

Exploring the Perception of Leadership Networks in a U SPORTS Basketball Team

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PERCEPTION OF LEADERSHIP NETWORKS

ABSTRACT

There is no “one size fits all” approach to leadership, as each leadership network is unique. These complex leadership networks rely on interdependent relationships to build trust and cohesion to align to a single vision of success.

This study looked to build on Fransen et al.'s (2014, 2015a, 2015b, 2020) research by implementing a mixed methods approach. This study's purpose was fulfilled using the quantitative Social Network Analysis (SNA) tool used by Fransen et al. (2014, 2015a, 2015b, 2020) and adding qualitative methodology to the inquire on the leadership networks in a basketball team. Furthermore, the researcher aimed to determine the relevance of the Integrated Leadership Model (ILM) in the study's network. This study follows a singular case study approach to leadership in SNA, rather than aggregate analysis, that is consistent with the recommendations provided in Flemington et al. (2023). To guide this study, the following research questions were used to address the purpose of the project:

- (1) What aspects of the top-down, bottom-up and shared leadership models exist within the context of a U SPORTS basketball team?*
- (2) How do U SPORTS basketball team members experience the network of leadership within a U SPORTS basketball team?*

The analyzed quantitative and qualitative data revealed the present network demonstrated varying levels of top-down, bottom-up and shared leadership. Such core directional leadership was represented through variable vertical and lateral influence throughout the network. However, the ILM as constructed by Locke (2003) does not encapsulate the full scope of complexity that was present within this study's network. Therefore, the researcher proposed using a new model for leadership (Integrated Shared Leadership Model) rooted in the ILM that

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acknowledges the complex hierarchical structure of a leadership network in a U SPORTS basketball team. The methods and results of the present study can help practitioners identify leadership structures within their present network and operationalize leadership actions that may drive success of the team. In so doing so, this will allow coaches and athletes to approach the day-to-day activities of their team confidently as they search for success in the complex and beautiful world of team sport.

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CHAPTER I

INTRODUCTION

The role of an interuniversity student-athlete is unique, wherein student-athletes are asked to perform at the highest level in their sport, achieve in the classroom and act as ambassadors in their community (Vallée & Bloom, 2016). Traditionally, the head coach within any interuniversity team is responsible for leading and supporting their student-athletes both on and off the field of play (Côté & Gilbert, 2009; Vallée & Bloom, 2016). While the head coach serves as a central figure in any student-athlete's development, other leaders such as assistant coaches, team managers and athlete leaders are also considered as part of the development process of athletes (Fransen et al., 2014).

The vast majority of leadership research within the sport context focuses on the role of the coach in leadership situations (Bandura & Kavussanu, 2018; Chelladurai, 1984; Chelladurai et al., 1989; McDowell et al., 2018). While such research is valuable, it is predicated on the belief that the head coach is the sole leader within a sport team context. The concept of shared leadership contrasts this notion however, given its main premise that leadership is distributed amongst both leaders and followers (Crozier et al., 2017). Traditionally, traditional models depicting shared leadership represent a group's structure, wherein everyone is both equal to one another and interdependent with one another (Locke, 2003). Locke (2003) identified one issue with the traditional shared leadership model however, in that the model does not acknowledge the importance of a top leader.

Locke (2003) added to traditional leadership models in presenting the Integrated Leadership Model (ILM), which *both* acknowledges the importance of a top leader *and* incorporates other participants in leadership processes. The ILM both promotes various leaders'

development of athlete leaders, while simultaneously highlighting the importance of the head coach who occupies the highest vertical leadership position, all of whom act to promote a conducive environment for shared leadership.

In the present study, the Social Network Analysis (SNA) tool is used to assess the leadership networks of a U SPORTS basketball team. Fransen et al. (2014, 2015a, 2015b, 2020) used a shared leadership model when assessing the leadership networks in existing research. The purpose of this study is to build on Fransen et al.'s (2014, 2015a, 2015b, 2020) and other SNA research in sport (Flemington, Loughead, & Desrosiers 2023). This purpose is fulfilled by introducing a qualitative methodology to SNA protocol and to add understanding to the quantitative data.

Purpose of the Study

The primary purpose of this research was to build on Fransen et al.'s (2014, 2015a, 2015b, 2020) and (Flemington et al., 2023) research, to add a qualitative method to their existing quantitative SNA tool. The purpose was fulfilled by utilizing a mixed methodological design by using the quantitative Social Network Analysis (SNA) tool used by Fransen et al. (2014, 2015a, 2015b, 2020) and adding qualitative methodology to the inquiry leadership networks in sport teams. Furthermore, the researcher aimed to determine the relevance of the Integrated Leadership Model (ILM) in the study's network. This was done by assessing the presence of the top-down, bottom-up and shared leadership models within the present network. In doing so, the researcher challenged the traditional structure of the ILM to understand how it best applied to the context of a U SPORTS basketball team. Furthermore, in their discussion, Flemington et al. (2023) call for the independent analysis of whole SNA team networks rather than the aggregation of data from

multiple teams to conduct analyses. This study follows a singular case study approach to leadership in SNA, rather than aggregate analysis (Flemington et al., 2023).

Contextualizing Sport

Previously, researchers examined a variety of sports, rather than focusing on one specific sport when studying within sport contexts. For example, Fransen et al. (2014) studied participants from nine different sports, preceding another study of 59 male and female competitive sport teams across four different sports (Fransen et al., 2015). Furthermore, Krozier et al.'s (2017) research focused on a sample of 299 male and female interuniversity athletes who competed across three different sports.

In contrast, Chelladurai (1984) selected to sample the three different sports of track and field, wrestling, and basketball to determine participating athletes' preferred leadership behaviours. In so doing, Chelladurai (1984) identified track and field as a dependent non-variable sport, given that it is a "closed sport," where the task outcome occurs in a relatively static and unchanging environment. Furthermore, Chelladurai (1984) identified wrestling as a dependent variable sport, where task outcomes for an athlete are affected by their opponent's actions. Finally, like wrestling, basketball was also identified as an interdependent variable sport an "open-sport," where the opponent's actions directly affect the task outcome. Unlike wrestling however, basketball is a team sport with five athletes competing on the court for one team (Chelladurai, 1984).

Therefore, each individual player's actions affect the overall task outcome for the team. As such, no one player has ultimate control over the outcome in basketball and all members are interdependent (Chelladurai, 1984). This said, each sport possesses unique variables that affect the task outcome for an individual and/or a team. Therefore, in the current research, it was

deemed important to generalize “sport” research contextually similar to how Chelladurai et al. (1989), contextualized sport, while expanding on Chelladurai's (1984) research and specifically focusing on basketball. In the present study, the researcher used a purposeful sample by using a sport-specific network focusing on a single U SPORTS basketball team.

Shared Leadership in Sport Teams

Researchers have identified effective and quality leadership as a main contributing factor to success for organizations, governments and sport teams (Chelladurai, 2012; Fransen et al., 2015b). Much of the existing literature on leadership focuses on the leadership performance of a single leader and in so doing, ignores the influence and leadership of other team members (Crozier et al., 2017; Duguay, Loughhead, et al., 2020; Fransen et al., 2014, 2015b). The theoretical perspective of shared leadership provides a lens to acknowledge more than one leader within an organizational environment. Fransen et al. (2015b) have developing a line of research exploring shared leadership structures within sport team contexts through introducing Social Network Analysis (SNA) as a novel instrument to research such sports teams (Fransen et al., 2015b). The main graphic of the sociogram is a primary SNA outcome, which represents a systematic method for understanding both how each individual is represented within a network and the relations between each individual (Lusher et al., 2010).

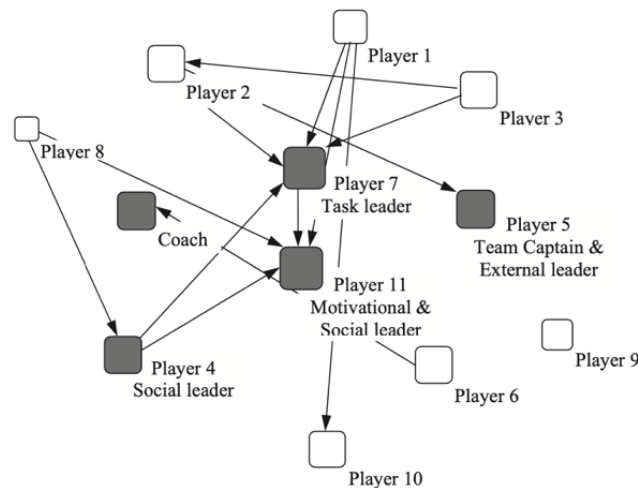


Figure 1. Sample Sociogram (Fransen et al., 2015b)

Fransen et al. (2015b) approached their research using a shared leadership lens. As depicted in the sample sociogram in Figure 1, the athletes dominated the leadership position at the core of the team, rather than the head coach, who was not identified as a central figure in the network. This is interesting, given Fransen et al. (2015b) outlined methodologically that each participating team had a coach who acted as the study's gatekeeper. In considering this, if the coach is the individual who acts as a gatekeeper and thus creates the leadership environment, how can it be they have one only incoming link? In such a scenario as depicted in Figure 1, it is difficult to understanding when using SNA, the coach's true role and their impact on members. This lack of clarity of how the leadership is structured is further complexified when examining sport teams through a shared leadership lens. While it is possible to have a shared leadership structure throughout a team's leadership network, it remains the coach who presumably sets the vision and core values for other team members to follow. Duguay et al. (2020) suggested that vertical leadership (i.e., a vertically oriented "top" leader supporting and maintaining the environment) is essential in promoting an environment conducive to shared leadership; specifically, without such leadership, shared leadership is likely to fail among all members. Furthermore, Fransen et al. (2020) found that those head coaches who support a shared

leadership environment are perceived as better leaders. Such a vertically positioned leader however directly contradicts traditional understanding of shared leadership where all members are equal (Locke, 2003).

In understanding this, it is important to also consider more advanced models of shared leadership. As outlined in (Duguay, Hoffmann, et al., 2020), current models of shared leadership challenge the traditional model by positing that shared leadership is an emergent property where leadership changes based on a network's stage of development. Due to this, network leaders can change based on the given context of leadership at hand (i.e. social, motivational, external and task leadership). However, building on this concept of shared leadership, existing shared leadership models still fail to acknowledge the importance of a hierarchical leader as identified in successful sport team research (Lara-Bercial & Mallett, 2016; Vallée & Bloom, 2016). One way to build upon the shared leadership model is through introducing the Integrated Leadership Model (ILM) into SNA research.

Theoretical Framework: The Integrated Leadership Model

To more fully understand the Integrated Leadership Model, as proposed by Locke (2003), it is important to also understand the other two leadership models (outside of shared leadership) that are integrated in the model. These two models being the "Top-Down" and "Bottom-Up" leadership models. Regarding the "Top-Down" leadership model, a hierarchical leader exists and exerts a downward influence on subordinates (Locke, 2003). While a sole hierarchal leader is not inherently "bad," shortcomings exist with the "Top-Down Model" that must be addressed in a modern sport environment (Locke, 2003). The main shortfall with this model for example, relates to the hierarchical leader who acts individually and autocratically without considering others' opinions, a style that over time both isolates the hierarchical leader and also limits their

effectiveness (Locke, 2003).

Rather than Top-Down leaders imposing their views on others, the opposing, neo-Marxist “Bottom-Up Model” has leaders reflecting upon what subordinates want (Locke, 2003). This egalitarian-oriented leadership model fell into and out of favour in the 1960s and while not inherently “bad,” when used to an extreme, it was found to inhibit leadership direction and decision making (Locke, 2003).

The Shared Leadership model has been considered a most effective combination of both the “Top-Down” and “Bottom-Up” models. What separates shared leadership from other leadership constructs relates to its relationship with the influence process (Pearce & Conger, 2003). In a traditional sense, shared leadership optimizes contributions made by all team members, making everyone equal and interdependent (Locke, 2003). While study of shared leadership has addressed some of the problems seen with the Top-Down and Bottom-Up Models, some concerns remain. First, it is almost impossible to find a successful organization that does not have an individual occupying a most vertically oriented and hierarchical leadership position (Duguay, Loughhead, et al., 2020). This phenomenon also extends to a sport setting, where a team scarcely functions without a head coach (Duguay, Loughhead, et al., 2020). Secondly, without a top leader, it is unclear who is responsible for establishing the vision, values and managing the overall team environment. Without a top leader, a lack of overall team structure exists and those individuals with the loudest voices typically dominate the decision-making process, rightly or wrongly (Locke, 2003).

