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The relationships of role conflict with role ambiguity, role efficacy, and task cohesion: A study of interdependent university sport teams

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THE RELATIONSHIPS OF ROLE CONFLICT WITH ROLE AMBIGUITY, ROLE
EFFICACY, AND TASK COHESION: A STUDY OF INTERDEPENDENT UNIVERSITY
SPORT TEAMS

By

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B.A. (Honours), University of Manitoba, 2016

THESIS

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Abstract

Roles, important structural components in groups, delineate group members' jobs and responsibilities. Through this division of labour, group members must function interdependently to achieve shared group outcomes. A critical perception that individuals hold regarding their role is the degree to which incongruent expectations are present (i.e., role conflict). This perception is divided into several dimensions: intra-sender conflict, inter-sender conflict, person-role conflict, and inter-role conflict. Previous research has demonstrated that role conflict can negatively affect individual- and group-level variables (e.g., other role perceptions, task cohesion). However, two limitations pervade this research. First, role conflict is generally assessed unidimensionally. Second, the dimensions of role conflict focus on one individual's role and do not reflect additional interpersonal factors. Therefore, the purpose of this study was to determine the multidimensional effects of role conflict on role ambiguity, role efficacy, and task cohesion. Furthermore, an interpersonal aspect of role conflict (i.e., inter-individual role conflict) was proposed and explored. Inter-individual role conflict describes two distinct types of role conflict (i.e., role encroachment and role incompatibility) based on theoretical propositions and applied examples. Participants ($N = 107$, $M_{age} = 21.37$) completed questionnaires at two time points, approximately three weeks apart. Multiple regressions determined which role conflict dimensions were predictive of the outcome variables. Results demonstrated person-role conflict ($\beta = -.47$ to $-.22$) negatively predicted role clarity. Additionally, the two types of inter-individual role conflict were shown to negatively predict role clarity ($\beta = -.30$), role efficacy ($\beta = -.25$), and task cohesion ($\beta = -.21$). These results partially support a priori hypotheses and the notion that role conflict is a negative aspect of group dynamics in sport.

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Introduction

"The way a team plays as a whole determines its success. You may have the greatest bunch of individual stars in the world, but if they don't play together, the club won't be worth a dime" (Ruth, 1928, p. 135). This quote, attributed to Babe Ruth, illustrates that while individual talent is important in sport, working together is essential to success for interdependent sport teams. Working together, far from being exclusive to sport, is a necessary component in goal attainment for all interdependent groups (e.g., work groups, organizations, and recreational groups). Developing and facilitating this ability to work together interdependently occurs through *group dynamics*. Group dynamics is described as the "actions, processes, and changes that occur within groups" (Forsyth, 2009, p. 2). More specifically, group dynamics is the manner in which individuals become a group, interact as a group, and progress toward a common goal. As such, group dynamics are integral to the functioning or development of a group or team. Roles and role perceptions (e.g., role conflict) are important factors within group dynamics. In the present thesis, I aim to demonstrate the effects of role conflict on important individual- and group-level outcomes. In the following sections of the introduction, several facets of group dynamics, the significance of group roles (including how they develop and individuals' role perceptions), and the specific extant literature surrounding role conflict will be highlighted. Finally, an extension to the existing dimensions of role conflict is proposed and explored as to its relation to the current understanding of this concept.

Group Dynamics

Research in the field of group dynamics has largely been centred in organizational psychology. McGrath (1984) developed a conceptual framework in an effort to more thoroughly understand organizational groups (Figure 1). At the heart of this conceptual framework is *group*

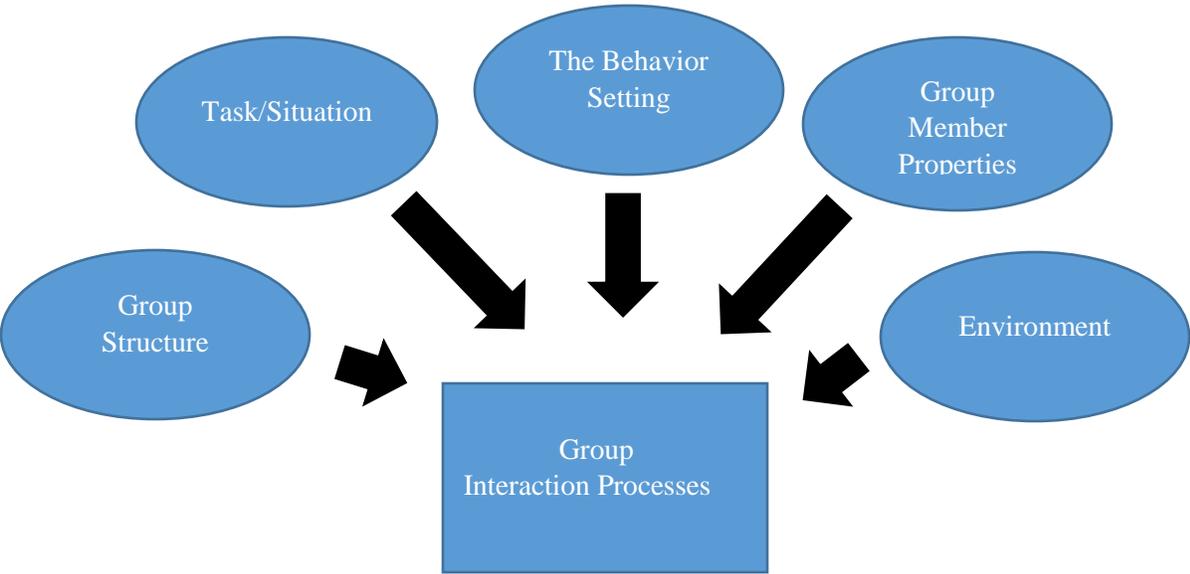


Figure 1. A conceptual framework for the study of groups (McGrath, 1984).

interaction processes. Group interaction processes refer to how members of a group or team act, communicate, and think about one another. Influencing these group interaction processes are five factors: (a) the environment, (b) group member properties, (c), task/situation (d), group structure, and (e) the behaviour setting. The *environment* may, for example, influence group member interaction due to a cold climate preventing a track and field team from practicing outside, requiring them to train in busy indoor facilities or postpone practice. This may result in the group sharing a practice space with others and preventing teammates from practicing together or communicating as much while practicing.

Group member properties, such as age, race, or gender, could affect how group members interact due to differing styles and preferences of communication (McGrath, 1984). The *task or situation* that brings a group together can also change how group members interact. A work group that is convening to plan a project will interact differently than that same work group getting together for a social gathering. *Group structure*, including elements such as member status and group roles may influence member interaction. A group member with higher status may be afforded more credibility or his/her opinion could be more highly regarded than other group members. Finally, the *behaviour setting* reflects a complicated relationship between the manner in which group members relate to one another, the impact of these relationships during group interaction, and the task that the group is engaged in (McGrath, 1984). Although two group members may not like each other, they may work well together when it comes to a task related to the group's purpose. When engaged in a more social task, however, these two group members may refrain from interacting with one another due to their negative feelings.

Group dynamics research has also been adopted in the area of sport psychology. Building on McGrath's (1984) framework, Carron and Eys (2012) developed a conceptual framework for

understanding sport teams (Figure 2). This framework involves inputs (i.e., member attributes and group environment) that influence throughputs (i.e., group structure, group cohesion, and group processes) which, in turn, lead to outputs (i.e., individual and team outcomes). The inputs, similar to McGrath's (1984) framework, include member attributes and the group environment, while outputs include those at both the individual and group level. An example of group outcomes could include a team's performance during the season whereas an individual outcome could be a player's own performance. Unlike McGrath's framework, however, the link between inputs and outputs is facilitated by the throughputs of group cohesion, group processes, and group structure. Group cohesion is defined as an emergent state that "is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron, Brawley, & Widmeyer, 1998, p. 213), while group processes are the ways a group undertakes a task, such as engaging in extra training to increase performance (Marks, Mathieu, & Zaccaro, 2001).

Finally, group structure is the manner in which an organization is set up in order to remain controlled and stable (Carron & Eys, 2012). It is subdivided into two sections: physical structure and psychological structure (Carron & Eys, 2012). The physical structure of a group has to do with how the group is organized (e.g., number of members and player positions). A player's position refers to a member's place within the group (i.e., where an athlete plays), such as forward (e.g., hockey), defence (e.g., football), middle (e.g., volleyball), or a number of other positions in different sports. The psychological structure is related to differentiation and behaviour of group members. Psychological group structure is proposed to consist of several aspects: group status, group norms, and group roles. First, group status is the amount of prestige given to a member based on his/her standing within the group and can be derived from a group

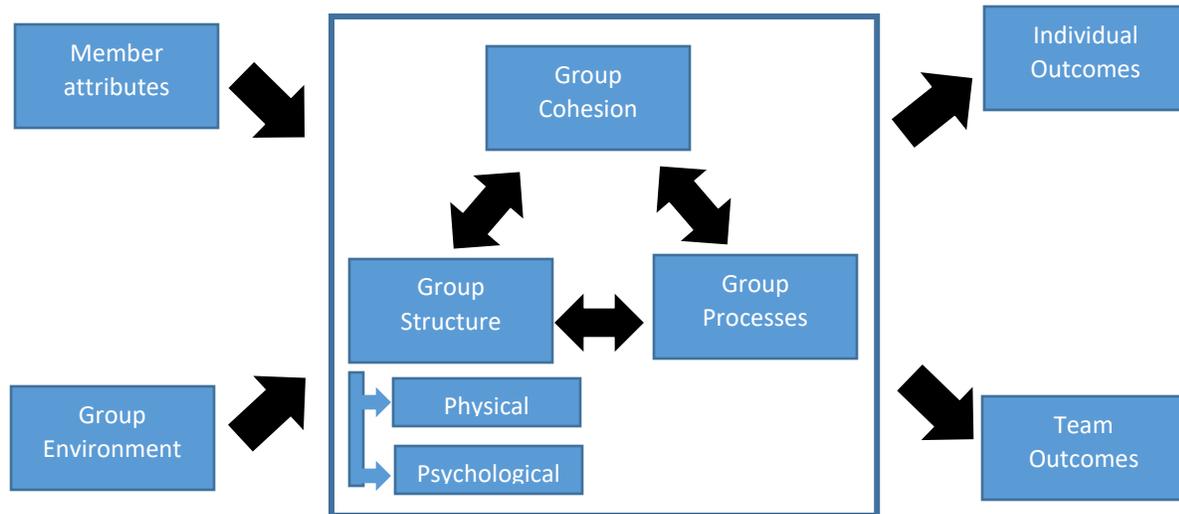


Figure 2. A conceptual framework for the study of sport teams adapted from Carron & Eys (2012).

member's age, position, ability, or a host of other factors (Jacob & Carron, 1994). Second, group norms reflect the expectations and standards surrounding how group members should behave (Carron & Eys, 2012). As examples, these norms can include not speaking when other members are speaking, dressing a certain way on game day, or not stepping on a team logo in the middle of the dressing room. The final aspect of group psychological structure, roles, is central to the current study. As such, roles will be discussed in greater detail in the subsequent sections.

Group Roles

Roles, as previously mentioned, are a structural component of groups. Roles have been described as encompassing the set of expectations for behaviour associated with a specific position in a social setting (Biddle & Thomas, 1966). That is, they differentiate an individual's position or job within a group. Due to this division of labour, group members must rely on one another to complete the group's predetermined task. This is true for social, organizational, and sport groups with task- or performance-related goals. In essence, roles are an important factor in group dynamics that can aid in team functioning, task achievement, and group success (Bales & Slater, 1955; Carron & Eys, 2012).

Roles can be utilized to contribute toward various group objectives in multiple ways. Previous research has examined roles through a number of sub-dimensions pertaining to the specific goal and function inherent to that role. Bales and Slater (1955), while investigating role differentiation in small decision-making groups, separated roles based on their primary purpose within the group. In their study, Bales and Slater categorized roles as serving the group in a *task* or *social* manner. Task-related roles are those intended to aid in accomplishing the objectives of the group and achieve success. In sport, task-related roles have been further distinguished by Benson, Surya, and Eys (2014) into specialized task-oriented roles and auxiliary task-oriented

roles. Specialized task-oriented roles require an athlete to “perform a specific physical skill set in a proficient manner” (Benson et al., 2014, p. 232) and are integral to implementing team strategies. Group members who act as star players fall within this category (Cope, Eys, Beauchamp, Schinke, & Bosselut, 2011). Auxiliary task-oriented roles are used to supplement or enhance another teammate’s role. These roles are not associated with a specific technical skill or strategic responsibility and are generally fulfilled by non-starting players (i.e., individuals who do not start the majority of games). A team spark-plug, who gives energy to the team, is an example of an auxiliary task-oriented role (Cope et al., 2011).

Social-related roles focus on the way in which members interact outside of the group’s primary task. The purpose of these roles is to facilitate and promote group integration and cohesion among members. For example, a group member who actively attempts to bring group members together for purposes unrelated to the group task is filling the role of a social convener (Cope et al., 2011). Though they do not necessarily advance the group’s objectives in a direct manner, social roles are vital in creating and maintaining group harmony. Although the purposes of task and social roles are distinct, they have been seen to coincide within team leadership roles (Benson et al., 2014). This is due to the nature of leadership roles, where the purpose is to bring a team together and direct them toward achieving the group goal. Having task-oriented and social-oriented roles working in concert is necessary to create a group that works well together in an effort to effectively pursue the shared objective.

In addition to delineating roles by their purpose within the group, as presented by Bales and Slater (1955), group roles have also been distinguished based on their formality. Mabry and Barnes (1980) posited that roles can be classified as either formal or informal in nature. *Formal roles* are directly set up by the group or team through prescription by an authority figure to an

individual. For example, a coach may inform an athlete that s/he is going to be the team captain, play a certain position, or play offence instead of defence. These roles are intended to be clearly communicated to an individual along with the expectations as to what that role entails (i.e., the necessary behaviours). In most cases, formal roles are so important to the success of a team that individuals are trained or recruited to fulfill them (Carron & Eys, 2012).

Conversely, *informal roles* are not formally prescribed by an authority figure and generally emerge as a result of social interaction within the group. Examples of informal roles include the previously mentioned social convener, as well as roles such as the comedian or mentor (Cope et al., 2011). Informal roles are capable of either supplementing or resisting the formal structure of the group (Hare, 1994; Homans, 1950). When supplementing the formal structure, informal roles fill gaps that may exist. For example, an informal leader may emerge to supplement the formal leadership of a team when the team captain is proving inadequate. In contrast, informal roles that offer resistance to the formal structure of the group may be either positive or negative. Positive resisting may take the form of athletes voicing differing opinions to those of the formal leaders, offering alternative solutions or preventing groupthink. Conversely, negative resisting may simply disrupt the group in non-beneficial ways. Disruptive negative resisting may occur when a team is trying to focus but the team comedian believes lightening the mood would benefit the team. As a result, the comedian begins making jokes but ultimately distracts the team.

The informal roles in athletic environments identified by Cope et al. (2011) provide insight into the potential effects of informal roles. The researchers found that mentors were perceived as the most beneficial informal role while the cancer/bad apple was the most detrimental. Individuals who fulfill the mentor role may take the time to share necessary

information (e.g., regarding group environment, group structure, or technical advice) to new group members when the formal leaders are unavailable. Conversely, cancers may unnecessarily distract group members through negative opinions or emotions.

Though these two categorizations of roles (i.e., task/social and formal/informal) arose separately, they are not mutually exclusive. Research has demonstrated that formal roles tend to be task-related (Benson et al., 2014) while informal roles, as a result of arising through group interaction, are often social in nature (Cope, Eys, Schinke, & Bosselut, 2010). However, this is not always the case. Roles may be formal and task-related (e.g., point guard), formal and social (e.g., team captain), informal and task-related (e.g., mentor), or informal and social (e.g., comedian).

Role Development

The process through which an individual's role develops is related to the formality and function of the role itself; information linked to a role can come from various sources and be shared in an implicit or explicit manner. As previously noted, for example, informal roles develop through interaction with other group members. However, little research has been conducted to determine how informal roles emerge through these interactions. Bales (1966) posited that the behaviour of an individual could dictate the type of role he/she occupies. These behaviours include the degree of activity (e.g., standing out; encouraging others), demonstrated task ability (e.g., expertise; scoring points), and likability (e.g., developing social relationships; arranging group parties). Based on the combination of these behaviours displayed, individuals could be labelled a task specialist, social specialist, leader, underactive deviant, or overactive deviant. As expected, task specialist roles are intended to further the task of the group, social specialist roles aim to maintain group harmony, and leadership roles combine the two.

