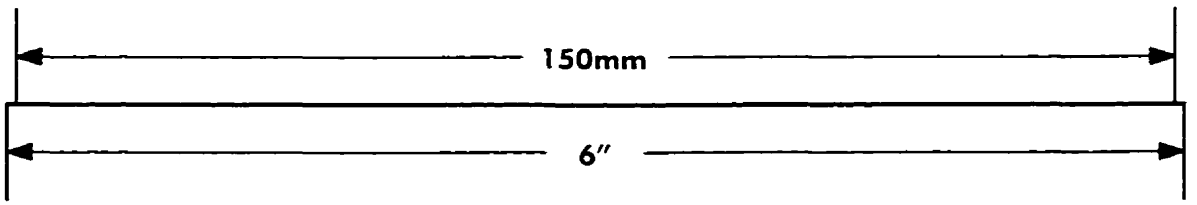
1 2 3 4 5 6 7 8 9
Strongly Agree Strongly Disagree

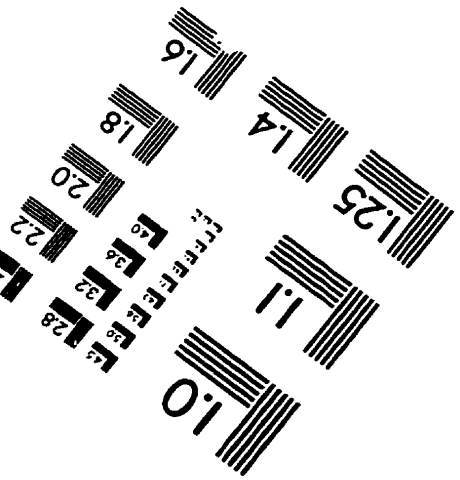
IMAGE EVALUATION
TEST TARGET (QA-3)

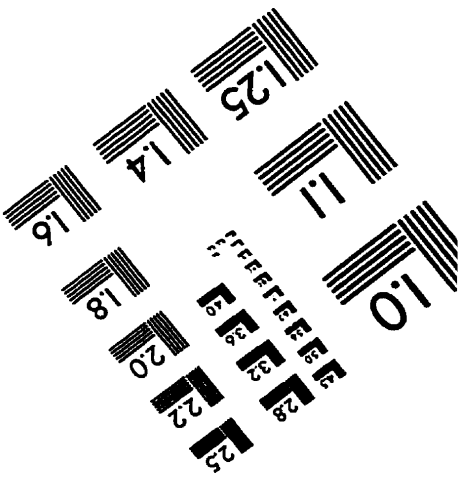












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