To address these concerns about the shared leadership model, Locke (2003) proposed the Integrated Leadership Model (ILM), a model which combines key components of the “Top-Down”, “Bottom-Up” and shared leadership models (see Figure 2).

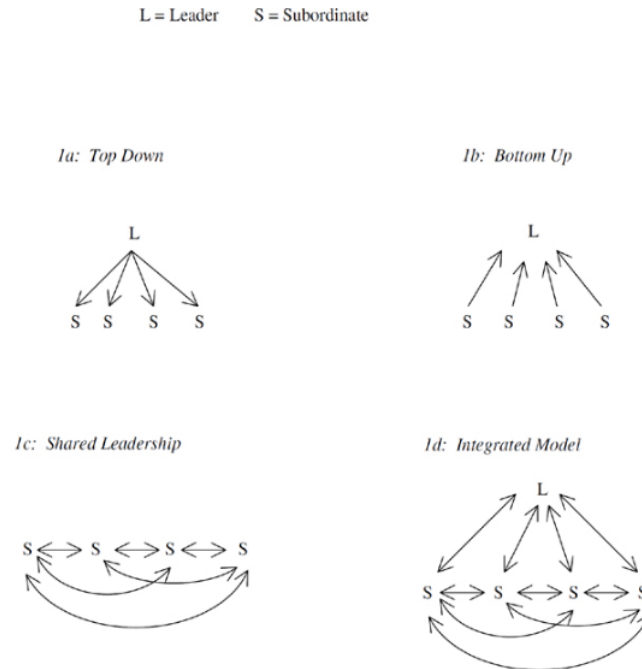


Figure 2. Integrated Leadership Model (Locke, 2003)

In Figure 2, the ILM is depicted as a model that preserves benefits of the three models (i.e., the Top-Down Model, the Bottom-Up Model, and Shared Leadership Model), while mitigating their potential disadvantages (Locke, 2003). For example, the top leader's position in the hierarchy is preserved from the Top-Down Model, while allowing for two-way communication and influence between the top leader and followers as seen in the top-down and bottom-up leadership models. In the ILM, the shared leadership model complements and enhances the top-down leadership model (Locke, 2003) and through such integration, vertical and lateral hierarchal influence maintains the importance of the head coach, assistant coaches and athlete leaders. Additionally, this model acknowledges how athletes can have distinguishing leadership roles while also maintaining the same role of "athlete" (Crozier et al., 2017).

Fransen et al. (2014) and Crozier et al. (2017) proposed that shared athlete leadership is just as important as top down coaching leadership. Crozier et al. (2017) discovered four different levels of leadership within sports teams including (1) coach, (2) formal athlete leader, (3)

informal athlete leader and (4) followers. Consistent with Locke's (2003) findings, the ILM demonstrates both vertical and lateral hierarchical influence within sports teams and respects the complex shared leadership structure of interuniversity sports teams. Thus, the researcher proposes that the ILM, a multi-directional influence, and hierarchical model of leadership, is much more representative of the leadership structures within U SPORTS basketball teams rather than the traditional, egalitarian shared leadership model.

Social Network Analysis

Many scholars have noted that sport teams represent a perfect environment for using Social Network Analysis (SNA) for research purposes (Fransen et al., 2015b; Hambrick, 2013; Hambrick, 2019; Lusher et al., 2010). In using SNA, Nixon (1993) discovered that an athletic subculture emerged within a respective team, thus creating a closed environment, and thus further isolating student-athletes from engaging with other groups on campus. In this context, a subculture is defined as a group of individuals who share a particular “culture” (Nixon, 1993), including a shared assessment of values, identities, beliefs and rituals that connect members of the subculture to each other (Nixon, 1993). Overall, researchers could use SNA to view these athletic micro-environments as a group of individuals in a social context, rather than just the individual as an autonomous entity (Lusher et al., 2010).

As Chelladurai (1984) noted, sports such as basketball are interdependent, where a team of individuals impact the task outcome. Therefore, SNA is one appropriate framework to understand such interdependent relationships (Hambrick, 2019). Using SNA allows practitioners to understand how they structure their leadership, specifically through identifying both leaders and potential gaps in leadership, exercises which can improve team performance (Fransen et al., 2015b; van Kruijsbergen et al., 2020). In a sport context, using SNA can help coaching staff

members understand their roles relative to the entire network and help them identify both formal and informal athlete leaders. While SNA remains a novel instrument within sport management research pertaining to sport teams, it is scarcely used in non-sport management research and even more rarely used to assess leadership within team settings.

Fransen et al. (2014, 2015a, 2015b, 2020) have piloted the use of SNA in sport teams and have subsequently developed , a body of literature that legitimizes SNA as a research tool to assess the leadership structures within teams (Hambrick, 2019). The current research aims to build upon Fransen et al's. (2014, 2015a, 2015b, 2020) work however, by implementing a mixed methods approach and introducing an Integrated Leadership Model lens to Fransen et al's (2014, 2015a, 2015b, 2020) research. Furthermore, this study's design introduces in introduction of a mixed methods approach to Fransen et al's (2014, 2015a, 2015b, 2020) existing SNA tool by adding a quantitative method to assist in the assessment of leadership networks.

Research Questions

As the primary purpose of this research is to build on Fransen et al.'s (2014, 2015a, 2015b, 2020) research using the SNA, the implementation of a post-positivist paradigm and mixed methods lite (MML) approach was found to be appropriate. Using this paradigm and methodological approach provided rich data and when analyzed, deep insights into the view of the members experience leadership in their network. Furthermore, the two research questions which guide this study were:

- (1) What aspects of the top-down, bottom-up and shared leadership models exist within the context of a U SPORTS basketball team?*
- (2) How do U SPORTS basketball team members experience the network of leadership within a U SPORTS basketball team?*

Guided by a post-positivist paradigm and using the MML approach, the researcher was able to address these research questions to deepen understanding of leadership networks within a U SPORTS basketball context.

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of chapter is to provide an in-depth overview of relevant literature connected to this research and to situate the research relative to previous literature and how research findings may impact future research. This chapter is presented in three sections. In the first section, Fransen et al.'s (2014) conception of shared athlete leadership will be discussed to help distinguish formal and informal leaders as a core concept of this study. In the second section, the Integrated Leadership Model (ILM) will be discussed insofar as its use in the current research to extend Fransen et al.'s (2014, 2015a, 2015b, 2020) work. This includes using the Integrated Leadership Model as proposed by Locke (2003) to build upon the shared leadership model. In the third section, an extensive review of Social Network Analysis (SNA) in sport research to provide insight on how SNA can be used in multiple ways to conduct research.

Section I: Shared Athlete Leadership

Early research on athlete leadership focused on the identification of the team captain as a principal athlete leader (Dupuis et al., 2006; Fransen et al., 2014; Grandzol et al., 2010). When understanding the role of a team captain within a sport team, it is important to look at each sport contextually. In sports like hockey and soccer a great tradition of the leader as captain/the captain position exists, where the expectations of the principal athlete leader are formalized (Dupuis et al., 2006). In their qualitative study of six past Canadian Interuniversity Sport (now U SPORTS) hockey captains, Dupuis et al. (2006) found that the captain serves as an extension of the coach to assist with team cohesion. These scholars also acknowledged however, that beyond the hockey captain, informal leaders played an important role in the leadership of a team.

Furthermore, in Johnson et al. (2012) sought to determine how the leadership structures within the dominant New Zealand's Men's National Rugby Team, the All Blacks, impacted their success. These scholars found that the team possessed three levels of leaders, including the coach, captains and informal leaders (Johnson et al., 2012). Participants detailed it took a group of informal leaders to support the formal captain and align the players with the coach's vision. Regardless of the sport, researchers have found that beyond the one formal leader, a combination of formal and informal athlete leaders comprise the athlete leadership of a team (Fransen et al., 2014). In their study of Fransen et al. (2014) found that only 1% of team members perceived the formal captain as the "best" leader in the overall leadership sociogram and team members typically identified multiple athletes on their team that filled prescribed athlete leadership roles. Such athlete leadership roles will be next discussed.

Athlete leadership roles. Fransen et al. (2014) extended the literature on athlete leadership beyond the notion that the formal captain is the sole leader of importance within a team context. In their research, Fransen et al. (2014) found four different prescribed leadership roles as existing in teams. First, the *Task Leader* is the leader on the field and the one to whom others look during the heat of competition (Fransen et al., 2014). Second, the *Motivational Leader* encourages and inspires their peers to achieve greater heights during competition (Fransen et al., 2014). Third, the *Social Leader* is responsible for maintaining the relationships and environment within the team. Finally, the *External Leader* acts as an ambassador to cultivate the link between the team and the outside world (Fransen et al., 2014).

These researchers found that in only 2% of teams studied, one athlete filled all four prescribed leadership roles which encapsulate the core of athlete leadership shared between both formal and informal leaders. Furthermore, only 1% of participants identified their captain as the

“best” leader within the team network (Fransen et al., 2014). See Table 1 for an outline of these four athlete leadership roles and their respective definitions, as conceptualized by Fransen et al. (2014). In the current research, Fransen et al.’s (2014) typology of athlete leadership roles was used to assist with generating a valid total leadership role analysis, discussed further in the methodology section in Chapter III.

Leadership Roles in Sport Teams	
Leadership Role	Definition
<i>Task Leader</i>	A task leader is in charge on the field; this person helps the team to focus on our goals and helps in tactical decision-making. Furthermore, the task leader gives his/her teammates tactical advice during the game and adjusts the tactics if necessary.
<i>Motivational Leader</i>	The motivational leader is the biggest motivator on the field; this person can encourage his/her teammates to go to any extreme; this leader also puts fresh heart into players who are discouraged. This leader steers players’ emotions on the field in the right direction in order to perform optimally as a team.
<i>Social Leader</i>	The social leader has a leading role besides the field; this person promotes good relations within the team and cares for a good team atmosphere, e.g., in the dressing room, in the cafeteria or on social team activities. Furthermore, this leader helps to deal with conflicts between teammates besides the field. He/she is a good listener and is trusted by his/her teammates.
<i>External Leader</i>	The external leader is the link between the team and the people external to the team; this leader is the representative of the team to the club management. If communication is needed with media or sponsors, this person takes the lead. This leader will also communicate the guidelines of the club management to the team regarding club activities for sponsoring.

Table 1. Leadership Roles (Fransen et al., 2014)

Section II: Integrated Leadership Model

The Integrated Leadership Model (ILM), is a shared leadership structure that allows for two-way vertical and lateral influence between leaders and followers (Locke, 2003). This model is unique from traditional models in this sense as the top-down, bottom-up and shared leadership models only implement a one-way direction of influence. In the top-down model, influence travels downwards in a hierarchical fashion from the top leader to followers (Locke, 2003). While not inherently bad, this type of leadership often causes the top leader to act autocratically without considering the opinions of others (Locke, 2003). The bottom-up model is the opposite, as influence travels upwards from the followers to the top leader which can inhibit leadership direction and decision making (Locke, 2003). Widely considered the best combination of the

top-down and bottom-up leadership models, shared leadership implements lateral influence where all members can influence each other equally. Additionally, in traditional shared leadership, all members are considered equals with no hierarchical leader (Locke, 2003). The concern of this model is that it eliminates the acknowledgement of a top leader who establishes the vision, and values and manages the overall environment of a network (Locke, 2003).

The ILM provides a response to the shortfalls of traditional top-down, bottom-up, and shared leadership models by amalgamating and acknowledging the three types of influence to create a model that acknowledges the multi-directional influence that exists within teams (Locke, 2003). Johnson et al.'s (2012) leadership study on the New Zealand All-Blacks national rugby team was evident of a multi-directional influence, given participants acknowledged three levels of leadership that influence the performance of a team, including coaches, formal athlete leaders and informal athlete leaders. In a sport context, the ILM allows for both discerning athletes as equals and distinguishing athletes as leaders, and positions the coach as a central figure within the team (Duguay, Loughead, et al., 2020). This distinction of having both hierarchal and vertical influence is unique to the ILM and helps to support leadership research using this model in sport (Crozier et al., 2017; Locke, 2003).