Underactive and overactive deviants would be analogous to the negative informal roles (i.e., cancer, distracter, malingerer) previously discussed (Cope et al., 2011).

Other research has demonstrated that informal roles can be fluid and may change throughout the life-span of a group (Carreau, Bosselut, Ritchie, Heuzé, & Arppe, 2016). The researchers utilized observation and interviews to explore informal role development and stability during a canoe expedition. Through this, it was possible to gather both the researcher's and participants' perspective as informal roles emerged and evolved during the group's development. As a result of this study, Carreau et al. (2016) posited that the situation/context may have an effect on a group member's informal role. For example, one participant noted that "Although people may have had one main informal role, this role was often set aside as they took on temporary informal roles to respond to the circumstances of the event" (Carreau et al., 2016, p. 6), such as taking on a nonverbal informal leader role in response to a group member collapsing from illness. Additionally, they found that behaviour specific to a group member's informal role was absent in certain situations and contexts.

Similarly, Benson et al. (2014) suggested that member status may have an effect on informal role development and that low status group members may lean toward informal roles in response to not having a clear formal role. More specifically, the researchers found that individuals lacking a well-defined formal role may take it upon themselves to choose an informal role to occupy. In this way, Benson et al. suggested that group members fulfilling less desirable formal roles develop a stronger sense of purpose within the group. This strategy of a group member choosing his/her own role could have negative effects as the group member may unintentionally occupy a role that negatively impacts the group (e.g., distracter; Cope et al., 2011).

In comparison to the few studies examining informal role development, there exists a wealth of literature discussing the development of formal roles. Formal roles, as already mentioned, are prescribed to an individual by an authority figure. The process through which this prescription occurs is detailed in a conceptual model known as the *role episode model* (REM; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). The initial iteration of the role episode model was developed for use in organizational psychology. However, Eys, Carron, Beauchamp, and Bray (2005) later adapted this model for use in sport teams (Figure 3).

Within the role episode model, relaying role information to an individual occurs through five events and takes place between two individuals: a role sender (e.g., coach) and a focal person (e.g., athlete). The first event involves the role sender holding expectations regarding what a role entails and a potential candidate, or focal person, in mind for that role. This leads to the second event, wherein the role sender exerts role pressure on the focal person. This can be done explicitly, through words and directions, or implicitly, through actions (e.g., having a potential team leader conduct team warm-up activities). Event three takes place as the focal person experiences the role pressure from the role sender. The fourth event occurs as the focal person responds or reacts upon experiencing the role pressure from the role sender. For example, the focal person may either accept or reject the given role. At this stage, the focal person may also develop perceptions about the role (e.g., the clarity of what role to fill, satisfaction with the given role). These perceptions can influence the behaviours of the focal person in his/her attempts to fulfill (or not fulfill) the given role. For example, a focal person who perceives his/her role to be unclear may undertake actions that run counter to the expectations of the role sender. The fifth event involves the role sender taking note of the focal person's response and

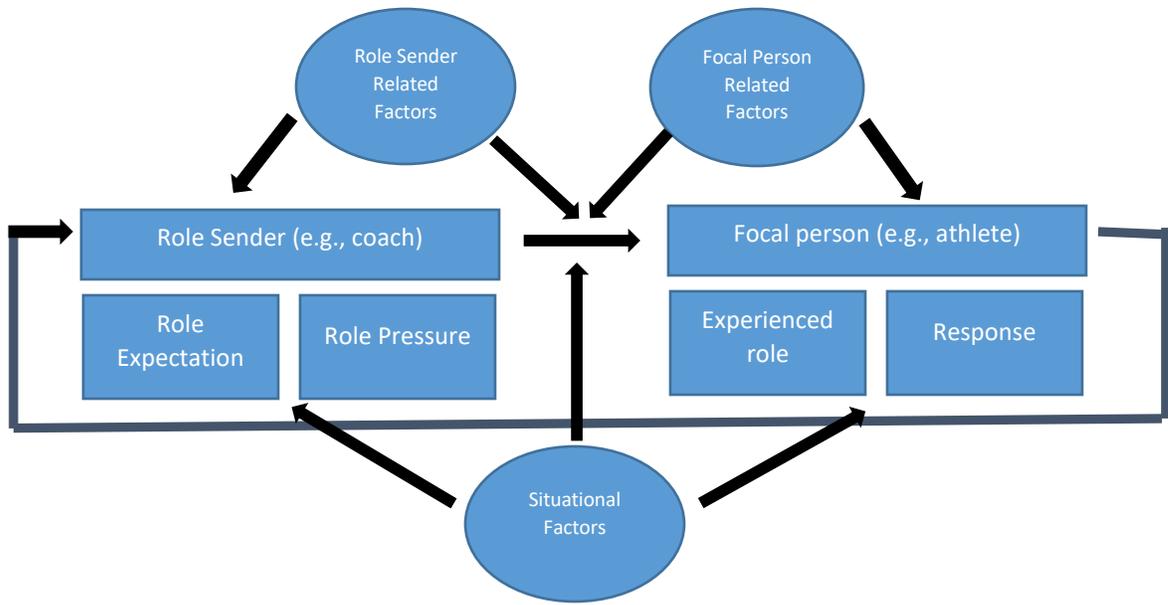


Figure 3. A theoretical framework of factors influencing the transmission and reception of role responsibilities (Eys, Carron, Beauchamp, & Bray, 2005).

adjusting his/her expectations or role pressure communication strategy accordingly. In this way, a loop is created and the role episode model continues.

Additionally, three types of outside factors can affect the way in which the role episode model takes place. Both role sender related factors and focal person related factors can influence the interaction between these individuals. A role sender's poor communication skills, for example, can lead to ambiguous interaction in which role information is not clearly transmitted to the focal person. Situation related factors can also directly affect how the role sender and focal person perceive role episode events, as well as the interaction between the two individuals. For example, although a coach may have a preference for a certain individual to be team captain, a team with a policy of democratically electing the captain may change who ultimately comes to occupy that role. Though the role episode model is prominently accepted as the process through which formal roles develop, it does not occur in a vacuum. Benson et al. (2014) posited that group interaction may also play a part in formal role development. Following prescription from a role sender, it may be the case that interactions with other group members reinforce a focal person's acceptance of his/her prescribed role. In this way, both formal prescription and group interaction work in collaboration to transmit role expectations and information.

Role Perceptions

There are a number of perceptions an individual holds regarding his/her role including role satisfaction, role acceptance, subjective assessments of role performance, role efficacy, role ambiguity, and role conflict (Kahn et al., 1964). Research has shown that role perceptions can have a range of outcomes for the role incumbent and the group as a whole (Beauchamp, Bray, Eys, & Carron, 2003; Eys, Carron, Bray, & Beauchamp, 2005; Riemer & Chelladurai, 1998). Role perceptions are commonly seen to influence group cohesion, individual satisfaction, and

group performance (Bray, 1998; Eys & Carron, 2001). They also often influence one another, as a change in one role perception can affect one or more other perceptions (Beauchamp, Bray, Eys, & Carron, 2002; Bray, Balaguer, & Duda, 2004; Bray & Brawley, 2000).

Role satisfaction has been defined as “a pleasurable emotional state resulting from the perception of one’s [role] as fulfilling or allowing the fulfillment of one’s important [role] values” (Locke, 1976, p. 246). Currently, there is little research in regard to this role perception. However, an individual’s role satisfaction can be a potential predictor of both performance and intention to return (Riemer & Chelladurai, 1998). When examining how role satisfaction affected an individual’s role perceptions, Bray (1998) found that role satisfaction had a positive relationship with task cohesion, role efficacy, and role importance but a negative relationship with role ambiguity. Recently, a preliminary measure for measuring role satisfaction was created by Surya, Eys, and Benson (2012). This measure examines role satisfaction as a multidimensional construct based on an individual’s perception of his/her role within the group. The six dimensions include satisfaction with (a) skill utilization, (b) significance of the role for the team, (c) significance of the role for the athlete on a personal level, (d) feedback pertaining to role performance, (e) autonomy in the determination of role behaviours, and (f) recognition of role responsibilities.

Similar to role satisfaction, role acceptance is one of the least studied role perceptions. This is due, in part, to the conceptual confusion between the two perceptions (i.e., satisfaction and acceptance) and an inability to disentangle the definition of role acceptance from that of role satisfaction. Recent research, however, has defined role acceptance as “a dynamic process that reflects the degree to which an athlete is willing to fulfill the role responsibilities expected of him/her” (Benson, Eys, Surya, Dawson, & Schneider, 2013, p. 273). In addition, this research

further distinguished between role acceptance and satisfaction through finding that group members would often take on and complete role responsibilities they deemed undesirable. Ethnographic research in this area has suggested that role acceptance may be positively associated with group cohesion and role ambiguity (Holt & Sparkes, 2001). Other qualitative research has suggested that an athlete's degree of role acceptance can be better understood based on his/her perceived role effectiveness, personal role importance, and belief in the group leadership structure (Mellalieu & Juniper, 2006).

Role performance indicates the degree to which an individual is actually able to fulfill the responsibilities related to his or her role within the group. The perception of role performance relates to the subjective assessments made by the athlete or others relating to the athlete's role. As previously noted, group members fulfilling their role responsibilities successfully is a critical component of group achievement (Carron & Eys, 2012). Organizational research has demonstrated that a high degree of self-leadership and a positive leader-member exchange can lead to benefits in perceived role performance (Hauschildt & Konradt, 2012; Jokisaari, 2013). Conversely, role ambiguity has been found to have a negative relationship with role performance (Beauchamp et al., 2002). Role performance has also been closely tied to role efficacy in a number of research studies (Beauchamp et al., 2002; Bray et al., 2004; Bray & Brawley, 2000; Bray & Brawley, 2002; Bray, Brawley, & Carron, 2002).

An individual's efficacy is defined as the "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" (Bandura, 1997, p.3). In interdependent groups or teams, this belief extends to an individual's perception of his/her ability to successfully perform his/her group role responsibilities interdependently (i.e., role efficacy; Bray et al., 2002). Bandura (1997) posited that displaying mastery of a particular skill (e.g., role

performance) is a determinant of self-efficacy in the area related to that skill, and this theory was later extended to role efficacy by Bray et al. (2002). In keeping with this idea, studies have consistently shown that role efficacy has a positive relationship with perceived role performance (Beauchamp et al., 2002; Bray et al., 2004; Bray & Brawley, 2000). This is demonstrated in research by Bray and Brawley (2002), where it was found that athletes with stronger role efficacy beliefs were rated as having better performance by their coaches.

Role ambiguity, the most heavily researched role perception, is described as an individual's lack of clarity or understanding of his or her role (Kahn et al., 1964). For example, an individual who is receiving unclear information or information from multiple sources may experience role ambiguity and therefore not fully understand what his or her duties are within the group. There are four general aspects to an individual's role that he/she must understand: (a) the scope of his/her role responsibilities (i.e., the breadth of responsibilities that the role entails), (b) the behaviours necessary to fulfill his/her role (i.e., what actions are required to satisfactorily complete his/her role responsibilities), (c) how his/her role performance will be evaluated (i.e., what criteria his/her performance will be judged by), and (d) the consequences of failing to fulfill the role responsibilities (i.e., the negative outcomes that will result from not completing his/her role; Eys & Carron, 2001).

Role ambiguity can have negative individual and group outcomes. Increased role ambiguity perceived by an individual has been shown to have a negative relationship with cohesion and self-efficacy (Eys & Carron, 2001). Further research demonstrated that role ambiguity can lead to increased state anxiety (Beauchamp et al., 2003) and decrease an athlete's intention to return to the same team (Eys et al., 2005). Additionally, inconsistent role pressures being sent to one focal person can lead to confusion regarding the focal person's role. As a

result, role ambiguity is commonly seen to be related to role conflict (Beauchamp & Bray, 2001; Kahn et al., 1964). In the following section, given its centrality to the present thesis, the perception of role conflict will be discussed in depth, differentiating it from role ambiguity and exploring the potential relationships between role conflict and other role perceptions.

Role Conflict

Though role conflict and role ambiguity are closely related, they have been shown to be independent constructs in past research (Beauchamp & Bray, 2001; Rizzo, House, & Lirtzman, 1970). Role conflict has been described as the presence of incongruent expectations regarding an individual's role, leading to psychological conflict for that individual (Kahn et al., 1964). This psychological conflict can lead to negative consequences for the role incumbent. A substantial portion of the extant literature has examined general feelings of role conflict, relying on a unidimensional measure (Rizzo et al., 1970). However, the initial conceptualization by Kahn et al. (1964) portrayed role conflict as a multidimensional construct. More recent research has argued in favor of this multidimensional conceptualization in an effort to better understand the emotions, thoughts, and behaviours that can arise as a result (Beauchamp & Bray, 2001; King & King, 1990).

The dimensions of role conflict theorized by Kahn et al. (1964) refer to the origins of incongruent role expectations. These dimensions are (a) inter-sender conflict, (b) intra-sender conflict, (c) person-role conflict, and (d) inter-role conflict. *Inter-sender conflict* occurs when more than one role sender is providing inconsistent information for a focal person. This may happen when a head coach and an assistant coach are telling an athlete conflicting information regarding his/her role. *Intra-sender conflict* refers to one role sender expressing inconsistent information to a focal person. For example, a head coach informing an athlete to play physically,

but also telling the athlete to not take any penalties (a common outcome of physical play), could confuse the athlete and create conflict. *Person-role conflict* arises from an individual's personal beliefs conflicting with his/her group role. An athlete who is expected to fulfill an enforcer role on a team (often entailing fighting and/or physical play), yet holds pacifist beliefs, may experience person-role conflict. Finally, *inter-role conflict* is a result of multiple roles conflicting with one another. A student-athlete, for example, may find it difficult to balance the roles of both student and athlete and experience role conflict as the inability to adequately fulfill both roles.

As with most group dynamics research, role conflict research has predominantly been housed in organizational psychology. This body of research has demonstrated that role conflict has a number of negative individual- and group-level outcomes. Initially, Kahn et al. (1964) found that industrial workers in high conflict environments were more likely to experience increased tension, decreased satisfaction, and decreased confidence in the organization as a whole when compared to those in low conflict environments. Building on this research, Rizzo et al. (1970) developed a unidimensional measure and similarly found that role conflict in the workplace had a negative relationship with thoughts about company leadership and the organization in general. They also found, to a lesser extent, that role conflict had a negative relationship with some measures of individual job satisfaction.

Utilizing the measure developed by Rizzo et al. (1970), a number of studies have also shown that role conflict at work can lead to increased absences, turnover intention, decreased satisfaction, decreased performance, and burnout (Chung & Schneider, 2002; Miles & Perrault, 1976; Singh, Goolsby, & Rhoads, 1994). Lysonski and Johnson (1983), using a multidimensional measure, found that when sales managers felt inter-sender, intra-sender, and person-role conflict, they experienced decreased job satisfaction, increased job tension, and

increased propensity to leave. The researchers also found that when person-role conflict was experienced, the sales managers felt that their perceived performance decreased. Taking another approach, Dubinsky and Mattson (1979) found that job satisfaction, job performance, and organizational commitment all negatively correlated with inter-sender role conflict.

Investigations into inter-role conflict have shown that work and family roles frequently interfere with one another, leading to depression, poor physical health, decreased life satisfaction, and decreased job satisfaction (Frone, Russel, & Cooper, 1997; Kossek & Ozeki, 1998). Meta-analyses have reinforced the findings of prior research, demonstrating that role conflict has overall significant negative relationships with job satisfaction, organizational commitment, and performance as well as positive relationships with emotional exhaustion, propensity to quit, and tension (Fisher & Gitelson, 1983; Ortqvist & Wincent, 2006).