As previously mentioned, athlete leadership is important to consider when assessing the roles of leadership within a team. Athlete leadership is a dynamic process in which multiple leadership roles are assumed by multiple athletes on the same team (Crozier et al., 2017; Fransen et al., 2014, 2015b). Fransen et al. (2015b) noted that athlete leadership is complex and encapsulates more than just the traditional formal leadership roles. Fransen et al. (2014) discovered that despite their holding the formal leadership distinction of captain, these athletes were often not perceived as the best leaders within their team. Furthermore, Johnson et al. (2012)

detailed how formal leaders depend on informal leaders to align other athletes or followers to align with the coach's vision. Athlete leaders present an opportunity for the recognition of various 'levels' of leaders that reflect both vertical and lateral influence dynamics. The ILM allows athletes to be elevated as leaders to support the leadership process through vertical influence (Locke, 2003). Furthermore, the ability of athlete leaders to influence each other and have 'equal' stature in the structure of a team's leadership helps support the leadership process through lateral influence. There is both vertical and lateral influence as it pertains to athlete leadership, which aligns with the ILM. Based on the existence of vertical and lateral influence within the ILM, the researcher believes this model could be a dominant leadership theory to study within sport teams.

As previously mentioned, the ILM also aligns with leadership research through the identification of a core leader. Within a sport context, the head coach is the central figure who sets the core values and vision of the team (Duguay, 2020; Locke, 2003). The ILM helps to elevate core leaders to a top position, while respecting their vertical influence. Duguay et al. (2020) interviewed Canadian University coaches who implemented shared leadership practices within their teams, finding that these coaches actively supported a shared athlete leadership structure by empowering athlete leaders to support their specific vision and environment (Duguay, Loughhead, et al., 2020). Through examination, it is evident that athlete leadership and shared leadership do not develop in isolation from each other. Without a core leader however, shared leadership is likely to fail, therefore, the ILM is an appropriate structure to address the aforementioned concerns of an absent hierarchical leader (Crozier et al., 2017; Duguay, Loughhead, et al., 2020; Locke, 2003).

Crozier et al. (2017) researchers examined differences in athlete leadership behaviours based on self-identified leadership status (i.e., follower, informal leader, formal leader) as the sole researchers to use the ILM as a framework to examine leadership in sport. As research in SNA sport literature using the ILM model is limited, an opportunity exists to integrate the ILM with the SNA literature. When applying the ILM within a sport context, it is often the case that the head coach both serves as the core leader who provides aspects of vertical influence leadership to establish a clear vision and core values (Crozier et al., 2017; Locke, 2003) and can establish a shared leadership structure with both lateral and vertical influences to help disseminate their vision and values (Crozier et al., 2017; Locke, 2003).

Section III: Social Network Analysis

As a methodological approach, researchers have used Social Network Analysis (SNA) since the early 1930s to explore networks, understand network members and shared interactions between members within a given environment (Hambrick, 2019). The primary output from SNA is a sociogram, which is a visual representation of the relationships within a given social network (Mayo et al., 2003). As Lusher et al. (2010) outlined, SNA accounts for both the structure of a team and members' individual attributes, making it appropriate for investigating the complexity of relationships within a team.

In a sport context, Hambrick (2019), identified six different applications of SNA in a sport context. The first application, *Interactions among Individuals in Sport Networks*, refers to the study of people within a sport context outside of a defined team. As Hambrick (2019) outlined, this includes research on groups of fans who attend sporting events and their connections, sport consumption behaviours and other community groups.

In the current research, while examining individuals in a network applies, such examination is only applicable considering the analysis of whole networks. Whole networks have defined boundaries and include each individual within a network. This said, the main concern with this first application is the difficulty in defining the boundaries of the network studied. For example, in a study where researchers want to understand the influence of family on sport consumption, questions arise as to what aspects define family (i.e., immediate family members of mother, father, siblings, extended family members of cousins, aunts, uncles). In studies with no boundaries defining the network or leaving networks open to interpretation, networks become unmanageably large to analyze (Hambrick, 2019). In this study, the network has defined boundaries within a team setting. This said, the current application is not entirely relevant to this study. Only specific aspects of this first application provide value to the present research.

The second application, *Interactions Among Organizations in Sport Networks*, refers to the study of the interactions between organizations within a network. For example, Hambrick (2019) found in studying the relationships between National Sport Organizations within the context of organizing a major event helped organizations identify mutually beneficial relationships in problem areas. Additionally, this second application has been used to identify the type and number of public and private organizations that come together to host major sporting events. In the current research, this application does not apply.

The third application, *Social Media and Sport Networks*, refers to how managers use social media to achieve strategic goals, interact with consumers and share information (Hambrick, 2019). Social networks represent collections of individuals, groups or organizations to explore their shared relationships. Social media provides managers with the ability to create

identities, communicate, build meaningful relationships and share information among these collections and communities. Researchers who used this application fostered an understanding of how information is shared through social media and the correlations between performance and social media activity. For example, Hambrick's (2019) analysis of Twitter's aggregation of users helps us understand whom they follow and who follows them. In these macro-networks, the structure can be quite large. While this methodology can be useful for sport practitioners to assess virtual relationships within teams, this third application does not relate to the current research, given it is focused on the microenvironment of a team and said relationships. While social media plays a factor in how these relationships are built, the analysis of social media as an application in SNA does not apply to this study.

The fourth application is *Research on Sport*, which relates more in this study than other applications, as it assesses micro-environments in sport management research. Uses of this perspective include assessing the networks of collaboration between research groups (Hambrick, 2019). This line of inquiry can include the analysis of networks of researchers within sport management environments (Hambrick, 2019). This can refer to micro-networks, but the context of academic research does not apply to this study.

The fifth application called *Teams during Competition*, refers to the analysis of sport teams during competition. One example of this is the analysis of film and statistics to understand interactions between players and to assess the centrality of a team in competition (e.g., watching match film, mapping out metrics such as passes). This application has closer relevance to the present study; however, the application more so emphasizes the technical side of sport than the other applications. While the technical aspect of basketball will affect the perception of leaders

in this study, this study did not use the application of technical analysis to assess perceived leadership networks.

The sixth application, *Teams away from Competition*, refers to the analysis of team networks and their interactions off the field of play. Nixon (1992) conducted one of the earliest studies to use SNA in a sport context and identified a “[varsity] athletic subculture” on university campuses, where their sociograms demonstrated a closed network that isolated student-athletes from the greater university community. The researchers found that student-athletes relied on their closed network of team members, coaches and mentors for advice. The interactions within this closed network will be the focus of this study.

While student-athletes may be contained in their own micro-environment, it is important to note that being part of a team is a social process. This is imperative to consider as several existing studies measure leadership as an individual measure, while it is innately a group measure. McDowell et al. (2018) determined whether shared leadership behaviours contribute to positive PsyCap and overall engagement. To measure this, the researchers collected and amalgamated population data from different teams/networks into one pool. The problem with this is that the hypotheses being addressed referred to a team measure of leadership, yet the collected data provides an individual measure since an entire network was not assessed. Smith et al. (2017) used qualitative measures to understand one athlete’s perspective, per team, and their experience with transformational leadership. In both studies, this individual-centric collection of data limited the applicability of the findings to a team setting. As the leadership experience is unique to each person, understanding the perspectives of various athletes within a single team is imperative to assess the leadership within the team as a group. As Chelladurai (1984) outlined, team sports like basketball are interdependent closed sports, in which the task outcome is

dependent on the performance of the opponent and the five individuals working as a team. It remains essential to consider the interdependent relationships within a given network to understand the scope of leadership. Assessing the perceived leadership from an individual's perspective severely limits the understanding of the network. No two people will have the same perception of their team's respective leadership network. Assessing a single whole network inclusive of several unique perspectives provides a more holistic view of the leadership experience within the team context.

In using SNA, researchers avoid the potential shortcoming of treating a team measure as an individual measure since SNA relies on entire networks to assess leadership. Teams lend themselves well to SNA as they contain discrete boundaries with all members of the team and distinguished roles (Hambrick, 2019). Furthermore, a team is the amalgamation of unique individuals who have interdependent relations with their team members; such interdependent relations are based upon both formal and informal rankings of team members (Lusher et al., 2010). Formal rankings among team members are determined by individuals' formal titles and classifications such as players, coaches, captains or team leaders, whereas informal rankings among team members are more difficult to determine due to the lack of formal classification, but can be measured using SNA (Lusher et al., 2010).

Fransen et al. (2015b) further built on this line of research by introducing the use of SNA to analyze leadership structures. Furthermore, Fransen et al. (2015b) used shared leadership theory in a study to determine the quality of both formal and informal leaders within a sports team and discovered that each of their classified leadership roles is unique. Additionally, aligning with Fransen et al. (2014), while the formal captain appeared as a high-quality leader within the network, informal leaders also held leadership roles. Furthering their work, Fransen et

al. (2020) identified that coaches who implemented shared leadership were perceived by their athletes as better leaders. These results provided justification for having the coach as the main decision-maker alongside a decentralized network of leadership.

Another outcome from Fransen et al. (2020), revealed that coaches had difficulty identifying the best leaders on their teams, compared to the best leaders as identified by athletes. This finding is important because research has demonstrated that priming an athlete leader's identity increases their performance in the leadership role (Fransen et al., 2020; Kwok et al., 2018; van Kruijsbergen et al., 2020). For example, van Kruijsbergen et al. (2020) conducted a study where they intended to improve shared leadership within an elite junior volleyball team. They found that clarification of leadership roles through interventions improved social and external leadership scores (van Kruijsbergen et al., 2020). Further, Kwok et al. (2018) found that the Royal Air Cadets who self-identified as leaders were more likely to be perceived as a leader by their peers. By priming the leader identity, participants were motivated to actively engage in relationship building, which therein improved their perception of being a leader by their peers (Kwok et al., 2018). As seen in such research findings, the ability of top leaders to identify middle leadership is essential in the leadership process. In the context of this study, a head coach may have an advantage in leadership performance using SNA to identify and prime the identity of both formal and informal leaders (Fransen et al., 2014). In doing this, coaches can prime these athlete leaders' identities to make them aware of their status within the network and improve performance in their leadership roles.

Section IV: The Network

The concept of a team "environment" or a "network" aligns with Lara-Bercial and Mallett's (2016) study on serial winning coaches in elite sport. Lara-Bercial and Mallett (2016)

outline three themes found as consistent amongst serial winning coaches, including: (i) having a big picture vision for their teams that is simplified into manageable components; (ii) surrounding themselves with high-performing and cohesive people; and (iii) cultivate a high-performance environment, in which team members buy into and commit fully to the communicated vision so they maximize the chances for success. In this section, the researcher focused on the latter two themes.

First, research has shown that the development of athletes leads to a more cohesive team, which therein leads to greater success (Cole and Martin, 2018; Grandzol et al., 2010; Kim and Cruz, 2016). This represents the importance of developing strong athlete leaders within the network of a team to help perpetuate the ultimate vision and values as set by the coach. Second, the concept of a high-performance environment can be interpreted in various ways. As seen in Donoso-Morales et al. (2017), Lara-Bercial and Mallett (2016) and Vallée and Bloom (2016), the environment is represented by the enacted vision set out by the coach to drive success. Vallée and Bloom (2016) defined vision as the coach's full perspective of the team/program that encompassed long-term goals and direction as well as selling their coaching philosophy to athletes. To best optimize a team to follow the vision set by the coach, it is important to have alignment or "buy-in" from all team members within the network (Vallée and Bloom, 2016). As seen in Johnson et al. (2012), oftentimes in sport teams, it takes a group of informal leaders to support the formal captain and align the players with the coach's vision. In the present study, a high-performance environment refers to the vision set forth by the coach.

For the current research, the leadership network that consists of formal and informal student-athlete leaders, coaches and followers given as a whole will represent the "network."

This study aims to understand how those within the network of a U SPORTS basketball team experience this particular network.

Conclusion

Scholars have argued that Social Network Analysis (SNA) can be utilized to analyze the leadership dynamics within sport teams. The current research built upon Fransen et al.'s (2014, 2015a, 2015b, 2020) research to establish a greater understanding of a leadership network within an intercollegiate (U SPORTS) basketball team. Given each team possesses its own unique story, this research highlighted the stories of how the members of one team experience leadership in their network. While extensive quantitative (Fransen et al., 2014, 2015b; Kim and Cruz, 2016) and qualitative (Donoso-Morales et al., 2017; McDowell et al., 2018; Vallée and Bloom, 2016) research has been conducted within a sport leadership context, limited research utilizing a mixed-methodologies (i.e., quantitative and qualitative) exists on this subject.

Conducting this research improved upon and extended existing literature to provide a tool for sport practitioners to use and assess leadership networks within their teams. Fransen et al. (2014, 2020) noted the difficulty coaches often have identifying the best athlete leaders within their teams. However, as seen in Kwok et al. (2018) and van Kruijsbergen et al. (2020), the ability of leaders in hierarchical vertical positions to identify informal leaders benefits the performance of those in that role. Through interventions to prime leaders' identity and workshops to improve their leadership behaviours, both formal and informal leaders may improve their skills in such leadership roles (Kwok et al., 2018; van Kruijsbergen et al., 2020). In the context of this study, through using SNA, a coach may be able to identify leaders within his or her team, determine a course for intervention and improve the performance and skills in their prescribed leadership role.

CHAPTER III

METHODOLOGY

Introduction

In this study, the researcher aimed to understand perceived leadership networks in one U SPORTS basketball team. As such, the current study followed the use of a post-positivist paradigm using a Mixed Methods (MM) Lite methodology. Using this methodological approach, a U SPORTS basketball team was explored using mixed methodology to understand the unique leadership perspectives and experiences within a defined network.

Research Paradigm: Post-Positivism

A post-positivist paradigmatic approach maintains the traditional positivist perspective that the truth is considered objective, however asserts that this objective truth is affected by participants' values and experiences (Farrow et al., 2020). A post-positivist approach addresses the complications with simply accepting a single objective truth by helping to apply the "human experience" to the collected data (Farrow et al., 2020). Post-positivism provides latitude to move from a narrow scientific positivist view to an encompassing way to examine real world issues (Henderson, 2011). This paradigmatic approach does not challenge the relevance of positivist inquiry, rather it offers that there is something next to positivism that is also worth considering (Henderson, 2011). Henderson (2011) also asserted that traditional positivist paradigms are incapable of addressing the complexity of the human behaviours within recreation activities such as sport. In contrast, the post-positivist paradigm acknowledges that the objective truth is not a neutral act, and that questions can be raised during the research process to reflect other subjective interests (Henderson, 2011). As such, the use of a post-positivist paradigm legitimizes the use of mixed-methods by offering a practical approach to using more than one method in a research

study to reconcile the objective truth with participant experiences (Henderson, 2011). The post-positivist paradigm enables researchers to present a narrative that balances experiences, both personal and professional, and theoretical interpretations with a compelling story of the researched data (Henderson, 2011).

A post-positivist paradigm aligns with the design of the present study and the researcher's application of a Quantitative-Qualitative (QUANT-QUAL) methodology. Within the research design of the current study, the researcher implemented a positivist tool called Social Network Analysis (SNA) as a method to quantitatively assess the participating team's leadership network. The researcher also used qualitative semi-structured interviews to further inquire how this network is experienced, while triangulating quantitative and qualitative data. In doing so, the researcher acknowledged that the objective truth presented by the SNA data required reconciliation through the understanding of participants' experiences to derive robust conclusions about the network under study. In allowing participants to verbalize the construction of their perceived reality in this context, it allowed for the assessment of inconsistencies and patterns within the quantitative data. Fransen et al. (2014, 2015a, 2015b, 2020) utilized no secondary method to triangulate the SNA data; and so, in adopting a post-positivist paradigmatic approach in addition to a QUANT-QUAL mixed methods research design in the current study, it thus allowed for a more thorough understanding of how leadership is perceived in a U SPORTS basketball context.

Mixed Methods Research

Sparkes and Smith (2013) outlined how research is often categorized as either qualitative or quantitative. Due to the dichotomous nature of quantitative and qualitative research, researchers often ignore any similarities and middle ground within the data (Sparkes & Smith,

2013), which “leads to inaccurate and incomplete reviews on both types of research that does not do justice to the contributions that each makes on our understanding of the world” (p. 7). While differences must be acknowledged, in research (unclear) where collecting rich data is desired by researchers, using both quantitative and qualitative research methods may compensate for each method’s weaknesses (Neuman & Robson, 2015; Sparkes & Smith, 2013). Additionally, van der Roest et al. (2015) argued that the combined use of quantitative and qualitative methodologies within a mixed-methods (MM) research design can provide a fuller understanding of research questions. To achieve the researcher’s goals of data richness and triangulation in this study, a MM design was employed to combine both quantitative and qualitative (QUANT-QUAL) research methodologies.

Mixed Methods (MM) Lite

This study followed the “MM Lite” approach, where methods are mixed but one research paradigm is used throughout the study (Greene, 2012). According to Greene (2012), the addition of qualitative methods to quantitative data in MM Lite could “(a) illuminate the contextualized lived experiences of the research programs, and (b) afford a more differentiated understanding of the practical meanings” (p. 765). Using the MM Lite approach allows for researchers to collect both quantitative and qualitative data, while maintaining the same paradigmatic approach to understand what these data look like and mean to the participants. In the present study, the researcher employed a post-positivist approach, which is commonly used by mixed-methods researchers, as the guiding research paradigm (Henderson, 2011). A major tenet of the post-positivist paradigm is that it allows researchers to present a narrative that balances objective truth with subjective interest and tell a compelling story of the researched quantitative and qualitative data (Henderson, 2011).

Using the post-positivist paradigm, the researcher implemented a MM Lite QUANT-QUAL design, first using the quantitative Social Network Analysis (SNA) tool to frame the leadership network using objective measures. To triangulate quantitative data, the researcher implemented qualitative semi-structured interview methodology, to inquire on how this network is experienced. In using this MM Lite approach with a post-positivist paradigm, the researcher could develop robust findings to more deeply understand what the leadership network looks like and how it is experienced.

Data Collection Methodologies

Research Participants

The participating team was selected using a purposeful sampling criterion. In using purposeful sampling, the researcher could select participants who would provide the most information on the research purpose (Savin-Baden and Major, 2013). As outlined, the parameters of the SNA tool, along with the consideration of contextualizing sport, the sample was innately bounded to the setting of one sport team. Therefore, in this study, the one team that was studied was selected from 96 teams that compete in the U SPORTS men's and women's basketball context. While Fransen et al. (2014, 2015) collected data from several different sports for comparison, Chelladurai (1984) made a strong case that each sport must be studied contextually due to their unique differences in culture, demographics and structure. Following a similar trend, the researcher aimed to develop a sport-specific inquiry, which was appropriate and aligned with the methodological procedure since a sport-specific inquiry is bounded, just as is required in the proposed SNA tool. In the context of this research, a purposeful sample was defined as a complete, defined, network that meets 75% participation from a team that competes in a single sport.

Participant Recruitment

As McDowell et al. (2018) outlined, members within high-performance sport contexts are typically extremely guarded in nature, and are often reluctant to participate in research studies. Since the coach is the main gatekeeper to a team, it is then essential to build trust with him or her to gain research access to the team. Due to the required 75% response rate for SNA, participant recruitment for this study was extremely important (Hambrick, 2019). As such, recruitment began with the researcher sending email messages to three head coaches of the 96 total U SPORTS basketball teams. This was done due to the researcher's pre-existing relationship with these three coaches. To do so, the researcher retrieved email addresses by accessing the Staff Directory on each coach's university athletics website.

Following the gatekeeper's (head coach) granting of access to the entire population and provision of email addresses of all participants within the team network, the researcher sent email messages of formal invitations to all members within the team network, as defined by the head coach. Since participation was voluntary for all team members in this study, the researcher was aware of the possibility that the required participation for SNA may not be met. If 75% participation was not achieved, the researcher had to proceed to destroy all data for that team and continue to recruit another team, by following all recruitment criteria.

Quantitative Data Collection: Social Network Analysis (SNA)

According to Hambrick (2019), whole networks include both each individual in a given network and their shared relationships between individuals in the network. When using SNA as a data collection tool, it is common to result in large sociograms that become unwieldy, if participants are allowed to define everyone in their individual network (Hambrick, 2019). Since this study assessed a whole network, defined social network boundaries (SNB) were established,

by implementing Fransen et al.'s (2015b) same SNB protocol. Fransen et al. (2015b) requested a list of players from the coaches of participating teams to discover SNBs. In this study, while the same SNB protocol was implemented, the coach could identify any other important members that interacted daily with the team. Following using this protocol, the researcher assembled questionnaires listing each identified network member to derive a total of four surveys for each leadership role outlined previously in Chapter II.

Leadership Roles in Sport Teams	
Leadership Role	Definition
<i>Task Leader</i>	A task leader one who is in charge on the field; helps the team to focus on goals and helps in tactical decision-making. Furthermore, the task leader gives teammates tactical advice during the game, adjusting tactics if necessary.
<i>Motivational Leader</i>	The motivational leader is the biggest motivator on the field; can encourage teammates to go to any extreme; also puts fresh heart into players who are discouraged. This leader steers players' emotions on the field in the right direction to perform optimally as a team.
<i>Social Leader</i>	The social leader has a leading role besides the field; promotes good relations within the team and cares for a good team atmosphere (e.g., in the dressing room, in the cafeteria, on social team activities). Furthermore, the social leader helps deal with conflicts between teammates besides the field. He/she is a good listener and is trusted by teammates.
<i>External Leader</i>	The external leader serves as the link between the team and those external to the team; is the representative of the team to the club management. This person leads when and if communication is needed with media or sponsors. This leader also communicates the guidelines of the club management to the team regarding club activities for sponsoring.

Table 2. Leadership Roles (Fransen et al., 2014)

Alongside each individual's name within the network, a five-point Likert scale (i.e., 0 to 4) ranging from 0 (very poor leader) to 4 (very good leader) was denoted, as aligned with Fransen et al.'s (2015b) instrument. The purpose of the survey was to have each member within the network rate their peers' quality of leadership in each role. Additionally, the research accompanied these questionnaires with a brief demographic questionnaire, which asked for participants' names, self-identified leadership role (i.e., follower, informal leader, formal leader) as both Crozier et al. (2017) and Fransen et al. (2015b), protocol which aligned with that used by Fransen et al. (2015b).

Quantitative Research Participants: Social Network Analysis (SNA)

In total, the researcher invited three (i.e., two female and one male) U SPORTS basketball teams to participate in the present study. These three teams were invited based on the researcher's existing relationship with each team's gatekeeper (head coach). Of these three teams, two head coaches responded to the invitation to research and agreed to participate. Per SNA requirements, the researcher required a participation rate of a minimum of 75% for the SNA data to be considered valid (Hambrick, 2019). In recruiting participants from the first team, a male U SPORTS basketball team, the researcher received responses to the invitation to participate in the research from an insufficient number of members (i.e., below the 75% threshold). In realizing the participation rate did not meet the criteria, the researcher immediately destroyed all collected data from members of this team. In recruiting participants from the second team, a female U SPORTS basketball team, the researcher received responses to the invitation to participate in the research and completed surveys from a sufficient number of members (i.e., 18 of 23 members, or 78.26% of members, thus above the 75% threshold). In total, 13 players, three assistant coaches, one strength and conditioning coach and the head coach from this team participated in the study.

Overall, the researcher achieved the standard of collecting valid SNA data for a purposeful bound network, where all the ties of participants are known (Fransen et al., 2014). The researcher used pseudonyms for all names of participants to create anonymity to ensure data confidentiality, as outlined in the Research Ethics Board application for this study. All demographic information collected for each participant is below, including participant's pseudonym, team role, self-identified leadership role and years of membership with the team:

NAME	TEAM ROLE	SELF-IDENTIFIED LEADERSHIP ROLE	YEARS WITH TEAM
RYAN (HC)	Head Coach	Formal Leader Coach	4
ROY (AC)	Assistant Coach	Formal Leader Coach	3
MICHAEL (AC)	Assistant Coach	Informal Leader	3
FLYNN (AC)	Assistant Coach	Formal Leader Coach	1
TYLER (S&C)	Strength & Conditioning Coach	Formal Leader Coach	5
MARY (P)	Player	Informal Leader	4
KATE (P)	Player	Informal Leader	2
OPRAH (P)	Player	No Role Identified	2
SANDY (P)	Player	Formal Leader Team Captain	3
JOYCE (P)	Player	Formal Leader Team Captain	4
MISSY (P)	Player	Formal Leader Team Captain	3
KAREN (P)	Player	Follower	2
TAMMY (P)	Player	Informal Leader	1
VERONICA (P)	Player	No Role Identified	1
APPLE (P)	Player	No Role Identified	1
ANNE (P)	Player	Follower	1
MARCH (P)	Player	No Role Identified	1
MILLIE (P)	Player	Informal Leader	1

Table 3. Participants' Demographic Information

In the survey, participants were asked to self-identify their leadership role in the team. As seen in Johnson et al. (2012), this particular team also had formal leaders, informal leaders and followers.