Due to the similarities in group structure of organizations and sport teams, studies on the effects of role conflict have recently flourished in sport research. Much like the research conducted in organizational psychology, role conflict in sport has been shown to have many deleterious consequences among all members of sport teams. For example, studies incorporating the unidimensional measure developed by Rizzo et al. (1970) found that role conflict can lead to burnout in coaches and athletic trainers (Capel, 1986; Capel, Sisley, & Desertrain, 1987). Studies looking solely at inter-role conflict in student-athletes found that females experienced more role conflict than men except in basketball (Lance, 2004). Furthermore, research found that student-athletes who were unable to separate the two roles experienced increased stress (Settles, Sellers, & Damas, 2002). For example, a student-athlete who worried about an upcoming game while studying, or vice versa, would experience more stress than a student-athlete who was able to focus his/her attention on school while studying and focus on sport during competition or

practice. Beauchamp and Bray (2001) measured inter-sender, intra-sender, and person-role conflict – excluding inter-role conflict – and found that athletes who experienced these dimensions of role conflict had lower levels of role efficacy and that this relationship was mediated by role ambiguity. More recently, Hardy et al. (2014), using a multidimensional measure, found that inter-sender, intra-sender, and person-role conflict negatively influenced performance with role ambiguity as a mediating factor.

Expanding the Concept of Role Conflict

Roles, as previously noted, differentiate between group members' jobs and responsibilities. Moreover, organizational success is achieved through group members carrying out their role responsibilities successfully and interdependently (Carron & Eys, 2012). This holds true for sport teams, particularly in interdependent sports (e.g., hockey, basketball, soccer). However, roles can potentially introduce conflict within an organization. Much of the interpersonal interaction among group members is driven by their roles, as noted by Kahn et al.:

The relative positions of any two persons within this total structure determine to a considerable degree the relations which will obtain between them. Viewed in this way, role relations in an organization, though interpersonal in the broad sense of the term, are largely *depersonalized* ... aspects of the relations between people which are shaped primarily by the formal structures of the organization. (1964, p. 167)

Based on this, interpersonal conflict within a group may be due in part to the conflicting individuals' simply performing their role responsibilities. For example, two athletes attempting to fill the same offensive role can lead to conflict between these players. From an anecdotal perspective, this is demonstrated through comments discussing when Kyrie Irving and Dion

Walters, two “ball-dominators” (i.e., star-players), played basketball for the National Basketball Association’s (NBA) Cleveland Cavaliers:

Results on the offensive end have also been unimpressive, though not as dire. The Cavs offense diminishes in efficiency when both guards play. Pairing one ball-dominator with another is a dangerous combination, and the two have struggled to find that balance between attacking and deferring to one another. (Favale, 2014, para. 31)

This quote exhibits that, while playing together, these players seemed to struggle to find the best way to accomplish their role responsibilities successfully and interdependently due to trying to fulfill the same role. As a result, observers noted that the two players seemed to experience psychological conflict (i.e., frustration, anger; role conflict) and the team was less successful in its task achievement (Favale, 2014). Similarly, when Scottie Pippen joined the NBA’s Houston Rockets alongside Charles Barkley and Hakeem Olajuwon, all three players being stars in their own right, Pippen’s offensive contribution was near the lowest of his career. Conflicts with teammates and diminished role responsibilities were cited: “[Pippen] never fit into Houston’s low-post oriented offense, and competed with stars Hakeem Olajuwon and Barkley for looks at the basket. ... Pippen complained that he was not getting the ball enough” (Hall, 1999, para. 12, 20). Due to trying to fulfill similar roles (e.g., points scorer/star player), Pippen expressed unhappiness with the situation (i.e., psychological conflict; role conflict) and was subsequently less successful in fulfilling his role responsibilities.

In addition to teammates competing over the same role responsibilities, in some situations certain roles are simply not compatible with others. As a result, conflict is created due to athletes having a difficult time completing their role responsibilities. The incompatibility between James Harden and Dwight Howard is an example of this. The two members of the

Houston Rockets did not seem to work well together, both having different views on how the game should be played:

[Howard] was largely frozen out of the offense despite coaches and players saying he needs the ball. ... [Harden]'s aloof, has a dry sense of humor and a passion for winning. His frustration over losing bothers him greatly. While Howard is irked by not getting the ball as often as he would like, it is Harden who is dismayed by the center. He wishes Howard would demand the ball and not goof around so much. Howard's personality – bubbly, friendly, warm – often can rub guarded people such as Harden the wrong way. Howard jokes with fans during games and becomes easily frustrated with the referees. (Herbert, 2016, para. 4-6)

An observer's take on the situation was that Harden, a leader focused on task achievement, seemed to have difficulty dealing with Howard's personality and penchant for having fun (i.e., team comedian). Howard's role as a comedian appeared to irritate Harden, who therefore gave the ball to Howard less. As a result, Harden was a less effective leader on offense as a result. Clearly, both players were frustrated with one another (i.e., experienced role conflict).

Role conflict has traditionally been conceptualized and investigated as something that is experienced at an individual level. However, the anecdotes of role conflict described above do not fit into the current set of role conflict dimensions (i.e., inter-sender, intra-sender, inter-role, and person-role conflict). As demonstrated and previously noted, it is possible for individuals to experience conflict based on their group roles. This idea is further supported by the REM originally developed by Kahn et al. (1964), in which interpersonal relations are proposed to affect the interactions between the role sender and the focal person (Figure 4). The model shows this occurring in two ways: (1) interpersonal factors affecting the way the focal person

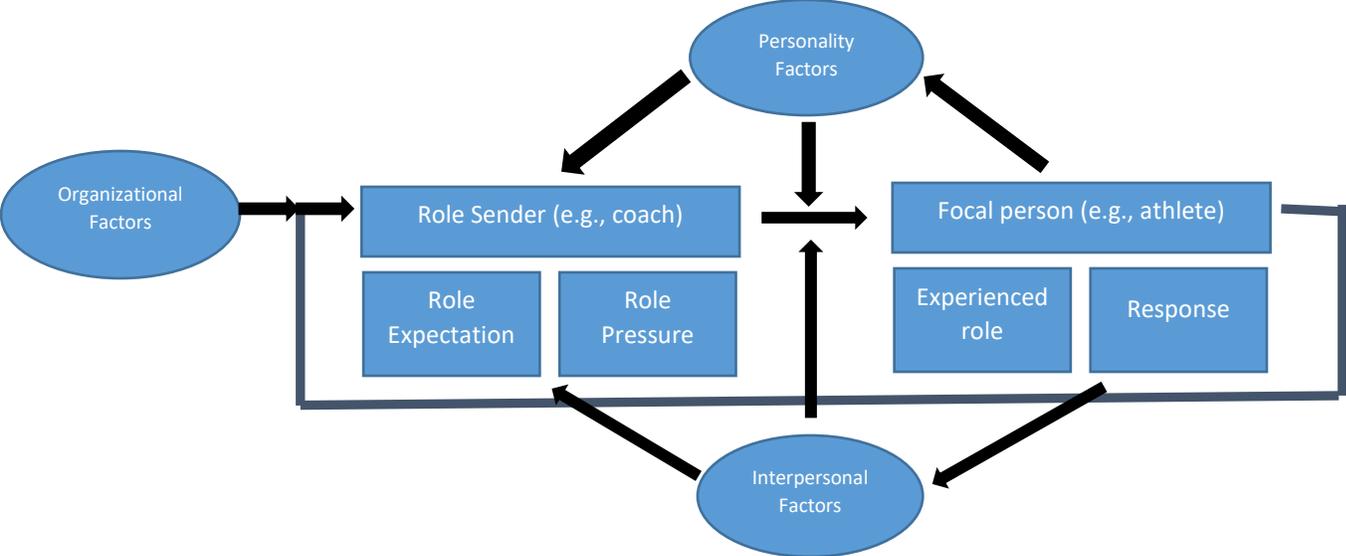


Figure 4. Role episode model (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964).

experiences the role pressures expressed by the role sender or (2) interpersonal factors impacting how the role sender interprets the response by the focal person and therefore affecting ongoing role expectations. As previously mentioned, group members can be role senders to a focal person in regard to both their formal (Benson et al., 2014) and informal roles (Carron & Eys, 2012). Due to the nature of interdependent sports, group members must constantly relay role-related information to one another to be successful.

Therefore, as an extension to the extant literature surrounding role conflict and supported by applied examples (Favale, 2014; Hall, 1999; Herbert, 2016) and theoretical propositions (Kahn et al., 1964), the current study proposed and investigated role conflict at an interpersonal level. This *inter-individual role conflict* is defined as the role behaviour of two individuals creating psychological conflict for at least one of those role occupants. That is, when the role responsibilities of one individual are affected by the role responsibilities of a second individual, one of these individuals feels conflicted as a result. This overarching term describes two proposed types of interpersonal role conflict that are conceptually distinct. The first dimension, labelled *role encroachment*, can occur when one individual attempts to take over a portion of another individual's role. This can be seen in the Kyrie Irving/Dion Waiters and Pippen/Barkley/Olajuwon examples. As Kyrie Irving and Dion Waiters both tried to perform the same role responsibilities (e.g., scoring, controlling the ball), discord between the two occurred. Scottie Pippen experienced similar feelings of conflict when playing with Barkley and Olajuwon. When attempting to share scoring duties between the three, Pippen expressed his unhappiness with his role and the situation. This conflict may also lead to athletes experiencing a change in other role perceptions such as role efficacy or role satisfaction.

The second dimension, labelled *role incompatibility*, refers to two individuals with separate role responsibilities inhibiting one another's ability to perform their individual role responsibilities. This is evident in the example with James Harden and Dwight Howard. Howard's comedian role bothered Harden to such an extent that he began to include Howard less in the team's offense, reducing Harden's ability to be a leader, especially on offense. Due to this, both players experienced psychological conflict resulting in a great deal of frustration. Another example is a social convener attempting to plan a social outing for a sport team while the team captain is attempting to keep the team focused on their group task. In this case, one or both role occupants may experience role incompatibility as one individual is making it difficult for the other to complete part of his/her role responsibilities. A change in role perceptions may result from this conflict. As demonstrated by these examples of the two types of inter-individual role conflict, this role conflict can take place between two or more individuals regardless of the function or formality of the role occupants involved.

Purpose and Hypotheses

As roles are an important structural component in groups, understanding the perceptions group members hold about their roles and the effects these perceptions have is vital in studying group dynamics. Role conflict, specifically, is prevalent within interdependent groups and can negatively affect group members and the group as a whole. As a result, a number of research studies have been completed to determine the effects of role conflict. However, these studies regularly implement a unidimensional measure of role conflict or only measure a portion of the role conflict aspects. Furthermore, few previous studies have examined the effects of role conflict on group cohesion, an important aspect of group functioning. Finally, previous research has examined role conflict by solely considering one's own role or roles. The current study

investigated role conflict from this vantage point (e.g., inter-sender role conflict) as well as from an interpersonal perspective (e.g., inter-individual role conflict).

Therefore, the purpose of the current study was to explore the relationships of the traditional aspects of role conflict, as well as the two proposed types of inter-individual role conflict, with task-related consequences including role ambiguity, role efficacy, and group cohesion in interdependent sport teams. The social consequences of role conflict were not explored as they were outside the scope of the current study. Hypotheses for the current study are categorized by outcome measures.

Role ambiguity hypotheses. As previously discussed, role ambiguity is the role perception with the largest research focus. Beauchamp and Bray (2001), using a role conflict measure that incorporated the dimensions of inter-sender, intra-sender, and person-role conflict found a positive relationship between role conflict and role ambiguity. This conclusion is reflective of the findings of Kahn et al. (1964) and Hardy et al. (2014). However, these studies (i.e., Beauchamp & Bray, 2001; Hardy et al., 2014; Kahn et al., 1964) did not explore the individual relationships of each role conflict dimension with the outcome variables. Based on previous findings, hypotheses relating to role ambiguity for the current study were:

H1a: Greater inter-sender role conflict will be predictive of an increase in all aspects of role ambiguity (i.e., scope, behaviours, consequences, and evaluation).

H1b: Greater intra-sender role conflict will be predictive of an increase in all aspects of role ambiguity.

Though person-role conflict was included as part of the measure used by the researchers (i.e., Beauchamp & Bray, 2001; Hardy et al., 2014), this study did not hypothesize a relationship between person-role conflict and role ambiguity. This is due to the nature of person-role conflict,

as it is believed one must be clear on their role in order to feel that it differs from his/her personal needs or beliefs. As a result, the relationship found in previous studies may have been driven by inter-sender and intra-sender role conflict. Similarly, role encroachment and role incompatibility were not hypothesized to affect role ambiguity as an athlete must understand his/her role in order to perceive encroachment or incompatibility. There is no hypothesized relationship between inter-role conflict and role ambiguity as there is no evidence of this relationship in previous literature.

Role efficacy hypotheses. Role efficacy has shown to be affected by aspects of role conflict (i.e., inter-sender, intra-sender, and person-role conflict), through a mediator of role ambiguity (Beauchamp & Bray, 2001). Based on this previous study, the current study attempted to replicate these findings for inter-sender, intra-sender role conflict, and person-role conflict.

The hypotheses for these aspects were as follows:

H2a: Greater inter-sender conflict will be predictive of a decrease in role efficacy through role ambiguity.

H2b: Greater intra-sender conflict will be predictive of a decrease in role efficacy through role ambiguity.

H2c: Greater person-role conflict will be predictive of a decrease in role efficacy.

However, the findings of the aforementioned studies did not take into account all role conflict aspects. Specifically, they excluded inter-role conflict. As inter-role conflict occurs when role responsibilities from one context interfere with the role responsibilities from a second context, it is feasible that an athlete can be clear regarding what his/her role responsibilities are (i.e., low role ambiguity), but feel less capable of fulfilling these role responsibilities (i.e., low role efficacy) due to interference from a second role. As a result:

H2d: Greater inter-role conflict will be predictive of a decrease in role efficacy.

Furthermore, individuals experiencing role encroachment or role incompatibility may experience a decrease in role efficacy. A role occupant who is constantly having another group member attempt to co-opt a portion of the role occupant's role responsibilities (i.e., role encroachment) may feel that his/her ability to fulfill those responsibilities is in question. This could result in decreased role efficacy for the role occupant. In the REM (Kahn et al., 1964; Eys et al., 2005), for example, a role sender (e.g., teammate) whose role pressures are indicating a reduction in the need for the current role incumbent could result in the role incumbent feeling that his/her ability to perform that role is diminished (i.e., decreased role efficacy). Similarly, a role occupant may have difficulties fulfilling his/her role due to another group member's role responsibilities interfering (i.e., role incompatibility). As a result of this interference, the role occupant may perceive a decrease in his/her ability to perform that role (i.e., role efficacy). Therefore:

H2e: Greater role encroachment will be predictive of a decrease in role efficacy.

H2f: Greater role incompatibility will be predictive of a decrease in role efficacy.

Group cohesion hypotheses. Previous research has shown that role conflict can have a negative effect on group cohesion. When examining professional female soccer players, research demonstrated that athletes who experienced more role conflict had a lower perception of task cohesion (Leo, González-Ponce, Amado, Pulido, & García-Calvo, 2016). Based on this finding, the current study aimed to extend this line of research and explore how inter-sender, intra-sender, and person-role conflict affect group cohesion. As previously mentioned, the current study was primarily interested in discovering the task-related effects of role conflict and, as a result, the social aspects of group cohesion were not measured. Therefore:

H3a: Greater inter-sender conflict will be predictive of a decrease in the task-related aspects of group cohesion.

H3b: Greater intra-sender conflict will be predictive of a decrease in the task-related aspects of group cohesion.

H3c: Greater person-role conflict will be predictive of a decrease in the task-related aspects of group cohesion.

Furthermore, the current study explored if role encroachment and role incompatibility could also lead to negative task-related group cohesion effects. In the case of role encroachment, where one group member's role responsibilities are being overtaken by a second group member, the original role occupant may experience a reduction in individual attraction to the group as a result of decreased role responsibilities. Similarly, the original role occupant may perceive this encroachment as indicative of the group being less unified in attempting to attain group success (i.e., decreased group integration). As for role incompatibility, group members may feel cohesion is reduced as their role responsibilities are impeded by that of another group member. Due to the incompatibility and conflict of these roles, the role occupants may feel that the group is less integrated. Therefore, the hypotheses for inter-individual role conflict and group cohesion were as follows:

H3d: Greater role encroachment will be predictive of a decrease in the task-related aspects of group cohesion.

H3e: Greater role incompatibility will be predictive of a decrease in the task-related aspects of group cohesion.

Inter-role conflict was not hypothesized to have an effect on task cohesion as the previous literature has not demonstrated this relationship.

Method

Participants

Participants in the current study were recruited from interdependent sport teams (i.e., hockey, volleyball, basketball) at universities and colleges in Southwestern Ontario. Interdependent sport teams were specifically targeted due to the importance of roles in these teams, as highlighted in the introduction. University and college level teams were chosen as older athletes may be clearer on the importance of roles for team success. Furthermore, the roles that occur at these ages are likely more diverse when compared to younger teams. This is potentially due in part to the nature of the university athletics environment. Specifically, there are typically high volumes of teammate interaction at this level, which can allow for the development of both task and social roles. Additionally, the organizational group structure of these teams are based on recruiting athletes for specific roles and are designed to develop those roles that are not recruited.

To determine the sample size necessary to reach adequate power (i.e., .80) in the current study, an alpha of .05 is assumed. Additionally, an effect size must also be assumed. In previous literature, and according to Cohen's (1988) rule for assessing effect sizes, role conflict has been demonstrated to have low to moderate effect size in relation to various individual- and group-level outcomes (Örtqvist & Wincent, 2006). Using this information, the sample size necessary to achieve adequate power was calculated using GPower (Faul, Erdfelder, Buchner, & Lang, 2009). Therefore, assuming a low effect size (i.e., .10) the required sample size was determined to be 134 participants.

At Time 1, 159 participants took part in the study. One hundred and seven athletes subsequently participated at Time 2, which occurred approximately three weeks following Time

1 ($M = 22.78$ days, $SD = 6.46$ days). Participants were required to complete both time points for their data to be eligible for the study, therefore a total of 107 participants are included in this study (32.7% attrition rate). Both male ($n = 33$) and female ($n = 74$) athletes were included in the study from university and college basketball ($n = 41$), hockey ($n = 54$), and volleyball ($n = 12$) teams. Participants' ages ranged from 19 to 25 ($M = 21.37$, $SD = 1.63$) and had a mean tenure with the team of 2.46 years ($SD = 1.38$). Of these participants, 37 were rookies (34.6%), while 70 were veteran players (65.4%). Furthermore, 53 participants (49.5%) identified as a starter, 36 (33.6%) as substitute players, 14 (13.1%) as dress players, and only 4 (3.7%) identified as practice players.

Measures

Demographics questionnaire. Athletes were asked to complete a questionnaire detailing demographic information about themselves including (a) birth date, (b) sport, (c) team, (d) sex, (e) position played, (f) years of experience in their sport, (g) team tenure, (h) number of games played in the current season, (i) starting status, (j) if this is their primary sport, and (k) information about their perceived role (Appendix A). No specific identifying information (e.g., names, emails, etc.) was included in these demographics to ensure anonymity. This information was used to anonymously match athletes' Time 1 and Time 2 data and determine if there were any baseline differences based on demographic information. Furthermore, asking athletes to describe their perceived role and role responsibilities was used to have the athletes think about what their role is and ensure the remaining questionnaires were completed with this information in mind.

Role conflict. Role conflict was partially assessed using a role conflict measure developed by Hardy et al. (2014; Appendix B). This 17-item questionnaire explored the

dimensions of inter-sender conflict, intra-sender conflict, person-role conflict, and the overall experience of conflict, for which participants responded on a 9-point Likert-type scale where 1 indicates “strongly disagree” and 9 indicates “strongly agree”. Five items measured inter-sender role conflict while four items (each) measured intra-sender role conflict, person-role conflict, and overall experience of conflict. However, the overall experience of conflict dimension of this measure was not utilized in the current study. This dimension was excluded as the purpose of this study was to investigate the relationships between the dimensions of role conflict and the outcome variables, as opposed to determining how those dimensions predict the overall experience of conflict which, in turn, affects the outcome variables (Hardy et al., 2014). Example items for each dimension from this measure included: “Information my coach gives me on my role is completely different to the information my teammates give me” (inter-sender conflict), “My coach contradicts him/herself when explaining my role” (intra-sender conflict), and “The role I am expected to play is inconsistent with my own needs and values” (person-role conflict). Reliability was assessed for each of the individual dimensions included in the current study. The Cronbach’s alpha values calculated for inter-sender role conflict (Time 1: $\alpha = .93$, Time 2: $\alpha = .92$), intra-sender role conflict (Time 1: $\alpha = .95$, Time 2: $\alpha = .94$), and person-role conflict (Time 1: $\alpha = .79$, Time 2: $\alpha = .83$) indicated high internal consistency among items within each dimension.

Inter-role conflict was examined using the Sport-Life Domain Questionnaire (Morgan, Markland, & Hardy, in preparation; Appendix C). Though this measure contains 24 items across two dimensions, the current study incorporated only the items measuring how life outside of sport affects sport involvement. The dimension examining how sport affects life outside of sport was excluded, reducing the number of items to 12. This was due in part to the current study

focusing on consequences of role conflict in the sport context specifically; contexts outside of sport were not explored. The inclusion of only one of this measure's dimensions was also in response to preventing participant burden resulting from an abundance of measures and questions in the current study. The dimension assessing how life outside of sport interacts with sport included questions such as "Often my involvement with my work (e.g., school, job) prevents me from giving my sport enough attention", to which participants responded on a 5-point Likert-type scale, where 1 represents "strongly disagree" and 5 represents "strongly agree". This measure showed internal consistency by demonstrating an acceptable Cronbach's alpha (Time 1: $\alpha = .93$, Time 2: $\alpha = .93$).

Finally, the two types of inter-individual role conflict were assessed using six items created for the current study; three items for role encroachment and three items for role incompatibility (Appendix D). These items were created in keeping with the style of items from the role conflict measure created by Hardy et al. (2014). Participants responded to each item on a 9-point Likert-type scale with 1 indicating "strongly disagree" and 9 indicating "strongly agree". Example items from this measure are "Other members of the team make it difficult to complete my role responsibilities" (role incompatibility) and "Teammates try to take over my role responsibilities" (role encroachment). These items were initially assessed by experts in the field of group dynamics for evidence of validity related to content. Experts included colleagues and a faculty member with extensive research experience in group dynamics from Wilfrid Laurier University. One item was deemed to be double-barrelled and some item phrasing to be confusing or overcomplicated. The double-barrelled item was adjusted and item phrasing was simplified as a result. These items were subsequently deemed to demonstrate some evidence of validity based on content. Reliability for these items was assessed and both role incompatibility (Time 1: $\alpha =$

.89, Time 2: $\alpha = .87$) and role encroachment (Time 1: $\alpha = .82$, Time 2: $\alpha = .91$) demonstrated high internal consistency.

Role Ambiguity. A shortened version of the Role Ambiguity Scale (RAS; Appendix E) was used to determine perceptions of role ambiguity. The original RAS (Beauchamp et al., 2002) consists of 40 items and has been used in a number of studies to examine relationships between role ambiguity and other variables (e.g., Bosselut, Heuzé, Eys, Fontayne, & Sarrazin, 2012; Bosselut, McLaren, Eys, & Heuzé, 2012; Cunningham & Eys, 2007). When tested, the RAS shows high internal consistency (Cronbach's alpha above .70) and demonstrates evidence of validity related to content (Beauchamp et al., 2002). The shortened version of the RAS, made up of 12 items, has previously been used to predict how socialization tactics affect role ambiguity in athletes (Benson, 2016). In the current study, this version was used over the original RAS in an attempt to prevent participant burden. Example items for each dimension from the shortened RAS are: "I am clear about the different responsibilities that make up my role" (role ambiguity – scope), "I know what behaviours are necessary to carry out my role responsibilities" (role ambiguity – behaviours), "I understand how my role is evaluated" (role ambiguity – evaluation), and "I understand the consequences of failing to carry out my role responsibilities" (role ambiguity – consequences). These items are responded to on a 9-point Likert-type scale where 1 corresponds with "strongly disagree" and 9 corresponds with "strongly agree". The items on the RAS are positively worded to prevent participant confusion that can arise from negatively worded items. As a result, when responding to these items, higher scores indicate greater role clarity, while lower scores indicate greater role ambiguity. Therefore, role ambiguity will henceforth be referred to as role clarity in an effort to prevent confusion and increase the ease with which this study's results can be understood. Each dimension in this measure (i.e., scope,

behaviours, consequences, and evaluation) is assessed by three items. When evaluating the reliability of this measure in the current study using Cronbach's alpha, scope (Time 1: $\alpha = .86$, Time 2: $\alpha = .89$), behaviour (Time 1: $\alpha = .84$, Time 2: $\alpha = .82$), consequences (Time 1: $\alpha = .94$, Time 2: $\alpha = .91$), and evaluation (Time 1: $\alpha = .90$, Time 2: $\alpha = .87$) demonstrated high internal consistency.

Role Efficacy. Role efficacy was measured using the Role Efficacy Scale (RES; Bray, 1998; Appendix F). The RES has previously been used to determine the way in which role efficacy relates to role clarity and role performance (Beauchamp, Bray, Fielding, & Eys, 2005; Bray & Brawley, 2002). This measure requires participants to list four task-specific responsibilities that are related to their role. Participants were then asked to rate how confident they are in their perceived ability to accomplish these responsibilities in 10% increments (i.e., 10%, 20%, 30%) from 0% to 100%, with 0% representing "not at all confident" and 100% representing "completely confident". In creating this measure, Bray found that the RES showed some evidence of face validity and validity that demonstrated divergence from other group dynamics variables (e.g., role clarity, role acceptance, individual attraction to group – task). Furthermore, Bray's assessment of reliability found adequate Cronbach's alpha (i.e., $\alpha > .70$) for the RES. In the current study, the reliability for the RES (Time 1: $\alpha = .66$, Time 2: $\alpha = .70$), while not ideal (i.e., $\alpha > .70$) at Time 1, can be considered acceptable. Bray (1998) posited that, due in part to the RES not incorporating a standard set of items, reliability is interpreted differently than a measure with standardized items. Therefore, inter-item correlation matrices were also created for the RES items at Time 1 and Time 2 and can be found in Tables 1 and 2, respectively. Mean scores (in percentages) for the items at Time 1 ranged from 77.40 to 83.59 with standard deviations from 12.05 to 15.20 and correlations ranging from $r = .22$ to $r = .44$. At

Table 1

Inter-item correlations for RES items at Time 1

Item	Mean (SD)	1	2	3	4
1	83.59 (12.05)	-			
2	79.43 (15.18)	.44**	-		
3	77.40 (14.68)	.30**	.26**	-	
4	78.20 (15.20)	.33**	.33**	.22*	-

** $p < .001$, * $p < .05$

Table 2

Inter-item correlations for RES items at Time 2

Item	Mean (SD)	1	2	3	4
1	85.00 (10.53)	-			
2	84.06 (11.77)	.27**	-		
3	81.10 (12.70)	.42**	.42**	-	
4	79.21 (14.24)	.35**	.29**	.49**	-

** $p < .001$

Time 2, mean item scores ranged from 79.21 to 85.00 with standard deviations from 10.53 to 14.24 and correlations ranging from $r = .27$ to $r = .49$. These values indicate that the role efficacy items at both Time 1 and Time 2 have a moderate positive correlation and suggest that, in conjunction with the Cronbach's alpha scores, the RES demonstrates internal consistency.

Cohesion. The Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985; Appendix G) was used to assess participants' perceptions of team cohesion. The GEQ has been used in previous studies to examine the relationship between cohesion and a number of variables including role acceptance and role satisfaction (Bray, 1998; Eys & Carron, 2001). The 18 items included in the GEQ measure cohesion across four dimensions: individual attraction to the group – task, individual attraction to the group – social, group integration – task, and group integration – social. Individual attraction to the group deals with how attracted members are to the group's task and social aspects. For example, these dimensions determine how an individual feels about how well s/he fits in with the group (i.e., social) or if s/he enjoys the playing style of the team (i.e., task). Group integration is an assessment of how unified the team is on task and social aspects. A group that is unified socially would likely spend time together outside of sport related events. A task unified group would work together and follow team strategies together. As previously noted, the current study's purpose revolves around examining task-related outcomes resulting from role conflict. Therefore, items related to both individual attraction to the group – social and group integration – social were omitted from the measure in this study. As a result of this, the measure becomes a nine item questionnaire. Individual attraction to the group – task is measured by four items while group integration – task is measured by five items. Items were responded to using a 9-point Likert-type scale where 1 represents “strongly disagree” and 9 represents “strongly agree”. “Our team members have consistent aspirations for the team's

performance” (group integration – task) and “I like the style of play on this team” (individual attraction to group – task) are example items from this measure. The GEQ has previously shown evidence of reliability with Cronbach’s alpha values ranging from $\alpha = .64$ to $\alpha = .76$ (Carron et al., 1985). In the same study, the GEQ originally demonstrated validity related to content and construct. Additional studies have shown the GEQ to display validity related to convergence with similar constructs, predicting related concepts, and factor structure (cf. Carron, Brawley, & Widmeyer, 2002). When assessing reliability of the dimensions of the GEQ used in the current study, both individual attraction to the group – task (Time 1: $\alpha = .77$, Time 2: $\alpha = .82$) and group integration – task (Time 1: $\alpha = .88$, Time 2: $\alpha = .94$) demonstrated high internal consistency.

Procedure

Following approval from the Review Ethics Board at Wilfrid Laurier University (REB #5044; Appendix H), interdependent sport teams in Southwestern Ontario were identified through university or college websites and an email was sent to head coaches containing a coach’s letter of information (Appendix I) about the study and an invitation for their team to participate. When coaches’ email addresses were unavailable on team websites, league organizers were contacted for direct coach contact information. Upon agreeing that their team would participate in the study, a time was arranged to begin data collection. Data collection was, when possible, scheduled before or after a team meeting or practice in an attempt to avoid competition-specific bias. There was one exception, in which data collection for one team occurred before competition at both Time 1 and Time 2. Athletes were informed as to the purpose of the study and what was required of them. Following this, participants were issued an athlete’s letter of information (Appendix J) and written informed consent (Appendix K) was gathered from the athletes who agreed to participate in the study. Participants were then asked to

fill out the demographic questionnaire. Participants then completed the RES, inter-individual role conflict items, role conflict scale, Sport-Life Domain Questionnaire, GEQ, and RAS. These questionnaires were completed separately in a group setting, in order to maintain confidentiality and prevent participants influencing the answers of others. The RES was completed first for all participants in an effort to ensure athletes listed their specific role responsibilities and have them in their mind as they complete the other questionnaires. The inter-individual role conflict items followed immediately after the RES in an effort to prevent participant fatigue from influencing responses or creating bias, as this questionnaire was new and of particular interest. Following this, questionnaire order was counterbalanced to prevent participant fatigue from systematically affecting responses to questionnaires near the end of the questionnaire package. Following the completion of these questionnaires, participants were thanked and a second meeting was arranged with the team coach. Data were collected at two time points to both determine how variables may have changed across time and to control for dependent variables at Time 1 as they related to Time 2 during data analysis.

Time 2 took place approximately three weeks following Time 1 ($M = 22.78$ days, $SD = 6.46$ days). At this meeting, participants were reminded of the purpose of the study. Following this, participants were asked to complete a questionnaire package similar to that of Time 1, though without the letter of information and informed consent letter. Once completed, participants were again thanked for their participation. Participants were matched with their Time 1 data based on a combination of demographic information (e.g., sport, team, birthdate, gender).

Data Analysis

Data were stripped of any identifying information and inputted into a master spreadsheet in SPSS. Any items that participants did not respond to were inputted as '999' to indicate a missing value. Following the data entry process, the data were checked for input errors by a colleague. This colleague examined 10% of the total questionnaires and determined that there were no data entry errors.

The data were then explored using descriptive statistics to determine if outliers existed within the dataset. To do so, the raw data for item scores were transformed into Z-scores. The criteria for identifying outliers were Z-scores above 3.29 or below -3.29. Two datasets were created to determine how to optimally deal with these outliers: one dataset where outliers were winsorized (i.e., outliers were adjusted to the nearest value within 3 standard deviations; Howell, 2013) and one dataset where outliers were removed. A sensitivity analysis was then conducted to determine the differences between these datasets. First, subscale means were calculated for each dataset. Participants with data missing from a particular subscale had the means for that subscale calculated by hand (Tabachnick & Fidell, 2001), provided the participant had replied to more than 50% of the items in the subscale. One exception to this strategy occurred for participant 61 who, on the three item role clarity - consequences subscale at Time 2, responded with a 3, a 9, and a missing value. As a result, it was deemed that calculating a mean for those scores would not be representative of the participant's responses and therefore the subscale mean was listed as missing. Second, skewness and kurtosis of subscale means for each dataset were assessed and seen to have minor differences between the two datasets. Third, this study's main statistical analysis (i.e., multiple regression) was conducted to assess the differences between datasets. When comparing the multiple regression results for each dependent variable between datasets, models demonstrated slightly different Beta values. Again, these differences were deemed minor.