Qualitative Data Collection: Semi-Structured Interviews

In this study, the qualitative data collection of semi-structured interviews was selected to further inquire on the first collected quantitative SNA data. The semi-structured-interview methodology is unique from other styles of interviews due to its flexibility and non-limitation of the conversation (Sparkes and Smith, 2013). To engage in a semi-structured interview, the

researcher had the opportunity to construct an interview guide that addresses the main research topic like a structured interview (Savin-Baden and Major, 2013); however, the researcher can move beyond pre-determined questions through asking follow-up questions and probing the participant's SNA responses to gain more information (Savin-Baden and Major, 2013; Sparkes and Smith, 2013). The researcher possesses relative flexibility, which allowed to further address important themes relative to each individual participant as they arose.

In this study, the researcher constructed semi-structured interview questions that targeted the two main research questions. Furthermore, the researcher constructed potential follow-up questions in response to the SNA analysis the researcher conducted, including topics related to both each participant's individual perceived leadership network and the team's leadership network as a whole. Using a post-positivist paradigm to determine inconsistencies and relationships with the positivist approach aligned with use of a Mixed Methods (MM) Lite approach.

After SNA data collection and analysis of subsequent SNA data, interviews were conducted. Interviewees were identified through the SNA process and selected based on their relative place within the developed centrality scores, sociograms and leadership role. Once role-related leaders were identified, the researcher invited them by electronic mail to consent to a one-hour interview. All interviews were conducted virtually using Microsoft Teams and recorded in video and audio formats for later data analysis.

Qualitative Data Participants: Semi-Structured Interviews

In total, eight interviewees were recruited for interviews, which were conducted to further inquire about the present research questions. The interview participants were recruited for this portion of this study based on the results of the quantitative inquiry. More specifically, from an

analysis of SNA data, the researcher discovered four different role groups that were represented in the network of this study, including Coach, Formal Leader, Informal Leader and Follower roles. To achieve the aim of collecting a deep level of data richness, the researcher recruited two members from each role group to be interviewed, yielding a total of eight participants. The demographic data for the eight interview participants can be found in Table 4.

#	NAME	TEAM ROLE	SELF-IDENTIFIED LEADERSHIP ROLE	YEARS WITH TEAM
1	RYAN	Head Coach	Formal Leader Coach	4
2	FLYNN	Assistant Coach	No Role	1
3	KATE	Player	Informal Leader	2
4	SANDY	Player	Formal Leader Team Captain	3
5	TAMMY	Player	Informal Leader	1
6	MISSY	Player	Formal Leader Team Captain	3
7	MARCH	Player	No Role	1
8	MILLIE	Player	Informal Leader	1

Table 4. Recruited Interview Participants.

Further rationale on selected participants can be found in the following Chapter, in the findings section.

Data Analysis

In this section, the researcher will outline how the quantitative and qualitative data were analyzed to help arrive at conclusions that addressed the research questions. In prescribing to a MM Lite approach, the use of quantitative and qualitative methods allowed addressing of any inconsistencies and generating robust findings. To do this, the researcher conducted quantitative

data analysis on the SNA data. Following this stage, qualitative analysis of the SNA data and semi-structured interviews allowed for a full understanding of the research questions.

Quantitative Data Analysis: Social Network Analysis

Upon completion of the SNA data collection, the researcher used UCINET software to generate sociograms. In this study, the researcher used directed networks to outline participants' perceptions of which teammates were leaders within the U SPORTS basketball team under examination. As the design for this study followed similar as that of Fransen et al.'s (2014, 2015a, 2015b) research protocols, SNA data collection resulted in a non-symmetrical, directed $N \times N$ leadership quality network. In this $N \times N$ network, the rows referred to the individual's outgoing ties, which represented how individuals perceived other members' leadership (Fransen et al., 2015b), whereas the columns represented the individual's incoming ties, which represented how other network members perceived the individual's leadership (Fransen et al., 2015b).

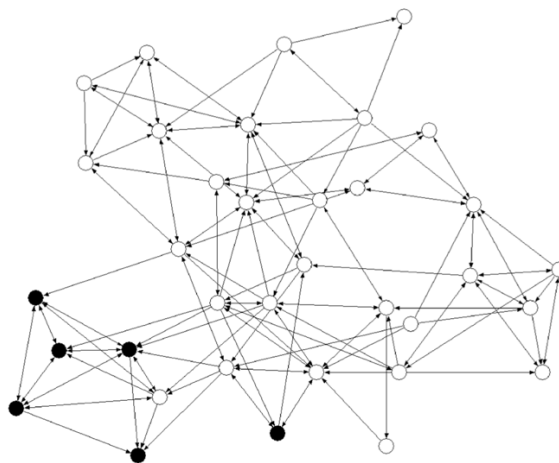


Figure 3. Sample Directed Network (Lusher et al., 2010)

Like Fransen et al. (2014, 2015a, 2015b), the researcher collected separate data for each prescribed leadership role (i.e., external, social, task, motivational) from participants using questionnaires. However, unlike Fransen et al. (2014, 2015a, 2015b), the focus in the study was on using Fransen et al.'s (2014, 2015a, 2015a) leadership role protocol to arrive at the Total

Leadership results, rather than on using data on the four leadership roles to determine correlations or distinctness of individual roles. Per the scope of the study, the focus was on the Total Leadership results to help understand how U SPORTS basketball teams experience leadership on a macro level.

Following the collection of the data for each prescribed leadership role from participants, the researcher generated an all-around leadership role. This was done by averaging the scores of the perceived leadership scores from all four roles and inputting those scores into a new N x N overall leadership quality network (Fransen et al., 2015b). Once the overall leadership quality network was created, the researcher constructed *Leadership Quality Network* and *Social Connectedness* networks.

Leadership Quality Network. The first step in assessing a leadership network is to understand who is viewed as a leader by all those within the network. The element of *Indegree Centrality*, referring to the extent to which other members view an individual as a leader (Fransen et al., 2015a) was used to assess the perceived leader, given Fransen et al.'s (2015a) findings that indegree centrality is a strong predictor of perceived leadership quality within sports teams. To derive the indegree centrality, the researcher calculated the sum of the values for the incoming ties of each individual within the network, using the Likert scale to assess the quality of a valued network. This followed Fransen et al.'s (2015a) same protocol, wherein this study, a member with high-indegree centrality meant that others perceived that members as a strong leader in a prescribed role.

Social Connectedness Network. The second network to be constructed was the *Social Connectedness Network*, which identifies the individuals to whom members feel connected to within the network and vice versa (Fransen et al., 2015a). In this network, the researcher used

indegree centrality, *outdegree centrality* and *betweenness centrality* to assess the social connectedness through the rating of network members' leadership quality. Furthermore, this network was used as the basis for the sociogram and data visualization, as seen in Fransen et al.'s research (2014, 2015a, 2015b, 2020).

As previously outlined, *indegree centrality* refers to the extent members feel connected to a specific individual and an indicator of perceived leadership quality (Fransen et al., 2015a). To calculate *indegree centrality*, the researcher calculated the sum of values for the incoming ties of each member of the network. Furthermore, *Outdegree centrality* is the opposite in that it characterizes the extent to which a single member feels connected to others in the network (Fransen et al., 2015a). To calculate *outdegree centrality*, the researcher calculated the sum of outgoing ties for each member of the network. As with *indegree centrality*, this resulted in the collection of a valued network. A higher *outdegree centrality* score indicated an individual who feels highly connected in leadership to their team members, versus a lower *outdegree centrality* score, which indicated an individual who does not feel connected in leadership to those within their network.

Finally, *betweenness centrality* uses *indegree* and *outdegree centrality* in a binary network where *indegree* and *outdegree* values are converted to a 1 or 0. *Betweenness centrality* is important in this study as it refers to the extent to which network members serve as connectors to other members within the leadership environment (Hambrick, 2019). In considering this measure, it aligns with the concept of identifying strong "athlete leaders" and becomes relevant in this study to identify those members, if any, who act as "middle managers" between all players and the head coach. To calculate *Betweenness Centrality*, the researcher converted the initial valued network into a binary network, in order to identify the optimal path between nodes

(Fransen et al., 2015a). The optimal path is considered the shortest path between nodes, which is clear in a binary network but not in a valued network (Fransen et al., 2015b). In a valued network, it is unclear whether a long path composed of strong ties is less or more optimal than a path of weak ties (Fransen et al., 2014). However, the shortest path amongst nodes is clear in a binary network.

Per Fransen et al.'s (2015a) protocol, these raw data were converted to represent tie strengths of 3 (Good Leader) and 4 (Extremely Good Leader) as a value of 1 and tie strengths of 0 (Extremely Poor Leader), 1 (Poor Leader) and 2 (Moderate Leader) as a value of 0. This binary network was also used to visualize the SNA data into sociograms, where a binary value of 1 (Good Leader) is a visualized tie and a binary value of 0 (Not a Good Leader) is not a visualized tie. For the *Total Leadership* role, no whole numbers result, due to the averaging of all other roles to arrive at a final score. Therefore, for the Total Leadership role, scores between 3.00 and 4.00 were given a value of 1 (Good Leader). Scores between 0.00 and 2.99 were given a value of 0 (Not a Good Leader).

While these centrality scores will provide quantitative data on the level of network centrality, it is also important to assess the network visually (Hambrick, 2019). Through visual analysis, the researcher can determine the location of specific nodes, along with the relative “closeness” between other team members and the center. Overall, through quantitative, visual and qualitative analyses, the ultimate aim is to triangulate data and formulate a clear picture of the perceived leadership within the participating team.

Qualitative Data Analysis: Thematic Analysis

Thematic analysis is a method that uses identification, analysis and interpretation to identify major themes within data (Sparkes and Smith, 2013). The strength of this method is in

its ability to afford the researcher flexibility with interpretation without an epistemological anchor (Sparkes and Smith, 2013). According to Sparkes and Smith (2013), this is beneficial as the researcher is not bound by rules and can make active choices about how they interact with the data. Using thematic analysis, researchers can immerse themselves in the data to discover connections between codes, themes and concepts. Using Sparkes and Smith's (2013) protocols, five phases of thematic analysis was used in this study, including Immersion, Initial Coding, Identifying Themes, Reviewing Themes and Defining Themes.

Immersion. This stage of thematic analysis focused on the researcher engaging in an immersion with the data to become intimately familiar with the content to view these data through the lens of the research questions (Smith and Sparkes, 2016). In this study, the researcher conducted a preliminary analysis of collected data, focusing on how the participants perceived their own leadership network by first transcribing the semi-structured interviews and then engaging in initial reading and notetaking processes. Immersion provided the researcher with an idea of the content of the data before approaching the coding stage.

Initial Coding. Smith and Sparkes (2016) defined a code as the labelling of something of “interest” that has relevance to the research question. The assigned code was meaningful as it captured the content and analytic relevance of a particular meaning unit (Smith and Sparkes, 2016). In this study, the researcher developed codes relating to perceptions of interdependent relationships and perceived leadership networks within the team. To do so, open coding was conducted to help identify patterns and themes in the data (Savin-Baden and Major, 2013).

Smith and Sparkes (2016) defined open coding as the process of fracturing the data into small units, or codes. In this study, open coding was conducted by first going through each transcript line by line and identifying and highlighting meaning units that relate to the research

question. Following this, codes were assigned that related to the two research questions and provide analytic relevance for the researcher. This was done by accumulating the identified codes into a master code list within Microsoft Excel. In this study, the focus of open coding was to provide initial insight by highlighting keywords and phrases and assigning codes to understand how participants view their own perceived leadership network.

Identifying Themes. In this stage, axial coding was used to reconstruct the fractured data and help the researcher understand how codes identified in the open coding stage related to each other such that they can be identified as a theme (Sparkes and Smith, 2013). To do so, axial coding was used to categorize the data and determine how emergent themes relate to one another (Savin-Baden and Major, 2013). This was done by moving the initial open codes to an Excel document and sorting them into categories. Through the data reconstruction, connections between codes allowed the researcher to find themes for further categorization. This helped provide insight as to what aspects of the Integrated Leadership Model (ILM), if any, existed within the perceived leadership networks of this U SPORTS basketball team.