As a result of the minor differences found between these datasets, the winsorized dataset was used henceforth to incorporate as many data points as possible.

The skewness and kurtosis of the items and subscales were assessed for normality. Although some skewness was demonstrated in the items and subscale means, these were not considered extreme enough to warrant transformation of the data. Additionally, the underlying assumptions of multiple regression were assessed to determine if they had been met. These underlying assumptions were deemed to be met and data analysis was able to proceed. Due to the high proportion of female participants in this study, participant sex could have been controlled while analysing the data using multiple regressions. This would allow for the different effects of role conflict on the outcome variables based on sex to be determined. However, as this study aimed to assess the general effects of role conflict on the outcome variables, this was outside the current study's scope.

Results

Descriptive statistics

Means, ranges, standard deviations, and Cronbach's alphas for the subscales used in this study are summarized in Table 3. Participants indicated that their levels of role conflict stayed relatively similar from Time 1 to Time 2. Intra-sender role conflict (Time 1: $M = 3.44$, $SD = 2.23$, Range = 1.00 – 8.75, Time 2: $M = 3.54$, $SD = 2.19$, Range = 1.00 – 9.00), inter-sender role conflict (Time 1: $M = 3.00$, $SD = 1.73$, Range = 1.00 – 7.40, Time 2: $M = 3.00$, $SD = 1.71$, Range = 1.00 – 7.40) and person-role conflict (Time 1: $M = 3.01$, $SD = 1.67$, Range = 1.00 – 7.75, Time 2: $M = 3.01$, $SD = 1.66$, Range = 1.00 – 8.00) were consistent across time points. Inter-role conflict (Time 1: $M = 1.70$, $SD = 0.60$, Range = 1.00 – 3.67, Time 2: $M = 1.68$, $SD = 0.59$, Range = 1.00 – 3.83), role incompatibility (Time 1: $M = 3.20$, $SD = 1.91$, Range = 1.00 – 8.67, Time 2: $M = 3.10$, $SD = 1.71$, Range = 1.00 – 8.33), and role encroachment (Time 1: $M = 3.28$, $SD = 1.72$, Range = 1.00 – 8.00, Time 2: $M = 3.20$, $SD = 1.90$, Range = 1.00 – 8.67) demonstrated a similar pattern, showing almost no change from Time 1 to Time 2. To determine if these changes were significant, a repeated measures MANOVA was conducted. Results indicated that no dimension of role conflict significantly changed from Time 1 to Time 2, $F(6, 97) = 0.39$, $p = .88$.

In terms of the outcome variables used in this study, the dimensions of role clarity demonstrated consistent means from Time 1 to Time 2, as evidenced by role clarity – scope (Time 1: $M = 7.23$, $SD = 1.32$, Range = 3.33 – 9.00, Time 2: $M = 7.22$, $SD = 1.37$, Range = 3.00 – 9.00), role clarity – behaviour (Time 1: $M = 7.60$, $SD = 1.11$, Range = 3.67 – 9.00, Time 2: $M = 7.42$, $SD = 1.24$, Range = 3.33 – 9.00), role clarity – consequences (Time 1: $M = 7.46$, $SD = 1.38$, Range = 2.00 – 9.00, Time 2: $M = 7.34$, $SD = 1.39$, Range = 2.67 – 9.00), and role clarity – evaluation (Time 1: $M = 6.70$, $SD = 1.92$, Range = 1.00 – 9.00, Time 2: $M = 6.80$, $SD = 1.83$,

Table 3

Subscale means, standard deviations, and Cronbach's alpha

Subscale	Time 1 Mean (SD)	Time 1 Range	Time 1 Cronbach's α	Time 2 Mean (SD), range	Time 2 Range	Time 2 Cronbach's α
Role incompatibility	3.20 (1.91),	1.00, 8.67	$\alpha = .894$	3.10 (1.71),	1.00, 8.33	$\alpha = .867$
Role encroachment	3.28 (1.72),	1.00, 8.00	$\alpha = .816$	3.20 (1.90),	1.00, 8.67	$\alpha = .911$
Intra-sender role conflict	3.44 (2.23),	1.00, 8.75	$\alpha = .945$	3.54 (2.19),	1.00, 9.00	$\alpha = .941$
Inter-sender role conflict	3.00 (1.73),	1.00, 7.40	$\alpha = .928$	3.00 (1.71),	1.00, 7.40	$\alpha = .916$
Person-role conflict	3.01 (1.67)	1.00, 7.75	$\alpha = .797$	3.01 (1.66),	1.00, 8.00	$\alpha = .834$
Inter-role conflict	1.70 (.60)	1.00, 3.67	$\alpha = .932$	1.68 (.59),	1.00, 3.83	$\alpha = .928$
Role efficacy	79.65 (10.02),	35.00, 100.00	$\alpha = .663$	82.63 (9.08),	62.50, 100.00	$\alpha = .697$
Role clarity – scope	7.23 (1.32)	3.33, 9.00	$\alpha = .858$	7.22 (1.37),	3.00, 9.00	$\alpha = .894$
Role clarity – behaviour	7.60 (1.11)	3.67, 9.00	$\alpha = .845$	7.42 (1.24),	3.33, 9.00	$\alpha = .824$
Role clarity – evaluation	6.70 (1.92)	1.00, 9.00	$\alpha = .944$	6.80 (1.83),	1.33, 9.00	$\alpha = .906$
Role clarity – consequences	7.46 (1.38)	2.00, 9.00	$\alpha = .897$	7.34 (1.39),	2.67, 9.00	$\alpha = .869$
Attraction to group - task	6.09 (1.84)	1.25, 9.00	$\alpha = .784$	6.48 (1.80),	1.00, 9.00	$\alpha = .819$
Group integration – task	5.97 (1.75)	1.40, 9.00	$\alpha = .879$	6.44 (1.87),	1.40, 9.00	$\alpha = .935$

Note: Role conflict variables, excepting inter-role conflict (i.e., role incompatibility, role encroachment, intra-sender role conflict, inter-sender role conflict, person-role conflict), were scored on a 9 point Likert-style scale. Inter-role conflict was scored on a 5 point Likert-style scale. Role efficacy was scored between 0% and 100% in 10% increments (e.g., 0%, 10%, 20%, etc). Role clarity variables (i.e., role clarity – scope, role clarity – behaviours, role clarity – evaluation, and role clarity – consequences) were scored on a 9 point Likert-style scale. Task cohesion variables (i.e., individual attraction to the group – task and group integration – task) were scored on a 9 point Likert-style scale.

Range = 1.33 – 9.00). A repeated measures MANOVA indicated that these changes were not significant, $F(4, 102) = 2.05, p = .09$. Role efficacy (Time 1: $M = 79.65, SD = 10.02$, Range = 35.00 – 100.00, Time 2: $M = 82.63, SD = 9.08$, Range = 62.50 – 100.00), individual attraction to the group – task (Time 1: $M = 6.09, SD = 1.84$, Range = 1.25 – 9.00, Time 2: $M = 6.48, SD = 1.80$, Range = 1.00 – 9.00), and group integration – task (Time 1: $M = 5.97, SD = 1.75$, Range = 1.40 – 9.00, Time 2: $M = 6.44, SD = 1.87$, Range = 1.40 – 9.00) showed an increase across time points. Separate analyses were conducted for role efficacy and task cohesion to determine if these differences were statistically significant. As a result, it was demonstrated that role efficacy, $F(1, 104) = 14.30, p < .001$ significantly increased from Time 1 to Time 2. Similarly, the multivariate statistics for task cohesion indicated that there was a change across time points, $F(2, 105) = 9.32, p < .001$. When exploring the univariate statistics, it was demonstrated that both individual attraction to the group – task, $F(1, 106) = 14.12, p < .001$, and group integration – task, $F(1, 106) = 12.18, p = .001$ increased significantly from Time 1 to Time 2.

Bivariate correlations for this study are summarized for Time 1 and Time 2 in Table 4, and across Time 1 and Time 2 in Table 5. At both Time 1 and Time 2, a number of relationships emerged between variables. First, it is important to take note of the relationships among role conflict dimensions. Specifically, all dimensions of role conflict (including role incompatibility and role encroachment) demonstrated small to large positive relationships with one another. These correlations ranged from $r = .19$ to $r = .85$ at Time 1 and from $r = .19$ to $r = .88$ at Time 2.

Role conflict also showed a number of negative relationships with the outcome variables at both time points. The dimensions of role clarity, for example, had small to moderate correlations with the dimensions of role conflict, ranging from $r = -.18$ to $r = -.53$ at Time 1. At Time 2, these relationships ranged from $r = -.15$ to $r = -.61$. Role efficacy demonstrated an

Table 4

Bivariate correlations at Time 1 and Time 2

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1.IIRC-RI	-	.68**	.34**	.50**	.51**	.33**	-.32**	-.44**	-.45**	-.30**	-.52**	-.41**	-.52**
2.IIRC-RE	.62**	-	.35**	.47**	.43**	.34**	-.19	-.32**	-.37**	-.26**	-.51**	-.26**	-.32**
3.Intra-sender	.51**	.44**	-	.88**	.79**	.19*	-.23*	-.43**	-.49**	-.56**	-.44**	-.52**	-.49**
4.Inter-sender	.65**	.48**	.85**	-	.87**	.30**	-.20*	-.52**	-.61**	-.59**	-.54**	-.55**	-.52**
5.Person-role	.42**	.26**	.70**	.74**	-	.29**	-.19	-.52**	-.60**	-.56**	-.55**	-.64**	-.56**
6.Inter-role	.31**	.22*	.27**	.37**	.19	-	-.11	-.26**	-.34**	-.15	-.30**	-.14	-.16
7.Role efficacy	-.13	-.01	-.07	-.12	-.16	-.19	-	.36**	.33**	.23*	.24*	.19	.17
8.RA – scope	-.37**	-.30**	-.47**	-.51**	-.40**	-.32**	.36**	-	.91**	.75**	.76**	.57**	.48**
9.RA – behav	-.28**	-.29**	-.39**	-.45**	-.39**	-.31**	.27**	.82**	-	.78**	.78**	.58**	.42**
10.RA – eval	-.34**	-.25*	-.53**	-.50**	-.34**	-.18	.19	.64**	.60**	-	.68**	.60**	.44**
11.RA – conseq	-.19	-.19*	-.41**	-.40**	-.37**	-.19	.14	.61**	.68**	.65**	-	.51**	.39**
12.ATG-T	-.47**	-.34**	-.53**	-.56**	-.53**	-.06	.18	.40**	.38**	.34**	.25*	-	.68**
13.GI-T	-.49**	-.36**	-.59**	-.58**	-.45**	-.15	.04	.37**	.36**	.41**	.39**	.61**	-

** $p < .001$, * $p < .05$

Note: Time 1 correlations in the bottom left of the table, Time 2 correlations in the top right of the table

IIRC-RI = role incompatibility, IIRC-RE = role encroachment, RA-scope = role clarity – scope, RA-behav = role clarity – behaviour, RA-eval = role clarity – evaluation, RA-conseq = Role clarity – consequences, ATG-T = individual attraction to the group – task, GI-T = group integration - task

Table 5

Bivariate correlations between time 1 and time 2

		Time 2												
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	
Time 1	1.IIRC-RI	.55**	.40**	.42**	.42**	.43**	.19	-.32**	-.19	-.20*	-.20*	-.25**	-.41**	-.51**
	2.IIRC-RE	.50**	.61**	.37**	.41**	.39**	.10	-.24*	-.22*	-.22*	-.21*	-.34**	-.28**	-.28**
	3.Intra-sender	.38**	.32**	.75**	.66**	.61**	.19	-.18	-.34**	-.43**	-.47**	-.36**	-.45**	-.41**
	4.Inter-sender	.49**	.42**	.65**	.66**	.67**	.30**	-.24*	-.37**	-.46**	-.38**	-.34**	-.51**	-.46**
	5.Person-role	.39**	.27**	.54**	.52**	.62**	.17	-.23*	-.38**	-.46**	-.39**	-.46**	-.53**	-.41**
	6.Inter-role	.34**	.36**	.21*	.23*	.22*	.61**	-.15	-.01	-.11	.01	-.13	-.03	-.07
	7.Role efficacy	-.12	-.05	-.16	-.10	-.09	-.13	.65**	.26**	.26**	.18	.12	.14	.07
	8.RA – scope	-.29**	-.29**	-.42**	-.38**	-.35**	-.23*	.41**	.32**	.44**	.36**	.34**	.32**	.30**
	9.RA – behav	-.32**	-.36**	-.38**	-.38**	-.39**	-.24*	.39**	.39**	.48**	.35**	.38**	.30**	.31**
	10.RA – eval	-.28**	-.15	-.34**	-.30**	-.31**	-.12	.26**	.35**	.39**	.56**	.34**	.26**	.37**
	11.RA – conseq	-.23*	-.22*	-.42**	-.35**	-.34**	-.17	.26**	.39**	.44**	.40**	.48**	.19*	.28**
	12.ATG-T	-.34**	-.28**	-.47**	-.47**	-.54**	-.07	.18	.44**	.46**	.44**	.39**	.83**	.58**
	13.GI-T	-.35**	-.34**	-.55**	-.51**	-.54**	-.05	.16	.37**	.37**	.39**	.26**	.52**	.71**

** $p < .001$, * $p < .05$

IIRC-RI = role incompatibility, IIRC-RE = role encroachment, RA-scope = role clarity – scope, RA-behav = role clarity – behaviour, RA-eval = role clarity – evaluation, RA-conseq = Role clarity – consequences, ATG-T = individual attraction to the group – task, GI-T = group integration - task

absent to small negative correlation with role conflict dimensions at Time 1 (ranging from $r = -.01$ to $r = -.19$), and a small correlation with role conflict dimensions at Time 2 (ranging from $r = -.11$ to $r = -.32$). Both dimensions of task cohesion demonstrated absent to moderate relationships with role conflict dimensions at Time 1 (ranging from $r = -.06$ to $r = -.59$) and Time 2 (ranging from $r = -.14$ to $r = -.64$).

When assessing the bivariate correlations across time points, findings similar to those at Time 1 and Time 2 are seen. Importantly, each dimension of role conflict at Time 1 is seen to positively correlate with the same dimension at Time 2. These correlations are moderate and range from $r = .55$ to $r = .75$. Each dimension of role conflict at Time 1 also demonstrated a number of negative relationships with role clarity, role efficacy, and task cohesion at Time 2. The relationship between the dimensions of role conflict at Time 1 and the dimensions of role clarity at Time 2 ranged from $r = -.47$ to $r = .01$. Role efficacy at Time 2 had a small negative relationship with role conflict dimensions at Time 1, ranging from $r = -.15$ to $r = -.32$. Finally, both dimensions of task cohesion at Time 2 demonstrated an absent to moderate negative correlation with dimensions of role conflict at Time 1 (ranging from $r = -.03$ to $r = -.53$).

Preliminary analyses

Preliminary analyses were conducted to explore the data and determine if any baseline differences existed between participants by demographic group (e.g., sex, status, tenure). Multiple statistical tests were used to determine if these groups differed in perceptions of role conflict, role clarity, role efficacy, or task cohesion at Time 1. When exploring these variables as they relate to participant sex, a MANOVA demonstrated that differences existed in perceptions of role conflict at Time 1 by sex, $F(6, 99) = 5.42, p < .001$. Further examination of the univariate

results demonstrated that males experience higher inter-role conflict than females, $M_{diff} = .33$, $F(1, 104) = 2.39$, $p < .05$.

When determining if participants differed at baseline based on team tenure, a MANOVA showed that athletes differed in perceptions of cohesion, $F(2, 104) = 4.99$, $p < .05$. Upon exploring the univariate results, the MANOVA demonstrated that athletes in their first year on the team perceived group integration – task to be higher than team veterans, $M_{diff} = 1.08$, $F(1, 105) = 9.87$, $p < .05$.

Exploring baseline variable differences by team status, a MANOVA demonstrated that participants differed in perceptions of cohesion, $F(6, 204) = 7.59$, $p < .001$. Comparing each status (i.e., starter, substitute, practice, dress) pairwise, self-identified starters demonstrated higher perceptions of individual attraction to the group – task than substitutes, $M_{diff} = 1.53$, $F(3, 103) = 7.60$, $p < .001$, dress players, $M_{diff} = 1.57$, $F(3, 103) = 7.60$, $p < .001$, and practice players, $M_{diff} = 1.81$, $F(3, 103) = 7.60$, $p < .001$.