Reviewing Themes. Per Sparkes and Smith (2013), this stage was broken up into two levels. First, the researcher checked to ensure that all themes aligned with the initial codes and whether patterns emerged. If misalignment was present, the themes needed to be reworked or a new theme was created to ensure all codes had a “home” (Sparkes and Smith, 2013). Once the candidate themes captured the scope of the coded data, the researcher moved to the next level. At the second level, the researcher ensured that the newly created themes worked in relation to the entire dataset, not just the coded data (Sparkes and Smith, 2013). In doing this, the researcher reviewed the data in its entirety to code any missed meaning units into emergent themes.

Through this, the researcher ensured that each theme was mutually exclusive, where each relevant code or data point was only placed in one theme (Sparkes and Smith, 2013).

Defining Themes. This final stage was meant to help the researcher refine and define the identified emergent themes, with a purpose to identify the essence of each theme and what aspect of the data it captured (Sparkes and Smith, 2013). This was accomplished by identifying and writing the story that each theme told about the research questions and the collected data (Sparkes and Smith, 2013). The availability for interpretation was extremely important for this study, as the researcher began to understand how the qualitative data and emergent themes related to the quantitative SNA data. As the purpose of the MM approach in this study was to provide a qualitative voice to the quantitative assessments, this open interpretation allowed the researcher to tell a vivid story through the data (Sparkes and Smith, 2013). Ultimately, this final stage allowed the researcher to ensure the themes being used provided the requisite detail to tell the story of the data.

Research Quality

Methodological Coherence

In a Mixed Methods (MM) approach, the researcher understands the increased importance of aligning all areas of the study (Savin-Baden and Major, 2013). In this study, the researcher adopted the role of an *Analytical Bricoleur*, which is one well-informed on different analyses and maintains a coherent epistemological position. (Sparkes & Smith, 2013). Pertaining to this study, the researcher committed to using Social Network Analysis (SNA) and semi-structured interviews in a Mixed Methods Lite (MML) approach. Further aligning to the principles of an *Analytical Bricoleur*, as set out by Sparkes and Smith (2013), MML dictates that the researcher approaches both quantitative and qualitative methods with a single paradigm to

provide contextualized lived experiences to the quantitative data (Greene, 2012; Sparkes and Smith, 2013). In this study, the researcher adopted a post-positivist paradigm, which informed the type of methods used to collect and analyze data. Overall, the researcher was purposeful in selecting methodologies to ensure coherence throughout the study in subscription to an MML approach post-positivist research paradigm.

Data Triangulation

Data triangulation is an aggregation of multiple methods and analyses to triangulate results (Sparkes and Smith, 2013). By adopting the principles of an *Analytical Bricoleur*, the researcher effectively and properly triangulated multiple sources of data. In this study, the researcher adopted a mixed methods (MM) approach, wherein the approach innately provided data triangulation. While methodological differences exist between quantitative and qualitative research, they may be combined advantageously to fill gaps (Rudd & Johnson, 2010). As Rudd and Johnson (2010) outlined, adding qualitative data to pre-existing quantitative data can help expand, corroborate and triangulate findings. In this study, the researcher used the qualitative method (semi-structured interviews) to enhance the findings of the SNA and provide a voice to the quantitative data.

Reflexivity

As Sparkes and Smith (2013) outlined, the connections between the researcher and a study can affect all aspects of a study due to subjectivity. This includes key stages of the research process including topic selection, research design and the interpretation of results (Sparkes and Smith, 2013). Key aspects of oneself that frame this subjectivity include, but are not limited to, age, race, gender, ethnicity and previous lived experiences. Subjectivity is inevitable in qualitative research and is often considered a weak point in this line of inquiry (Sparkes &

Smith, 2013). However, the concept of reflexivity has become prevalent, given through reflexivity, researchers can transform the ‘problem’ of subjectivity into an opportunity (Sparkes & Smith, 2013). Reflexivity requires self-reflection to consider how the researcher’s subjectivity affects all aspects of the research process. Adopting a reflexive stance allows a more honest and critical self-evaluation of one’s place in relation to the study (Sparkes & Smith, 2013).

Reflexivity then limits the negative effects of subjectivity when conducting the study and analyzing the subsequent data.

My place in relation to the research topic and research questions is based on first-hand experience playing and working in basketball. From having a deep love for the game of basketball, I have dedicated the last six years of my life toward a career in basketball. During this time period, I have worked within grassroots, interuniversity, professional, national and international basketball organizations. My experiences within basketball have helped shape my views of how the sport can be a powerful tool to positively affect and enhance the lives of those who participate in the sport. While I have seen student-athletes derive the benefits of basketball, I have also seen these same people experience the detriments of basketball. Like all activities, if not facilitated properly, basketball may have negative impacts on the lives of intercollegiate student-athletes. The bulk of my experience lies on the interuniversity level, where I held and worked in a variety of roles with a U SPORTS basketball team for seven years. Through this experience, I gained direct experience in observing the lives of basketball student-athletes. These observations include understanding the delicate balance of athletics, academics and social engagements for this population.

While winning is the goal for those who participate in sport, it is not an aim at the U SPORTS level of competition. As an individual who holds a deep passion for the sport of

basketball, and especially a deep passion at a U SPORTS level, I wanted to gain a deeper understanding of leadership in this realm. Given my engagement with my research population, I acknowledge my role as an insider within the culture of Canadian university men's basketball. In being affiliated with national and professional basketball organizations I understand that I may wield influential power. As such, I refrained from sharing my professional affiliation with my research participants. My involvement in basketball also helped during all data collection and analysis processes. As identified previously, basketball exists as its own athletic subculture, with its own unique set of attitudes beliefs and norms (Chelladurai, 1984). My existing experiences within basketball allowed me to have a root understanding of this subculture, including an understanding of key terminology and slang. In addition, I could adjust my language to ensure my participants felt comfortable in the interview process. This allowed for an opportunity where participants could freely speak without fear of being misinterpreted or misquoted.

My experiences helped drive my passion and interest for my topic and research questions; however, I could not let any preconceived assumptions based on my experiences affect my interpretation of the data. While the benefits of being an insider included an understanding of the system, culture and processes, I must also have been aware of potential biases I may have held. Furthermore, due to my insider status given my role as a coach with a U SPORTS basketball team, participants could have been hesitant and avoided being recruited when invited to participate in this study. While there is no competitive advantage for the researcher in conducting this study on another U SPORTS basketball team, the highly guarded nature of high-performance sport could have affected data collection processes (McDowell et al., 2018).

Tools and Materials

As previously mentioned, the researcher was willing to conduct both phases of research in person or through virtual platforms. However, given COVID-19 protocols and regulations, in-person data collection was disallowed and not possible. While previously, the inability to conduct in person research would make data collection impossible, conducting interviews through computer conference platforms have been an increasingly accepted data collection methodology (Savin-Baden & Major, 2013). The use of video conferencing allowed the researcher to speak face-to-face with each participant while achieving the basic components of an in-person interview (Savin-Baden & Major, 2013). This included an ability to gauge reactions through facial expressions and body language, which provided additional data to enhance findings and interpretations (Sparkes & Smith, 2013). Due to this, this research was conducted entirely using virtual methods.

In this study, the researcher used Qualtrics to conduct the quantitative SNA data collection to distribute questionnaires. Furthermore, Microsoft Teams software was used to conduct virtual interviews. In addition to the researcher's reminder to each participant that participation was voluntary, use of the Teams software platform also automatically prompted participants for them to provide consent to the researcher to be recorded. Teams provided both the functionality of recording and saving the audio and video files for the meeting. Such provision was beneficial, as it allowed the researcher to go review both visual and audio cues to ensure accurate interview transcription. All recordings were saved in audio (MP3) files, directly to the researcher's password-protected hard drive to ensure the security of the data. Furthermore, the researcher used the transcription software Otter.ai as a tool to assist with the processing of the interview data. This software yielded initial raw transcriptions and was not solely relied upon

to transcribe the interviews, as the researcher reviewed each transcriptions multiple times to ensure accuracy and add field notes.

Ethical Considerations

In the current study, the researcher understood his role in maintaining ethical standards and protecting the information of his research participants. As previously mentioned, high-performance sport is already a highly guarded research context (McDowell et al., 2018). As such, and given the researcher's position in the basketball community, it became increasingly important to formulate a strong ethical framework. Sparkes and Smith (2013) outlined that researchers must keep ethical considerations in research such as informed consent, confidentiality and privacy processes forefront in thinking. The researcher employed strategies to ensure each participant was treated ethically by respecting their right to consent, confidentiality and privacy (Savin-Baden & Major, 2013; Sparkes & Smith, 2013)

In ensuring an ethically sound research study, the researcher sought formal approval and consent from the team's head coach, who served as the gatekeeper to the research, and then subsequently from each participant. As Sparkes and Smith (2013) outlined, confidentiality and anonymity are interwoven, with both being a desired standard in qualitative research. Maintaining anonymity in this study referred to the participant's ability to remain unidentifiable with no identifiable information being provided at any stage of the study. One potential issue was is the fact that to gain access and generate purposeful research questions, an inquiry into the generated sociograms may be necessary. However, once the sociograms were generated, pseudonyms were used to protect participants' identities to maintain anonymity and confidentiality.

Additionally, no identifying factors were applied to the team, the conference in which they competed and the location of the team. All information was omitted from the final research report. Ultimately, all information in this study remained anonymous and was not shared with anyone outside of the researcher and his primary supervisor. The researcher communicated all precautions and steps to each participant within the Informed Consent Form. Additionally, the researcher stored all interviews, transcripts and pertinent information for this study on a local hard drive that was password protected. Access to this hard drive was exclusive with the password only being known by the researcher. At the completion of this study, all files related to this study were erased permanently.

CHAPTER IV

RESULTS & FINDINGS

Introduction

As outlined in the previous chapter, data collection and analyses processes were conducted in two phases. During the first phase, the researcher collected and analyzed the quantitative social network analysis (SNA) data. During the following second phase, the researcher collected and analyzed the qualitative semi-structured interview data. A Mixed Methods Lite (MML) approach was used to arrive at final conclusions relative to these two data collection and analyses phases. The researcher also used the post-positivist paradigm to guide use of MML to arrive at a deeper understanding of the present network. Ultimately using MML methodology allowed the quantitative data to be highlighted and to deepen generative insights by integrating a qualitative methodology with those highlights.

Quantitative Results – Social Network Analysis

Leadership Quality Network

As outlined, the *Leadership Quality Network* refers to the indegree centrality scores found when analyzing a given social network. This measure is an average of the scores collected from a surveying of the four distinct leadership roles. The results for indegree centrality in the Total Leadership role can be found below:

TOTAL LEADERSHIP (LEADERSHIP QUALITY NETWORK)	
<u>TEAM MEMBER</u>	<u>INDEGREE CENTRALITY</u>
MISSY (P)	56.25
TYLER (S&C)	54.25
MILLIE (P)	47.00
RYAN (HC)	46.00
SANDY (P)	44.75
JOYCE (P)	43.00
ROY (AC)	38.75

MICHAEL (AC)	38.25
TAMMY (P)	37.25
MARY (P)	37.25
APPLE (P)	33.50
FLYNN (AC)	33.50
MARCH (P)	32.50
ANNE (P)	30.50
KATE (P)	27.75
OPRAH (P)	24.50
KAREN (P)	23.25
VERONICA (P)	21.00

Table 5. Indegree Centrality Scores (Leadership Quality Network)

Identifying Perceived Leaders. Based on the results, Missy (Player/Formal Leader, 56.25), Tyler (Strength & Conditioning Coach, 54.25), Millie (Player/Informal Leader, 47.00), Ryan (Head Coach, 46.00), Sandy (Player/Formal Leader, 44.75) and Joyce (Player/Formal Leader, 43.00) were found to have high-quality overall leadership, as perceived by their network members. While identifying the leaders is a first step, considering their roles based on an analysis of quantitative data is also important.

The Role of The Coaches. It was found that only two of the two of the five team coaches have high overall leadership scores. Moreover, the Head Coach (Ryan) was the sole "basketball coach" who scored in the top third of total leadership quality. Specifically, Head Coach Ryan was found to rank with the fourth-highest perceived total leadership, scoring 46.00. Furthermore, it was found that four of the top six perceived overall leaders in this network were athletes, a finding that further emphasizes the importance of athlete leadership within teams.

As seen in both Johnson et al. (2012) and Fransen et al. (2014), strong athlete leadership, from both formal and informal leaders, help support the head coach in the leadership process. In the context of this network, Missy (56.25), Sandy (44.75) and Joyce (43.00) represented as formal leaders within the team, and as captains, were found to hold high indegree centrality

scores. In comparison, Ryan, the Head Coach, scored 46.00, which was found to be ranked below Missy (56.25) and Sandy (44.75), and ranked slightly higher than Joyce (43.00). These results align with Fransen et al.'s (2015b) findings, where the Head Coach's perceived leadership is not significantly different from that of the best athlete leader. Through this finding, it may be inferred that the Head Coach is a central figure within this network; however, the perceived "best leader" was found to be an athlete.

Athlete Leadership. While Missy (56.25) was found to score as the top leader within this network, Millie (47.00) as an informal leader ranked above both Sandy (44.75) and Joyce (43.00), both of whom are formal leaders. This finding aligns with Fransen et al. (2015b), who found that a combination of formal and informal leaders were perceived as the best leaders within teams. However, indegree centrality scores alone cannot determine how the structure of this leadership impacts the transfer of information and influence throughout the team. This is one area that was explored in the quantitative social connectedness network and through an analysis of qualitative semi-structured interview data.

Social Connectedness Network

The Total Leadership sociogram generated using the binary network, or Social Connectedness Network, can be found below (Figure 4). As previously outlined, this study follows Fransen et al.'s (2015a) protocols, where raw valued data were converted into binary values. Tie strengths of 3 (Good Leader) and 4 (Extremely Good Leader) were given a value of 1 and tie strengths of 0 (Extremely Poor Leader), and 1 (Poor Leader) and 2 (Moderate Leader) all were given a value of 0. Only ties with a value of 1 (Poor Leader) are visualized in the sociogram per Fransen et al.'s (2015a) protocol.

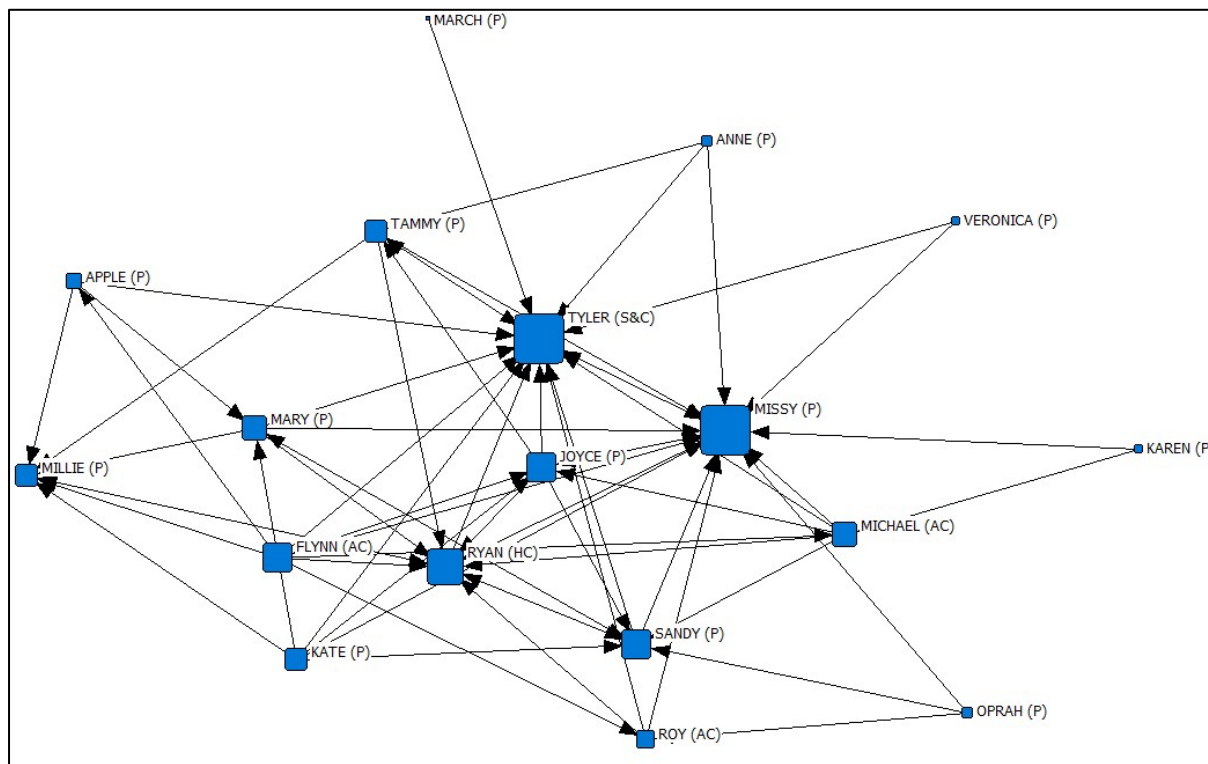


Figure 4. Total Leadership Sociogram (Social Connectedness Network)

When visually assessing the total leadership social connectedness network, members at the center include Tyler (Strength & Conditioning Coach), Missy (Player/Formal Leader), Joyce (Player/Formal Leader) and Ryan (Head Coach). This identification of leaders aligns with the leadership quality network where these members also hold high indegree centrality scores. However, one interesting finding relates to Millie, who held a high indegree centrality score (47.00), falls far outside the core leadership group. From here, betweenness centrality and outdegree centrality must be considered in this analysis.

TOTAL LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)			
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>	<u>OUTDEGREE CENTRALITY</u>
MISSY (P)	25.11	56.25	37.50
TYLER (S&C)	18.75	54.25	35.50
MILLIE (P)	0.70	47.00	26.00
RYAN (HC)	22.58	46.00	40.75
SANDY (P)	14.61	44.75	36.00
JOYCE (P)	7.28	43.00	41.75

ROY (AC)	1.16	38.75	32.00
MICHAEL (AC)	4.83	38.25	41.00
TAMMY (P)	7.50	37.25	40.50
MARY (P)	3.45	37.25	28.50
APPLE (P)	1.00	33.50	39.50
FLYNN (AC)	0.00	33.50	46.75
MARCH (P)	0.00	32.50	35.00
ANNE (P)	0.00	30.50	40.25
KATE (P)	0.00	27.75	44.25
OPRAH (P)	0.00	24.50	35.25
KAREN (P)	0.00	23.25	36.75
VERONICA (P)	0.00	21.00	32.00

Table 6. Total Leadership Centrality Scores (Social Connectedness Network)

Understanding Millie. As seen in Table 6, those with high indegree centrality scores do not always have the highest betweenness centrality scores. For example, in reviewing Millie's scores, while she is perceived as a strong leader within the team network as evidenced through her high indegree centrality score of 47.00, her betweenness centrality score however falls at the bottom of the team with a value of only 0.70. Millie's lowest score is due to her outdegree centrality score, which is only 26.00 and is ranked as lowest in the network. While indegree centrality solely considers how others perceive a single member within the network, betweenness centrality also considers how an individual member perceives the others in the network using outdegree centrality. Outdegree centrality refers to how connected in leadership an individual feels toward those within their respective network (Fransen et al., 2015b).

This is important because betweenness centrality considers both incoming and outgoing ties to determine the shortest path between nodes (Lusher et al., 2010). As previously indicated, those with a high betweenness centrality score are considered gates to help connect members through leadership within the network (Fransen et al., 2015b). In the context of this study, betweenness centrality is essential to understand, as it helps determine the middle managers/athlete leaders within the network.

Overall, these scores indicate that while team members feel connected to Millie in a leadership context, she does not feel connected to others. As such, Millie does not act as a gate or connector between herself and others within the network. This is important to consider because, high-quality leaders bridge the gap between other members in the network and this is reflected in a strong betweenness centrality score (Fransen et al., 2015a).

Coaching Leaders. Contrastingly, while Ryan (Head Coach) was found to score fourth highest in indegree centrality (46.00), he was found to have the second-highest betweenness centrality score (22.58). Such a score reflects the fact that the Head Coach remains a central figure within the leadership process of this network. Based on these scores and theory, Ryan was found to be viewed as a high-quality leader within this network. Furthermore, the high betweenness centrality score indicates strong indegree and outdegree centrality scores, which therein indicates that in leadership Ryan both feels connected to athletes on the team and they feel connected to him as Head Coach.

Building on the identification of strong coaching leaders, it is also essential to consider Tyler's role within the context of this network. While not a sport-specific coach, Tyler (Strength & Conditioning) was viewed as an extremely important member of this network, as he was found to score second highest with indegree centrality (54.25) and score third highest with betweenness centrality (18.75). Like Ryan, Tyler was viewed as a high-quality leader within this network.

TOTAL COACHES LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)		
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>
TYLER (S&C)	18.75 (RANK 3/18)	54.25 (RANK 2/18)
RYAN (HC)	22.58 (RANK 2/18)	46.00 (RANK 4/18)
ROY (AC)	1.16 (RANK 9/18)	38.75 (RANK 7/18)
MICHAEL (AC)	4.83 (RANK 7/18)	38.25 (RANK 8/18)
FLYNN (AC)	0.00 (RANK T18/18)	33.50 (RANK 12/18)

Table 7. Coaching Centrality Scores

The consideration of coaching leaders is interesting to consider because the next highest Basketball Assistant Coach in terms of centrality scores was found to be Michael, who scored eighth highest indegree centrality (38.25) and score seventh highest betweenness centrality (4.83). As seen in Table 6, aside from Tyler and Ryan, the other Assistant Coaches were found to have very low betweenness and indegree centrality scores, a finding that indicates Assistant Coaches possess lower influence and are viewed as those having lower-quality leadership in this network.

Athlete Leadership Pt. II. When assessing the athletes, four of the highest six betweenness and indegree centrality scores belong to this group. This brings forward Missy and Sandy's respective cases who represent two of the main leaders on the team, based on their betweenness and indegree centrality scores.

TOTAL MAIN ATHLETE LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)		
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>
MISSY (P)	25.11 (RANK 1/18)	56.25 (RANK 1/18)
SANDY (P)	14.61 (RANK 4/18)	44.75 (RANK 5/18)

Table 8. Main Athlete Leader Centrality Scores

As seen in Table 8, Missy and Sandy represent two very strong athlete leaders within the team. In fact, Missy holds the highest score for both betweenness and indegree centrality. This finding further reinforces the notion that leadership falls within the Integrated Leadership Model (ILM). As it pertains to both indegree and betweenness centrality, it was found that athletes are perceived as better leaders and connectors within this network, which may point toward a representation of athlete leadership. In the present network, there is clearly a leadership structure present in which some athletes act as leaders, some act as followers and all are not equal.

TOTAL ATHLETE LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)			
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>	<u>OUTDEGREE CENTRALITY</u>
MISSY (P) Formal Leader Captain	25.11	56.25	37.50
MILLIE (P) Informal Leader	0.70	47.00	26.00
SANDY (P) Formal Leader Captain	14.61	44.75	36.00
JOYCE (P) Formal Leader Captain	7.28	43.00	41.75
TAMMY (P) Informal Leader	7.50	37.25	40.50
MARY (P) Informal Leader	3.45	37.25	28.50
APPLE (P) No Role Identified	1.00	33.50	39.50
MARCH (P) No Role Identified	0.00	32.50	35.00
ANNE (P) Follower	0.00	30.50	40.25
KATE (P) Informal Leader	0.00	27.75	44.25
OPRAH (P) No Role Identified	0.00	24.50	35.25
KAREN (P) Follower	0.00	23.25	36.75
VERONICA (P) No Role Identified	0.00	21.00	32.00

Table 9. Athlete Total Leadership Centrality Scores

In Table 9 above, a distinct difference exists as it pertains to leadership quality amongst the athletes. Furthermore, the betweenness centrality scores for each athlete align with their self-identified leadership role. This will be further explored on the following page.