Hypothesis testing

To test this study's hypotheses, hierarchical multiple regressions were run for each dimension of role efficacy, role clarity, and task cohesion. Each of these regressions were conducted in two parts. The first step explored how the outcome variable dimension (i.e., dependent variable; e.g., role clarity – scope) at Time 1 was predictive of the same outcome variable dimension at Time 2. In the second step, all dimensions of role conflict (i.e., independent variables) at Time 1 were entered stepwise into the model created in step one to predict the outcome variable dimension at Time 2. In this way, the dimensions of role conflict that are predictive of the outcome variable dimension at Time 2 are determined. Multiple regression results are summarized in Table 6.

Table 6

Multiple regression summary

Outcome variable	Model step	Predictor variables	Beta	Adjusted R ²	df	F Change	Significant F Change
RA – scope (T2)	1	RA – scope (T1)	.32	.09	1, 104	11.43	.001
	2	RA – scope (T1) Person-role conflict (T1)	.20 -.30	.16	1, 103	9.36	.043 .003
RA – behaviour (T2)	1	RA – behaviour (T1)	.48	.22	1, 104	30.69	.000
	2	RA – behaviour (T1) Person-role conflict (T1)	.35 -.32	.30	1, 103	13.56	.000 .000
RA – evaluation (T2)	1	RA – evaluation (T1)	.55	.30	1, 104	45.85	.000
	2	RA – evaluation (T1) Person-role conflict (T1)	.48 -.22	.34	1, 103	6.90	.000 .010
RA – consequence (T2)	1	RA – consequence (T1)	.48	.22	1, 103	30.13	.000
	2	RA – consequence (T1) Person-role conflict (T1)	.36 -.33	.31	1, 102	14.08	.000 .000
	3	RA – consequence (T1) Person-role conflict (T1) Role encroachment (T1)	.34 -.28 -.21	.34	1, 101	6.20	.000 .002 .014
Role efficacy (T2)	1	Role efficacy (T1)	.65	.41	1, 102	73.45	.000
	2	Role efficacy (T1) Role encroachment (T1)	.65 -.25	.47	1, 101	12.62	.000 .001
ATG-T (T2)	1	ATG-T (T1)	.83	.68	1, 104	222.13	.000
GI-T (T2)	1	GI-T (T1)	.71	.50	1, 104	105.00	.000
	2	GI-T (T1) Role incompatibility (T1)	.61 -.21	.53	1, 103	7.58	.000 .007

RA-scope = role clarity – scope, RA-behav = role clarity – behaviour, RA-eval = role clarity – evaluation, RA-conseq = Role clarity – consequences, ATG-T = individual attraction to the group – task, GI-T = group integration – task

Role clarity. A multiple regression was conducted for each dimension of role clarity. Beginning with role clarity – scope, perceived role clarity – scope at Time 1 ($\beta = .32$) was entered into a model to predict perceptions of role clarity – scope at Time 2, $R^2_{\text{adj}} = .09$ $F(1, 104) = 11.43$, $p = .001$. The dimensions of role conflict were then entered stepwise to predict role clarity – scope at Time 2. Person-role conflict ($\beta = -.30$) emerged as a significant contributor to the model, and had a negative predictive effect on perceived role clarity – scope at Time 2, $R^2_{\text{adj}} = .16$ $F(1, 103) = 9.36$, $p < .01$.

For role clarity – behaviours, perceived role clarity – behaviours at Time 1 ($\beta = .48$) was entered into a model to predict perceptions of role clarity – behaviours at Time 2, $R^2_{\text{adj}} = .22$ $F(1, 104) = 30.69$, $p < .001$. After entering the dimensions of role conflict into the model, perceived person-role conflict at Time 1 ($\beta = -.32$) was shown to be negatively predictive of perceived role clarity – behaviours at Time 2, $R^2_{\text{adj}} = .30$ $F(1, 103) = 13.56$, $p < .001$.

Examining role clarity – evaluation, perceptions of role clarity – evaluation at Time 1 ($\beta = .55$) was entered to predict perceived role clarity – evaluation at Time 2, $R^2_{\text{adj}} = .30$ $F(1, 104) = 45.85$, $p < .001$. When entering the dimensions of role conflict into the model, results indicated that perceived person-role conflict at Time 1 ($\beta = -.22$) negatively predicted perceptions of role clarity – evaluation at Time 2, $R^2_{\text{adj}} = .34$ $F(1, 103) = 6.90$, $p = .01$.

When exploring role clarity – consequences, the final role clarity dimension, perceived role clarity – consequences at Time 1 ($\beta = .48$) was entered to predict perceptions of role clarity – consequences at Time 2, $R^2_{\text{adj}} = .22$ $F(1, 103) = 30.13$, $p < .001$. When entering the role conflict dimensions stepwise, it is seen that perceived person-role conflict at Time 1 ($\beta = -.28$) and perceived role encroachment at Time 1 ($\beta = -.21$; $R^2_{\text{adj}} = .34$ $F(1, 101) = 6.20$, $p < .05$) were negatively predictive of perceptions of role clarity – consequences at Time 2.

There were no initial hypotheses that person-role conflict or role encroachment would be predictive of role clarity. Furthermore, these results do not support the a-priori hypotheses for role clarity. That is, this study did not demonstrate that inter-sender role conflict (H1a) or intra-sender role conflict (H1b) were negatively predictive of role clarity.

Role efficacy. In the first step, perceived role efficacy at Time 1 ($\beta = .65$) was entered into a model to determine how predictive it was of perceived role efficacy at Time 2, $R^2_{\text{adj}} = .41$ $F(1, 102) = 73.45, p < .001$. Second, the dimensions of role conflict were entered stepwise into the model. As a result, it was demonstrated that perceptions of role encroachment ($\beta = -.25$) contributed significantly to the model and negatively predicted perceived role efficacy at Time 2, $R^2_{\text{adj}} = .47$ $F(1, 101) = 12.62, p = .001$. This supports hypothesis H2e that an increase in role encroachment is predictive of a decrease in role efficacy. Hypotheses suggesting that inter-sender and intra-sender role conflict predict role efficacy through role clarity as a mediator (H2a and H2b, respectively) were not supported. Additionally, the hypotheses that person-role conflict (H2c), inter-role conflict (H2d), and role incompatibility (H2f) are negatively predictive of role efficacy were not supported.

Task Cohesion. Multiple regressions were run for both dimensions of task cohesion. To examine individual attraction to the group – task, ATG-T at Time 1 ($\beta = .83$) was entered into a model to predict ATG-T at Time 2, $R^2_{\text{adj}} = .68$ $F(1, 104) = 222.13, p < .001$. When entering the dimensions of role conflict to predict ATG-T at Time 2, no dimensions of role conflict emerged as predictive.

Examining group integration – task, GI-T at Time 1 ($\beta = .71$) was entered to predict GI-T at Time 2, $R^2_{\text{adj}} = .50$ $F(1, 104) = 105.00, p < .001$. The dimensions of role conflict were then entered stepwise to predict GI-T at Time 2. As a result, role incompatibility at Time 1 ($\beta = -.21$)

emerged as negatively predictive of GI-T at Time 2, $R^2_{\text{adj}} = .53$ $F(1, 103) = 7.58$, $p < .01$. This finding partially supports hypothesis H3e that an increase in role incompatibility will lead to a decrease in task cohesion. However, results were not found to support the hypotheses that inter-sender conflict (H3a), intra-sender conflict (H3b), person-role conflict (H3c), and role encroachment (H3d) will be negatively predictive of task cohesion.

Discussion

The purpose of this study was to determine how the dimensions of role conflict affected role clarity, role efficacy, and task cohesion. Additionally, a secondary purpose was to propose two interpersonal facets of role conflict and assess their effects on these same outcome variables. The results of the present study indicate that role conflict can have negative effects on these task-related outcomes. Specifically, experiencing role conflict can lead to a decrease in role clarity, decreased role efficacy, and decreased task cohesion, demonstrating support for hypotheses H2e and H3e. Results for role clarity showed that person-role conflict had an effect on all dimensions, while role encroachment affected a single dimension. In terms of role efficacy, role encroachment was seen to be predictive. Finally, while no predictors of the individual attraction to the group – task dimension of cohesion were found, group integration – task was found to be predicted by role incompatibility. These results replicate the findings of select previous research studies and extend the results of others. In addition, the current study's results demonstrate support for the two proposed types of inter-individual role conflict and indicate that athletes may experience a type of interpersonal role conflict beyond the traditional dimensions of role conflict that solely focus on one's own role. In the following section, the present study's findings will be interpreted beginning with results related to the main hypotheses and followed by secondary results. Furthermore, limitations of the current study will be noted and future research directions will be forwarded.

Main hypotheses

Role clarity. Exploring the effects of role conflict on role clarity indicates some findings that were not originally hypothesized, but that also demonstrate some consistency with previous research. Initially, person-role conflict was hypothesized to be predictive of role efficacy and

task cohesion and it was not hypothesized to be predictive of role clarity; it was expected that an athlete must first be clear regarding his or her group role in order to feel that his/her role is inconsistent with his/her needs and values. However, through multiple regression, person-role conflict was found to be the most influential role conflict predictor for all dimensions of role clarity, supporting some findings of Beauchamp and Bray (2001) and Hardy et al. (2014).

Beauchamp and Bray found, through a measure collapsing inter-sender, intra-sender, and person-role conflict into a unidimensional role conflict construct, that role conflict was predictive of role clarity. Similarly, Hardy et al. found that inter-sender, intra-sender, and person-role conflict led to a higher-order experience of role conflict which, in turn, was predictive of role clarity. In conjunction with these findings, the current study demonstrates that person-role conflict has a negative effect on role clarity. Furthermore, this suggests that when an athlete feels his/her role does not meet his/her needs and values, he/she become less clear on what his/her role within the team is.

Although person-role conflict was the sole role conflict predictor of the scope, behaviours, and evaluation dimensions of role clarity, the consequences dimension was predicted by both person-role conflict and role encroachment. Role encroachment was found to be the second most influential role conflict predictor in this model next to person-role conflict. However, role encroachment and person-role conflict appear to demonstrate similar effects on role clarity – consequences. This is illustrated in the final model for this dependent variable, as person-role conflict and role encroachment demonstrate similar negative Beta values ($\beta = -.28$ and $\beta = -.21$, respectively; Table 6), indicating they negatively predict role clarity – consequences. As a result, the understanding of how role conflict affects role clarity – consequences is built and illustrates similar contributions from both role conflict predictors. In

relation to role encroachment, this finding suggests that an athlete may become less clear on the consequences of failing to perform his/her role responsibilities when another group member attempts to or succeeds in taking over a portion of these responsibilities. This may be due to the role incumbent not knowing which athlete (i.e., him/herself or the athlete co-opting his/her role responsibilities) will suffer the consequences should those responsibilities go unfulfilled. A potential explanation for why role encroachment was not predictive of the other dimensions of role clarity is that the role incumbent's understanding of the scope, behaviours, and evaluation of his/her role will remain unchanged. As an illustrative example, Scottie Pippen may have maintained a clear understanding that he was required to score points for the Houston Rockets, the behaviours necessary to do so, and how the coaches judged whether he was successful. However, if the Rockets were not scoring enough points to win games, Pippen may not have known if it would be him or his teammates, trying to perform his role responsibility of scoring points, who would face the consequences.

It is noteworthy that inter-sender and intra-sender role conflict were not found to be predictive of role clarity. This finding is of interest as previous literature (e.g., Kahn et al., 1964; Rizzo et al., 1970) has demonstrated a strong relationship between role conflict and role clarity. Furthermore, research utilizing a measure of role conflict collapsing inter-sender, intra-sender, and person-role conflict has shown that role conflict is predictive of role clarity (Beauchamp & Bray, 2001; Hardy et al., 2014). Conceptually, these previous findings seem sound, as having one or more role senders providing an athlete with conflicting information can lead to less clarity regarding what is expected (i.e., scope of responsibilities), necessary actions (i.e., behaviours), method of evaluation (i.e., evaluation), and repercussions for inadequate performance (i.e.,

consequences) in relation to his/her role. The results of the current study, however, suggest that person-role conflict is the driving force behind the findings of the previous research.

Role efficacy. The current study was unable to replicate the findings of Beauchamp and Bray (2001) in which the relationship between role conflict (i.e., inter-sender, intra-sender, and person-role conflict) and role efficacy was mediated by role clarity. Mediation analysis for these variables was not pursued in the present study as there was no initial predictive relationship between these role conflict dimensions and role efficacy. These differences may have been due to methodological dissimilarities. For example, Beauchamp and Bray tested participants at one time point, while this study incorporated multiple time points. Additionally, the inability to replicate these findings may come as a result of the different measures used between studies. The role conflict measure used by Beauchamp and Bray collapsed the included role conflict dimensions (i.e., inter-sender, intra-sender, and person-role conflict) into one overall perception of role conflict, whereas the current study tested each dimension of role conflict individually as a potential predictor. Furthermore, to measure role efficacy, Beauchamp and Bray distinguished between both offensive and defensive role responsibilities, whereas this study calculated one overall score of role efficacy.

Though inter-sender, intra-sender, and person-role conflict were found to not predict role efficacy, role encroachment was found to be predictive of role efficacy. This is in line with the original conceptualization of the effects of role encroachment and provides support for hypothesis H2e. This finding suggests that when an athlete perceives a teammate to be completing a portion of his/her role responsibilities, the role incumbent may feel less confident in his/her ability to perform his/her role responsibilities. This can be illustrated when considering the previously mentioned example of Scottie Pippen joining the Houston Rockets. According to

the source, Pippen indicated he was not getting the basketball enough to perform his role responsibility of scoring points due to other group members attempting to do the same. That is, Pippen seemed to feel that his ability to perform his role responsibilities (i.e., role efficacy) was decreased due to other group members attempting to perform those same role responsibilities.

Task cohesion. In addition to exploring how the dimensions of role conflict affect other role perceptions, the present study also investigated their effects on task cohesion. Relative to individual attraction to the group – task, no significant predictors were found. This suggests that, regardless of whether an athlete does or does not perceive conflict regarding his/her role, his/her attraction to the group may be unaffected. This may be due to the GEQ items that are used to assess individual attraction to the group – task, as they focus on athletes' satisfaction with their amount of playing time and opportunities for personal performance. As a result, these factors may not be affected by athletes' perceptions of role conflict. Group integration – task, however, was seen to be predicted by role incompatibility, providing support for hypothesis H3e and indicating that role conflict can have an effect on task cohesion. An athlete, believing his/her role is important to group functioning and task success, whose performance of his/her role responsibilities is hindered by the separate role responsibilities of a teammate, may reasonably feel that the team is less united in achieving their task-related goal. The current study did not replicate the findings of previous research, in which Leo et al. (2016) found that inter-sender, intra-sender, and person-role conflict were predictive of both task cohesion dimensions. However, Leo et al. used a role conflict measure adapted from Beauchamp and Bray (2001), collapsing these three role conflict dimensions into a single dimension. As previously mentioned, the current study investigated each role conflict dimension's ability to predict the outcome variables separately, which may have led to these differing findings.

Secondary findings

Inter-individual role conflict. The above results, in addition to demonstrating the effects the traditional dimensions of role conflict have on role clarity, role efficacy, and task cohesion, also support the two proposed types of inter-individual role conflict (i.e., role encroachment, role incompatibility). That is, results from the current study indicate that athletes may be experiencing role encroachment and role incompatibility and that they are affecting their role perceptions and task cohesion. As such, the implications of introducing new role conflict dimensions can be considered. Inter-individual role conflict marks a departure from the traditional dimensions of role conflict, in which the focus rests solely on one individual's role. Acknowledging the potential relationships that exist between group members as a function of their roles may provide a new avenue for exploring the underlying causes of interpersonal conflict between teammates. This is important as a number of previous studies (e.g., Kahn et al., 1964; Paradis, Carron, & Martin, 2014) have demonstrated that interpersonal conflict within groups has a number of negative outcomes for both the individual and the group. Therefore, through the two types of inter-individual role conflict, it is not only possible to explore and understand role conflict more effectively but also to restore or maintain individual and group harmony.

Additionally, the measure created to assess the two types of inter-individual role conflict in the present study demonstrated some evidence of reliability and validity. First, as noted when discussing the creation of this measure, experts in the field assessed the items and deemed they demonstrate some evidence of validity based on content. Second, the items measuring role encroachment and role incompatibility demonstrated a positive correlation between one another (Time 1: $r = .62$; Time 2: $r = .68$), indicating they are tapping into a similar construct. Moreover,

role encroachment and role incompatibility positively correlated with the other dimensions of role conflict. These correlations range from $r = .22$ to $.48$ at Time 1 and $r = .34$ to $.47$ at Time 2 for role encroachment and from $r = .31$ to $.65$ at Time 1 and $r = .33$ to $.51$ at Time 2 for role incompatibility (Table 4). These findings indicate that the items assessing role encroachment and role incompatibility are tapping into a similar construct as the traditional role conflict measures and alludes to convergent validity for this measure. Based on the suggestions by Kline (2005), these correlations fall within the ideal range for related measures (i.e., between $.30$ and $.50$) while the correlation between role encroachment and role incompatibility, though above this range, are not so high (i.e., above $.80$) as to suggest they are measuring the same dimension. These correlations suggest evidence of validity in the measure assessing the two types of inter-individual role conflict through convergence with similar measures. Third, evidence for predictive validity is shown as role encroachment was seen to be predictive of role efficacy and a dimension of role clarity, while role incompatibility was seen to be predictive of task cohesion. Finally, the measure assessing the two types of inter-individual role conflict demonstrated internal reliability through acceptable Cronbach's alpha levels (i.e., $\alpha > .70$; Table 3). This indicates that items meant to measure the same dimension were responded to in a similar manner.

Inter-role conflict. Interestingly, inter-role conflict did not emerge as predictive of any of the outcome variables included in this study. The absence of these relationships may be a result of participants' lower overall mean scores and low standard deviation on this measure (Table 3) when compared to other role conflict dimensions, indicating a lack of variation in participants' responses. A prospective explanation for these findings is that participants perceived lower levels of inter-role conflict than other types of role conflict. This may be due to

participants' clearly defined boundaries between their roles, resulting in a healthy balance in which these roles do not interfere with one another. Alternatively, inter-role conflict may simply have no effect on or relationship with role clarity, role efficacy, and task cohesion.

Preliminary analyses. When exploring the preliminary analyses conducted in this study, some noteworthy findings are presented. As noted in the Results section, participants' mean scores on role conflict and role clarity demonstrated no significant change from Time 1 to Time 2 (Table 3). This result may be attributed to factors such as length of time between test points or the time of season testing took place. The testing time points for this study, at only three weeks apart, may not have allowed adequate time for these perceptions to change. Given a longer period between time points, significant differences in role conflict and role clarity may have been apparent. Similarly, the time of season in which the study was administered to athletes may have been influential in this as well. Generally, teams that participated in this study had already been through their pre-season stage and were regularly competing before testing took place. As a result, teams may have undergone a critical formation and organization period that occurred before this study began. This is supported by Arrow, Poole, Henry, Wheelan, and Moreland's (2004) research discussing the different ways groups change across time. It is suggested that groups move through a number of stages after formation which involve determining leadership, acceptable behaviours, group structure, and goals. Also, groups that have multiple returning members (e.g., varsity sport teams) are able move through these stages quicker than other groups. Furthermore, once these group elements have been set, they tend to be stable and an external force is required to institute change. Therefore, it is possible that these early group developmental periods were not captured in the present study and participating teams had

already progressed beyond the stages in which group roles are established and role perceptions, such as role conflict and role clarity, settle and become stable.

In contrast to this, role efficacy and task cohesion demonstrated an increase across time in the current study (Table 3). Due to the way these variables develop within groups, they may be more dynamic than role conflict and role clarity. Role efficacy, as participants' perception of their ability to perform their role responsibilities, is potentially bound to factors such as the length of time they have been performing these role responsibilities. Bray et al. (2002), for example, found that athletes who received more playing time also had higher perceptions of role efficacy. As a result, participants' role efficacy could be expected to continue developing as the season continues and athletes are given more opportunity to practice their role responsibilities via training and competition.

As mentioned, participants' perceptions of task cohesion also increased from Time 1 to Time 2. Although cohesion is expected to develop similarly to other group elements as suggested by Arrow et al., (2004), it can also fluctuate throughout the lifespan of a group. This is because group cohesion, by its very definition, is dynamic (Carron et al., 1998) and, as such, is subject to change. Therefore, this change in group cohesion across time points is expected and may be partially resultant of continued group development or performance factors (e.g., winning vs. losing during the testing time periods; Carron, Colman, Wheeler, & Stevens, 2002).

Limitations

Though the previous section established a number of promising results, the current study was not without its limitations. One potential limitation was the number of participants included in the current study via retention across two time points. Originally, the estimated number of participants necessary to reach 80% power was 134 assuming a conservative effect size of .10.

As noted, 159 participants completed the study at Time 1. However, due to attrition, only 107 participants completed both time points, warranting their inclusion in the present study.

Consequently, the a-priori required number of participants for 80% power was not met. On one hand, this may suggest that the results of the current study are potentially influenced by Type II error. On the other hand, a post hoc re-analysis of the participants required to meet 80% power with a slightly higher effect size indicates this may not be the case. When assuming an effect size of .20, the required participants becomes 75. Although twice the effect size of that originally used to calculate required participants, .20 is still considered a small effect size. Therefore, this is in keeping with the findings of Örtqvist and Wincent (2006), showing that role conflict has a small to medium effect size with various outcome variables. As a result, the number of participants included in the present study falls in the middle of the participants required assuming an effect size of .10 and .20, suggesting that power is definitely a consideration regarding the results of this study but not necessarily a limitation.

Additionally, the current study had a disproportionate number of female ($n = 74$) participants compared to male ($n = 33$) participants. Attempts were made to maintain an equal number of participants from each sex in an effort to increase the generalizability of the current study to interdependent university sport teams of both sexes. However, an equal proportion was difficult to maintain based on which teams agreed to participate and attrition. As a result, this study's results may be more reflective of the female university athlete experience than that of the male university athlete.

In contrast, the conceptualization of the two types of inter-individual role conflict was partially based around male-centred examples in professional basketball. Despite efforts to uncover examples in popular media related to female sport teams that exemplify role

encroachment or role incompatibility, none were found. This may be due to underrepresentation of female sports in popular media (Fink & Kensicki, 2002) or role encroachment and role incompatibility not being experienced by female athletes. However, the results of the current study propose the former to be the case as opposed to the latter. This is suggested as role encroachment and role incompatibility are perceived to occur by the participants in the current study, despite the majority of participants being female.

Another potential limitation is the use of the Sport-Life Domain Questionnaire to measure inter-role conflict. As noted above, participants' mean scores on this measure were lower than the other role conflict measures utilized in this study with much lower standard deviations (Table 3). One potential explanation for this finding is that this is a result of this measure utilizing a 5-point Likert-type scale, while the rest of the measures are on a 9-point Likert-type scale. As a result, participants are given fewer options to choose from, which may have compressed their answers around a specific score in comparison to other measures. Alternatively, having only utilized the portion of the measure determining how life outside of sport affects sport and removing the section exploring how sport affects life outside of sport may have been a key factor. It is possible that the measure was only intended to be used in its entirety, in which case the current study is lacking crucial information required to accurately assess inter-role conflict.

Finally, data collection for this study took place at different points of the season for each team. This is a result of several factors such as competitive season length, contact and negotiation with coaches, and the time of year each team's competitive season began. Consequently, testing each team at a predetermined and consistent time point in their season was improbable. Due to this limitation, participant responses may have systematically differed team

by team. For example, in a team that was tested as they prepared to begin playoffs, participants may perceive higher role efficacy and task cohesion as these had become established throughout the season. In comparison, a team currently in the middle of their season may score much differently on these measures as the team had not been together for as long a period of time.

Future directions

There are a number of directions that future research examining the effects of role conflict can take. Research attempting to replicate the current study while also addressing the limitations can supplement this study's results. To this end, a study incorporating both a larger and more heterogeneous sample would provide results with more statistical power that are more generalizable. Additionally, as using the Sport-Life Domain Questionnaire may have been a factor in this study's inability to determine any effects of inter-role conflict on the outcome variables, a study utilizing a different inter-role conflict questionnaire may find some effect. Also, attempting to standardize the time of season that participants complete the study could reduce potential response differences. Through these methods, our understanding of how the dimensions of role conflict predict role clarity, role efficacy, and task cohesion can be expanded.

Another avenue for future research includes further exploration into the types of inter-individual role conflict proposed in this study. Although there is some evidence of athletes perceiving role encroachment and role incompatibility, additional investigation and analyses of these dimensions can complement these findings. Initially, a study aimed at analysing the factor structure of the items used to assess role encroachment and role incompatibility, incorporating a higher number of participants, can provide further evidence of validity for these items. Another possible direction for this research is to assess inter-individual role conflict through qualitative methods, such as semi-structured interviews and focus groups. In this way, we can gain

comprehensive knowledge regarding how athletes think and talk about their perceived experiences with role encroachment and role incompatibility. Following these previously mentioned studies, future research can begin to develop a more in-depth measure to assess role encroachment and role incompatibility. Through these future studies, researchers and practitioners can better understand inter-individual role conflict in sport teams and, in turn, work to reduce or prevent its negative effects.

More broadly, as the effects of role conflict are better understood, this information can be practically applied. For example, through understanding the effect person-role conflict can have on an athlete's role clarity, sport coaches can be introduced to the value of understanding his/her athletes' needs and values before sending the athletes role pressure. In this way, coaches can be prepared to either mitigate the negative effects of person-role conflict or prevent it entirely. Additionally, many of the findings in organizational psychology and sport psychology, as previously mentioned, have been transferable between these research areas. Therefore, this research on role conflict can potentially be transferred to organizational psychology and subsequently applied in work settings.

Conclusions

The current study's primary focus was to explore the way that each individual dimension of role conflict affected the outcomes of role clarity, role efficacy, and task cohesion. Athletes indicated that when they perceived their group role to differ from their needs and values, they felt their role was less clear. These results indicate that due to experiencing role conflict, athletes are perceiving less clarity about their group role.

As a secondary purpose, an interpersonal aspect of role conflict was proposed, labeled inter-individual role conflict. This overarching term described two conceptually distinct types of role conflict, role encroachment and role incompatibility. Items were created to determine if athletes perceived these types of inter-individual role conflict and, if so, what effects they were having on the same outcome variables noted above. This study found that when athletes experienced role encroachment, it led to a decrease in their clarity regarding the consequences of failing to perform their role responsibilities. Furthermore, athletes indicated that experiencing role encroachment led to a decrease in their role efficacy. Specifically, when a teammate attempted to take over a portion of their role, the role incumbent felt that he/she was less capable of performing his/her role responsibilities. When experiencing role incompatibility, athletes indicated they perceived the team's group integration to be lower with respect to their shared task. That is, when a teammate's role responsibilities interfered with their own, the athlete felt that the team was less united in how to succeed in their shared task. Also, the items used to measure these proposed types of inter-individual role conflict were assessed for validity and reliability. Results demonstrated that these items displayed some evidence of validity and internal consistency.

This study expanded on previous research by Beauchamp and Bray (2001), Hardy et al. (2014), and Leo et al. (2016). As such, it demonstrated that role conflict has a negative effect on athletes' understanding of their role, their belief in their capabilities to perform their role responsibilities, and how cohesive they believe their team to be. In summary, role conflict is an important role perception to understand in an effort to reduce the negative effects it has on interdependent university sport teams.

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Glossary of key terms

Inter-individual role conflict: overarching term describing two interpersonal types of role conflict (see role encroachment, role incompatibility). Defined as the role behaviour of two individuals creating psychological conflict for at least one of those role occupants.

Inter-role conflict: when multiple roles conflict with one another.

Inter-sender role conflict: when more than one role sender is providing inconsistent information for a focal person.

Intra-sender role conflict: when one role sender expresses inconsistent information to a focal person.

Person-role conflict: when an individual's personal beliefs conflict with his/her group role.

Role ambiguity: an individual's lack of clarity or understanding of his or her role. Dimensions include scope of responsibilities, role behaviour, role evaluation, and role consequences.

Role conflict: the presence of incongruent expectations regarding an individual's role, leading to psychological conflict for that individual. Traditional dimensions include intra-sender role conflict, inter-sender role conflict, person-role conflict, and inter-role conflict.

Role efficacy: an individual's belief in his/her abilities to perform his/her role responsibilities interdependently with teammates.

Role encroachment: when one individual attempts to take over a portion of another individual's role.

Role incompatibility: two individuals with separate role responsibilities inhibiting one another's ability to perform their individual role responsibilities.

Appendix A: Demographic Questionnaire

Birthdate: Day ____ Month ____ Year ____ Sport: _____

Team: _____ Sex: _____

Position: _____ Number of years playing experience in this sport: _____

Number of years as a member of this team (including the current year): _____

Number of games you personally have played in this current season (including exhibition and regular schedule) up to this point: _____

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

Starting Player

Do not typically start but consistently substituted in to play

Do not typically compete in matches but dressed to play

Practice player

Is this your primary/most important sport? YES NO

Each player on a sport team has a specific role to carry out. Your **ROLE** is your *package* of jobs and responsibilities within your team. Your **ROLE** is combined with your teammates' roles to create effective team systems and is comprised of the functions or responsibilities that you perform (on both offence and defence) within your team. Please describe your role on your team as it pertains to the team's performance:

Appendix B: Role conflict scale

This questionnaire is designed to assess the perceptions of your experience on your sports team. There is no right or wrong answers so please give your immediate reaction. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of the following statements with reference to your 4 chosen jobs/roles.

1. I am unsure how to deal with the competing expectations associated with my role.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
2. My teammates expect to play in a way that is inconsistent with how I would like to play.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
3. The role related information my coach gives me on one day is contrasting to his/her advice on another day.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
4. I receive conflicting instructions when I discuss my role responsibilities with my teammates.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
5. My coach contradicts him/herself when explaining my role.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
6. When I think about my role I feel pulled in different directions.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
7. I receive conflicting information from my coach and teammates regarding my role responsibilities.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
8. I receive conflicting instructions from my coach about my role related duties.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
9. I feel torn when I think of how best to perform my role.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
10. Information my coach gives me on my role is completely different to the information my teammates give me.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

Strongly Disagree									Strongly Agree
11. My coach gives me inconsistent instructions about my role.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
12. The role I am expected to play is inconsistent with my own needs and values.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
13. My teammates often contradict my coach when advising me on my role.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
14. Thinking about the conflicting responsibilities of my role on this team makes me feel stressed.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
15. I am sometimes requested to perform my role in a way which I believe in inconsistent with the team's needs.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
16. My teammates provide conflicting information regarding my role related duties.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree
17. I disagree with the role I am asked to fulfill by my teammates.	1	2	3	4	5	6	7	8	9
Strongly Disagree									Strongly Agree

Note:

Intra-sender conflict: Items 3, 5, 8, and 11

Inter-sender conflict: Items 4, 7, 10, 13, and 16

Person-role conflict: Items 2, 12, 15, and 17

Overall experience of conflict: Items 1, 6, 9, and 14

Appendix C: Sport-Life Domain Questionnaire

To what extent do you agree or disagree with the following statements?

Often my involvement with my...

1. ... work (e.g., school, job) prevents me from giving my sport enough attention.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
2. ... leisure activities means that I have insufficient time for my sport.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
3. ... friends means that I am too tired to do my sport effectively.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
4. ... family means that I do not have enough time for my sport.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
5. ... work (e.g., school, job) means that I lack the energy to do my sport effectively.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
6. ... friends prevents me from giving my sport enough attention.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
7. ... leisure activities means that I lack the energy to do my sport effectively.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
8. ... family prevents me from giving my sport enough attention.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
9. ... friends means that I have insufficient time for my sport.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
10. ... leisure activities prevents me from giving my sport enough attention.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree
11. ... work (e.g., school, job) means that I have insufficient time for my sport.

1	2	3	4	5
Strongly				Strongly
Disagree				Agree

12. ... family means that I am too tired to do my sport effectively.

1	2	3	4	5
Strongly Disagree				Strongly Agree

Appendix D: Inter-individual role conflict scale

These questions are designed to determine your thoughts on how your role responsibilities are affected by teammates. Your answers should reflect these thoughts regardless of if your role responsibilities are being affected by one or multiple teammates. Please circle a number from 1 to 9 to indicate your level of agreement with the following statements.

1. Teammates' actions prevent me from fulfilling my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
2. Other members of the team make it difficult to complete my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
3. Other teammates' role responsibilities interfere with mine

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
4. A teammate tries to complete my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
5. Other members of the team infringe on my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree
6. Teammates try to take over my role responsibilities

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

Note:

Role incompatibility: Items 1, 2, and 3

Role encroachment: Items 4, 5, and 6

Appendix E: Role Ambiguity Scale

Directions: Please rate the extent to which you agree or disagree with the following statements by circling the number that best corresponds to your current experiences.

1. I understand the extent of my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
2. I know what behaviours are necessary to carry out my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
3. I understand how my role is evaluated

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
4. I understand the consequences of failing to carry out my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
5. I understand all of my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
6. I understand the behaviours I must perform to carry out my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
7. It is clear to me how my role responsibilities are evaluated

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
8. It is clear to me what happens if I fail to carry out my role responsibilities

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
9. I am clear about the different responsibilities that make up my role

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree
10. I understand what adjustments to my behaviour need to be made to carry out my role responsibilities

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

Strongly Disagree									Strongly Agree
11. The criteria by which my role is evaluated are clear to me									
1	2	3	4	5	6	7	8	9	
Strongly Disagree								Strongly Agree	
12. I understand the consequences of my failure to carry out my role responsibilities									
1	2	3	4	5	6	7	8	9	
Strongly Disagree								Strongly Agree	

Note:

Scope of responsibilities: Items 1, 5, and 9

Role behaviours: Items 2, 6, and 10

Role evaluation: Items 3, 7, and 11

Role consequences: Items 4, 8, and 12

Appendix F: Role Efficacy Scale

Please list 4 of your task-specific responsibilities in order from most important to least important to your team’s play in the space provided. Also indicate your confidence (%) in your ability to perform each task-specific responsibilities. In describing each function, please use language you would use to talk to other players or coaches at your level.

I am confident in my ability to perform my task-specific responsibilities:

Task-specific responsibility 1. _____

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Not at all Completely

Task-specific responsibility 2. _____

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Not at all Completely

Task-specific responsibility 3. _____

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Not at all Completely

Task-specific responsibility 4. _____

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Not at all Completely

Appendix H: REB Approval

September 14, 2016

Dear Brennan Petersen

REB # 5044

Project, "The relationships of role conflict with role ambiguity, role efficacy, and group cohesion: A study of interdependent university sport teams"

REB Clearance Issued: August 31, 2016

REB Expiry / End Date: August 31, 2017

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

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

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

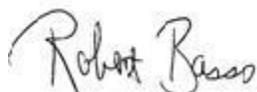
If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

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

All the best for the successful completion of your project.

(Useful links: [ROMEO Login Screen](#) ; [ROMEO Quick Reference Guide](#) ; [REB webpage](#))

Yours sincerely,



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

Appendix I: Letter of Information - Coach**Wilfrid Laurier
University***Founded 1911***Letter of Information****Role conflict and outcomes in university level interdependent sport teams****Lead researcher: Brennan Petersen, M.Kin. Student****Supervisor: Mark Eys, Ph.D.**

Hello, my name is Brennan Petersen. I am a Master's of Kinesiology student at Wilfrid Laurier University. I am conducting research investigating role conflict and perceptions athletes hold regarding their group. The purpose of the present study is to examine what effects role conflict has on athletes' perceptions of their role and group cohesion. I am asking 250 interuniversity, intercollegiate, and club athletes from a variety of sport teams to complete these surveys about their sport experiences.

I am contacting you to inquire if your team may be interested in participating in this project. The full extent of the athletes' participation in this study involves filling out questionnaires concerning their roles on the team (role conflict, role ambiguity, and role efficacy) as well as their perceptions of group cohesion. Your athletes' participation will take approximately 20 minutes at two time points (beginning of the season and approximately three weeks following; 40 minutes total). Your athletes will complete these questionnaires before or after two agreed upon practices. Athletes will fill out the questionnaires individually but in a group setting, with no interaction between them.

The benefit of this study is that the results will directly impact our understanding of role conflict in sport team settings. There are potential psychological or emotional risks associated with this study including boredom, regret over the revelation of personal information to the facilitator, and disruption of work/school/sport time. However, there are no anticipated physiological risks.

The present study relates to the experiences your athletes have had in your sport. Thus, confidentiality will be maintained to protect their responses from public disclosure. This will be facilitated in two ways. First, all raw data will be handled and stored by Brennan Petersen. Second, all completed questionnaires and electronic data will be kept in a locked filing cabinet and a password protected system, respectively, within a locked office and will be shredded and disposed of at the appropriate time (i.e., 5 years) after publication of the results. No individual results will be communicated or published.

Your athletes' participation in this study is completely voluntary. You will not know whether the athletes choose to participate or not. They may decline to participate without penalty. If they decide to participate, they may withdraw from the study at any time without consequence. If they withdraw from the study, every attempt will be made to remove their data from the study, and have them destroyed. The athletes have the right to omit any questions or procedures you choose. There is no compensation for the present study.

It is anticipated that the results of this project will be communicated at academic conferences and within written publications. If you are interested in receiving a summary of the results, you may request a copy of the completed study.

If you have any questions, please feel free to contact Brennan Petersen, M.Kin. student, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, pete8430@mylaurier.ca, Tel: (519) 884-0710 x3619. Alternatively, you may contact Mark Eys, Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: (519) 884-0710 x4157, meys@wlu.ca. Thank you so much for your time.

Sincerely,
Brennan Petersen

This project has been reviewed and approved by Wilfrid Laurier's University Research Ethics Board (tracking number #5044) and you are welcome to contact Dr. Robert Basso, Chair of the University Research Ethics Board, at (519) 884-0710 extension 4994 or via e-mail at rbasso@wlu.ca any time, especially if you felt you were not treated appropriately, or your rights as a research participant were violated during the course of this study.

Appendix J: Letter of InformationWilfrid Laurier
University*Founded 1911*

Letter of Information

Role conflict and outcomes in university level interdependent sport teams

Lead researcher: Brennan Petersen, M.Kin. Student

Supervisor: Mark Eys, Ph.D.

Hello, my name is Brennan Petersen. I am a Master's of Kinesiology student at Wilfrid Laurier University. I am conducting research investigating role conflict and perceptions athletes hold regarding their group. The purpose of the present study is to examine what effects role conflict has on athletes' perceptions of their role and group cohesion. I am asking 250 interuniversity, intercollegiate, and club athletes from a variety of sport teams to complete these surveys about their sport experiences.

I am contacting you to inquire if you are interested in participating in this project. The full extent of your participation in this study involves filling out questionnaires concerning your role on the team (role conflict, role ambiguity, and role efficacy) as well as your perceptions of group cohesion. Your participation will take approximately 20 minutes at two time points (beginning of the season and midseason; 40 minutes total).

The benefit of this study is that the results will directly impact our understanding of role conflict in sport team settings. There are potential psychological or emotional risks associated with this study including boredom, regret over the revelation of personal information to the facilitator, and disruption of work/school/sport time. However, there are no anticipated physiological risks.

The present study relates to the experiences you have had in your sport. Thus, confidentiality will be maintained to protect your responses from public disclosure. This will be facilitated in two ways. First, all raw data will be handled and stored by Brennan Petersen. Second, all completed questionnaires will be kept in a locked filing cabinet within a locked office and will be shredded and disposed of at the appropriate time (i.e., 5 years) after publication of the results. No individual results will be communicated or published.

Your participation in this study is completely voluntary. Your coach will not know whether you choose to participate or not. You may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without consequence. If you withdraw from the study, every attempt will be made to remove your data from the study, and

have them destroyed. You have the right to omit any questions or procedures you choose. There is no compensation for the present study.

It is anticipated that the results of this project will be communicated at academic conferences and within written publications. If you are interested in receiving a summary of the results, you will have an opportunity to indicate your interest when completing the study.

If you have any questions, please feel free to contact Brennan Petersen, M.Kin. student, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, pete8430@mylaurier.ca, Tel: (519) 884-0710 x3619. Alternatively, you may contact Mark Eys, Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: (519) 884-0710 x4157, meys@wlu.ca. Thank you so much for your time.

Sincerely,
Brennan Petersen

This project has been reviewed and approved by Wilfrid Laurier's University Research Ethics Board (tracking number #10006103) and you are welcome to contact Dr. Robert Basso, Chair of the University Research Ethics Board, at (519) 884-0710 extension 4994 or via e-mail at rbasso@wlu.ca any time, especially if you felt you were not treated appropriately, or your rights as a research participant were violated during the course of this study.

Appendix K: Informed Consent**Wilfrid Laurier
University**

Founded 1911

Informed Consent

Role conflict and outcomes in university level interdependent sport teams

Lead researcher: Brennan Petersen, M.Kin. Student

Supervisor: Mark Eys, Ph.D.

INFORMATION

You are invited to participate in a research study. The purpose of the present study is to examine relationships between perceptions of role conflict and other important variables within the sport team environment. This research is being conducted by Brennan Petersen (M.Kin. student, Department of Kinesiology/Physical Education) with the supervision of Mark Eys (Ph.D., Departments of Kinesiology/Physical Education and Psychology).

The full extent of your participation involves reading and completing the letter of informed consent and filling out questionnaires concerning your role on the team (role conflict, role ambiguity, and role efficacy), perceptions of team cohesion, and demographic information (e.g., age, gender). The entire process will take approximately 20 minutes at two time points (at the beginning of the season and midpoint of the season; 40 minutes total).

RISKS

There are potential psychological or emotional risks associated with this study including boredom, regret over the revelation of personal information to the facilitator, and disruption of work/school/sport time. However, there are no anticipated physiological risks.

BENEFITS

As a participant in this study, you will contribute to the development of knowledge in sport psychology and group dynamics. This study will directly impact our understanding of role perceptions in sport team settings. If you wish to obtain a summary of the final results, you may provide contact information (see below for details).

CONFIDENTIALITY

In order to ensure confidentiality of your responses, only Brennan Petersen and Mark Eys will have access to the data. All electronic data will be stored on a password protected external hard drive (i.e., computer files) and all hardcopy data (questionnaires, informed consent forms) will be locked in a filing cabinet in Mark Eys' Group Dynamics and Physical Activity Laboratory (NC-120) at Wilfrid Laurier University, and will be shredded and destroyed as of August 30th, 2022 by Brennan Petersen. All identifying information (i.e., e-mail address that will be provided by participants who are interested in receiving a study summary) will be stored on a password-

protected computer or in a locked filing cabinet in Mark Eys' Group Dynamics and Physical Activity Laboratory (NC-120) and will be deleted or destroyed by Brennan Petersen on August 30th, 2022. Participants will have the opportunity to provide their e-mail address below.

CONTACT

If you have questions at any time about this study or the procedures (or you experience adverse effects as a result of participating in this study) you may contact the researcher, Brennan Petersen, M.Kin. student, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, via (519) 884-0710, extension 3619 or via pete8430@mylaurier.ca. You may also contact Mark Eys, Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, via (519) 884-0710, extension 4157 or via meys@wlu.ca. Alternatively, you could contact Laurier Counselling Services c/o the Student Wellness Centre (2nd floor of the student services building, (519) 884-0710, extension 3146, WELLNESS@WLU.CA). This project has been reviewed and approved by the University Research Ethics Board (tracking number # 10006103). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 4994 or rbasso@wlu.ca.

PARTICIPATION

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

COMPENSATION

No compensation is being offered for participation in the present study.

FEEDBACK AND PUBLICATION

It is anticipated that the results of this project will be communicated at academic conferences and within written publications. If you are interested in receiving a summary of the results, you will have an opportunity to indicate your interest when completing the study.

CONSENT

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

Participant's Signature _____ Date _____
Investigator's Signature _____ Date _____

If you would like to receive the results of the study upon completion, please provide your email address below:

Brennan Petersen

Department of Kinesiology
Wilfrid Laurier University
NC120 Northdale Campus
66 Hickory Street W
Waterloo, Ontario, Canada
pete8430@mylaurier.ca

EDUCATION

- 2015 to 2017 **Master of Kinesiology**
Wilfrid Laurier University, Waterloo, ON
Thesis Supervisor: Dr. M. Eys
- 2014 **Bachelor of Arts (Honours), Psychology**
University of Manitoba, Winnipeg, MB
Undergraduate Thesis Supervisor: Dr. J. Pear

RESEARCH POSITIONS

- 2015 to 2016 **Research Assistant**, Developing a survey to assess role acceptance in sport
Wilfrid Laurier University, Waterloo, ON
With Dr. M. Eys
- 2014 to 2015 **Research Coordinator**, Examining the effects of biofeedback training on stress
in university and Special Olympics athletes
University of Winnipeg, Winnipeg, MB
With Dr. M. Gregg
- 2013 to 2014 **Research Assistant**, Evaluating peer review to teach discrete trials teaching with
a computer-aided system of instruction
University of Manitoba, Winnipeg, MB
With Dr. J. Pear

HONOURS AND AWARDS

- 2017 Ontario Graduate Scholarship (\$15,000). Awarded but declined.
- 2016 to 2017 Social Sciences and Humanities Research Council of Canada (SSHRC) Joseph
Armand Bombardier Canada Graduate Scholarship-Master (CGS-M). \$17,500.
- 2016 to 2017 Dean of Graduate and Postdoctoral Studies Scholarship. \$5,000.

- 2016 Faculty of Graduate and Postdoctoral Studies (FGPS) Travel Award. \$250.
- 2015 to Laurier Graduate Scholarship. \$5,000.
2016
- 2015 to Graduate Masters Domestic Studentship. \$13,000.
2016
- 2010 to Dean's Honour list. University of Manitoba.
2012

SCHOLARLY ACTIVITIES

Refereed Publications

- Submitted Eys, M., & **Petersen, B.** Definition of a team. In Hackfort, D., Schinke, R., & Strauss, B. (Eds.), *Dictionary of Sport Psychology*. Toronto: Elsevier

Oral Presentations

- 2017 **Petersen, B.,** & Eys, M. A. (March). The relationships of role conflict with role clarity, role efficacy, and task cohesion. Lecture presented at the Eastern Canada Sport and Exercise Psychology Symposium, Kingston, Ontario.
- 2016 **Petersen, B.,** & Eys, M. A. (March). Role conflict and outcomes in Canadian university sport teams. Lecture presented at the Eastern Canada Sport and Exercise Psychology Symposium, Hamilton, Ontario.

Poster Presentation

- 2017 **Petersen, B.,** Watson, K., Evans, M. B., & Eys, M. (June). Group dynamics within youth cooperative groups: A scoping review. Presented at the North American Society for the Psychology of Sport and Physical Activity conference, San Diego, California.
- 2014 **Petersen, B.,** Wightman, J., Pear, J., Martin, T., & Yu, C. T. (May). The effect of study time and teaching method on the knowledge and application of Discrete-trials teaching. Presented at the Canadian Conference on Developmental Disabilities and Autism, Winnipeg, Manitoba.

TEACHING EXPERIENCE

Guest Lectures

- 2016 (fall) Department of Kinesiology and Physical Education, Wilfrid Laurier University, KP410 (Advanced Psychology of Physical Activity). Topic: Group dynamics, cohesion, and roles, November 7

Teaching Assistantships

- 2016 (fall) Department of Kinesiology and Physical Education, Wilfrid Laurier University, KP413 (Psychology of Injury Rehabilitation)
- 2016 (fall) Department of Kinesiology and Physical Education, Wilfrid Laurier University, KP410 (Advanced Psychology of Physical Activity)
- 2016 (winter) Department of Kinesiology and Physical Education, Wilfrid Laurier University, KP181 (Sport and Exercise Psychology)
- 2015 (fall) Department of Kinesiology and Physical Education, Wilfrid Laurier University, KP410 (Advanced Psychology of Physical Activity)
- 2015 (fall) Department of Kinesiology, Wilfrid Laurier University: Teaching Assistant, KP434 (Epidemiology)

APPLIED EXPERIENCE

- 2011 to 2013 Manitoba 2k2 Hawks, Assistant coach

ADMINISTRATIVE EXPERIENCE

- 2016 Conference Organization Committee, Canadian Society for Psychomotor Learning and Sport Psychology
- 2013 to 2014 Student Representative, Manitoba Association for Behaviour Analysis

ACADEMIC MEMBERSHIPS

- 2016 to present Canadian Society for Psychomotor Learning and Sport Psychology
- 2016 to present North American Society for the Psychology of Sport and Physical Activity