FORMAL LEADER TOTAL LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)			
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>	<u>OUTDEGREE CENTRALITY</u>
MISSY (P) Formal Leader Captain	25.11	56.25	37.50
SANDY (P) Formal Leader Captain	14.61	44.75	36.00
JOYCE (P) Formal Leader Captain	7.28	43.00	41.75

Table 10. Formal Leader Centrality Scores

Missy, Sandy and Joyce all self-identified as formal leaders, an identification which aligned with the finding of strong betweenness and indegree centrality scores given by all others in the network. As seen throughout this section, the Head Coach, Ryan, is seen as one of the main and highly rated leaders within this network. Through betweenness centrality scores, it is possible to learn who acts as a gate between network members and the Head Coach. In the context of this network, Missy, Sandy and Joyce were found to score strongly in this measure, which meant they ranked highly; such high scores also represent the influence of these individuals both laterally and vertically. In the context of this study, lateral influence refers to the ability to influence those on the "same level". In this instance, those on the same level are the formal leaders. Vertical influence refers to the ability to influence those hierarchically below, those being followers, and hierarchically above, that being the Head Coach.

In this study, Ryan (Head Coach), rated Missy on average a 3/4, Joyce a 4/4, and Sandy a 4/4 over the four leadership roles. In comparison, Missy rated Ryan on average as a 3.25/4, Joyce as a 2.25/4 and Sandy as a 3/4 over the four leadership roles. In looking at these indegree centrality ratings, it appears as though Missy, Joyce and Sandy can influence Ryan as much as he

influences them. In Joyce's case, it appears as though she influences Ryan more than he influences her.

Between the three athlete leaders, a varying level of influence was found to exist when assessing their leadership ratings. On average, Missy rated Sandy 2.50/4 and Joyce 3.50/4 in the four leadership roles. Sandy rated Missy on average 2.25/4 and 3.25/4 in the four leadership roles. Finally, Joyce on average rated Sandy 3.25/4 and Missy 4/4 in the four leadership roles. Such findings are indicative of varying levels of influence amongst the top athlete leadership group within the network and is representative of lateral influence amongst the top athlete group.

Overall, this ability of lateral and vertical influence allows for these middle manager/athlete leaders to act as connectors and influencers between other members of the network, whether members are the head coach, assistant coaches or athletes.

INFORMAL LEADER TOTAL LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)			
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>	<u>OUTDEGREE CENTRALITY</u>
MILLIE (P) Informal Leader	0.70	47.00	26.00
TAMMY (P) Informal Leader	7.50	37.25	40.50
MARY (P) Informal Leader	3.45	37.25	28.50
KATE (P) Informal Leader	0.00	27.75	44.25

Table 11. Informal Leader Centrality Scores.

Informal Athlete Leadership. All informal leaders, apart from Kate, were found to be perceived by all others as having strong leadership qualities, evident through their indegree centrality scores. However, their low betweenness centrality scores represent the lack of social connection with the team, which hinders their ability to be strong leaders. Despite this, informal leadership still seems important for this team, found through the relatively high indegree

centrality scores of those in this role group, which represents team members' ability to influence others within the network.

TOTAL FOLLOWER LEADERSHIP (SOCIAL CONNECTEDNESS NETWORK)			
<u>TEAM MEMBER</u>	<u>BETWEENNESS CENTRALITY</u>	<u>INDEGREE CENTRALITY</u>	<u>OUTDEGREE CENTRALITY</u>
APPLE (P) No Role Identified	1.00	33.50	39.50
MARCH (P) No Role Identified	0.00	32.50	35.00
ANNE (P) Follower	0.00	30.50	40.25
KATE (P) Informal Leader	0.00	27.75	44.25
OPRAH (P) No Role Identified	0.00	24.50	35.25
KAREN (P) Follower	0.00	23.25	36.75
VERONICA (P) No Role Identified	0.00	21.00	32.00

Table 12. Follower Total Centrality Scores.

Followers. As seen in Table 12, a clear set of followers was found to exist within this network, evident through their very low betweenness centrality and indegree centrality scores. Such scores indicate low-quality leadership from this group. While these individuals may not have self-identified as being a follower, their centrality scores represent that of followers. This group's lack of ability to influence others is clear through these low centrality scores. However, the outdegree centrality scores for these members are quite high, indicating that, outside of Veronica, the followers largely feel connected in leadership to others within their network.

Moving Forward

Using the mixed methods lite (MML) approach, the researcher utilized quantitative and qualitative methods under a single paradigm to help reconcile the objective truth with subjective experiences. Ultimately using this MML methodology allowed for quantitative data to be highlighted by using a post-positivist paradigmatic view.

Leadership Structure

As outlined in the first research question for this study (RQ1), one line of inquiry is to determine what aspects of the Top Down, Bottom Up and Shared Leadership models exist within this network. Through an analysis of quantitative data, a very strong argument exists for the notion that the ILM is present through the identification of all three leadership models (Top Down, Bottom Up and Shared) within this network. It was found that vertical and lateral influence exist within the confines of this network, a finding contrary to traditional shared leadership theory (Locke, 2003). Based on the influence structure present within this network, the researcher believes that the ILM is the dominant leadership theory within this specific network.

To further this line of inquiry in confirming the ILM, the researcher must further inquire about the leadership structure of this network. It is clear from the quantitative data that different groups of leadership exist within this group, including Coaches, Formal Athlete Leaders, Informal Athlete Leaders and Followers. What remains unclear however, is understanding the perception of these groups and the extent to which the Top Down, Bottom Up and Shared leadership models exist. Such perceptions will be further explored and triangulated using semi-structured interviews. This line of inquiry is essential to address the second research question (RQ2), which pertains to how leadership is experienced within the network.

Interview Participants

As outlined in this section, the researcher distinguished four separate role groups for leadership in assessing the quantitative SNA data, including: 1. Coaches, 2. Formal Athlete Leaders, 3. Informal Athlete Leaders and 4. Followers. Based on these role groups, it was important to interview a minimum of two people from each role group.

Coaches. In this group, the researcher deemed it important to interview two members. First, as Head Coach of the team (HC), Ryan was found to be an important individual within the network. As such, it was important to understand how Ryan views the leadership of the team and how he navigates the leadership process. As Assistant Coach (AC), Flynn was also interviewed as he holds the highest outdegree centrality score; this finding meant Flynn feels connected in leadership to those within the network. However, with the finding that Ryan scored among two of the lower betweenness and indegree centrality scores, he is not viewed as a quality leader. This line of inquiry was important as the researcher wanted to further explore the role of the Assistant Coach within this context.

Formal Athlete Leaders. In this group, it was essential to interview Missy and Sandy, as these two members both self-identified as formal leaders and both individuals were highly rated in both indegree and betweenness centrality. As such, both were found to be viewed as top formal athlete leaders within this network. Additionally, the Head Coach rated both highly in terms of leadership quality. It was essential to inquire about their role as athlete leaders in the context of this network.

Informal Athlete Leaders. In this group, Millie and Tammy were the two chosen to be interviewed. Both self-identified as informal leaders and were both rated highly in terms of indegree centrality. Additionally, Ryan (HC) rated Tammy on average 3.25/4 and Millie on average 2.75/4 in the four leadership roles. Building upon the quantitative data was interesting to further understand how these two individuals view their place in the network and how others view them.

Followers. In this group, Kate and March were chosen to be interviewed, Kate was found to have the highest outdegree centrality score within this group which means she feels connected

to her team members within the leadership context. On the other hand, March was found to hold one of the lowest outdegree centrality scores in the network, meaning she does not feel connected to the others in the network. From the perspective of these two followers, it is important to both understand how these two individuals view their place in the network and how they perceive leaders of the network.

Qualitative Results

A thematic analysis was enacted on all data collected from semi-structured interviews with eight participants. Initial codes were first generated in the open coding stage from the interview transcripts. Following this, axial coding was conducted to categorize the initial codes into sub-themes. Upon review of the sub-themes, the researcher determined it pertinent to sort deductively using the Integrated Leadership Model (ILM) as a guide. Using the three leadership styles that make up the ILM (Top-Down, Bottom-Up and Shared), the researcher utilized these pre-defined themes to sort the discovered sub-themes. In doing so, this afforded the researcher with a framework to find a “home” for each sub-theme and help address the research questions at hand.

Findings identified the existence of aspects from the Top-Down, Bottom-Up and Shared Leadership models at varying levels within this network. Therefore, the researcher is confident also in the presence of the Integrated Leadership Model (ILM) which is an integration of these leadership models. See Table 13 for an outline of final themes, sub-themes and initial codes.

<u>MAIN THEMES</u>	<u>SUB-THEMES</u>	<u>CODES</u>
TOP-DOWN LEADERSHIP	<i>TOP-DOWN ATHLETE LEADERSHIP</i>	MISSY IS THE BEST LEADER
		LEADERSHIP CORE INFLUENCE ATHLETES
		ATHLETE LEADER CORE ARE THE BEST LEADERS

	<i>HEAD COACH LEADERSHIP</i>	HEAD COACH SETS CULTURE AND VISION
		HEAD COACH WILL ALWAYS HAVE FINAL SAY
		HEAD COACH PERPETUATES VISION
		HEAD COACH DETERMINES ATHLETE LEADERS
		ATHLETE LEADERS DISSEMINATE HEAD COACH'S VISION
BOTTOM-UP LEADERSHIP	<i>BOTTOM-UP ATHLETE LEADERSHIP</i>	ATHLETE LEADERS INFLUENCE HEAD COACH
SHARED LEADERSHIP	<i>ROLE-BASED LEADERSHIP</i>	EVERYONE HAS A ROLE TO PLAY
		NOT EVERYONE IS EQUAL IN LEADERSHIP
		ASSISTANT COACHES SUPPORT HEAD COACH
	<i>LATERAL INFLUENCE</i>	LEADERSHIP CORE INFLUENCE EACH OTHER
		FOLLOWERS INFLUENCE EACH OTHER
		ASSISTANT COACHES INFLUENCE LESS

Table 13. Qualitative Themes

Top-Down Leadership

Participants provided responses as pertained to the leadership structure of their network. Throughout interviews, the participants acknowledged two types of Top-Down leadership, including “*Top-Down Athlete Leadership*” and “*Head Coach Leadership*.” These two types of Top-Down leadership were found to be consistent with research on the leadership structures of highly successful sports teams (Donoso-Morales et al., 2017; Vallée & Bloom, 2016).

Top-Down Athlete Leadership. Consistent across all participants was the notion that athlete leaders are extremely important. Millie, an informal leader, stated “I think that it's important to have leadership within the team [athletes], as that is a spot before the coaching staff if there are issues that can hopefully be resolved without needing to go up that step.” This

demonstrates that within the network, members and specifically athletes, found it essential to have a person serve as an intermediary between themselves and coaches. Within this network, three athletes were found to fill this role as individuals, who then were also found to act as a leadership core.

In interviews, participants identified their best leaders being their three team captains, including Missy, Sandy and Joyce, an identification which aligned with quantitative findings. In response to identifying the best leaders on the team, Ryan, the Head Coach, stated “Sandy comes to mind. You know, Missy probably was the backbone of our team, we had Joyce, and she was really effective.” The concept of the leadership core will be next explored.

Leadership core are the best leaders. Interviewees consistently identified Missy, Joyce and Sandy—each of whom held formal team captain roles—as top athlete leaders. In response to identifying the best leaders on the team, Ryan, the Head Coach, identified Missy, Sandy and Joyce as the best leaders in the present network. In addition to Ryan, athletes outside of the Athlete Leadership core reported feeling influenced by Missy, Joyce and Sandy. Millie described her leadership core saying, “I always went to the athlete leader first. And then if I felt like if we talked about it, then I would bring it to a coach, if needed.”

One reason for athletes being considered the best leaders on the team is the importance of task leadership within sports teams. Task leadership is a strong predictor of perceived leadership (Fransen et al., 2015b). Sandy, a formal athlete leader stated, “I would say they [athlete leaders] are the more important leaders definitely, because they're the ones [athletes] playing right, they see the court better, if not just the same as a coach on the side." Even Ryan, the Head Coach, found athletes at the center of his team’s leadership saying, “Well, I think the athletes have more role in leadership than the assistants [coaches], to tell you the truth.” Ryan agreed, by

acknowledging the importance of effective athlete leaders, stating “And that's sometimes good, especially if they're effective leaders, you know, when they're effective, it really works well. So that I take a step back in those instances.” This notion of Ryan supporting the athlete leadership core aligns with quantitative findings, as the effectiveness of these leaders was reflected in their strong indegree centrality scores. Furthermore, the head coach’s move of “stepping back” was found to be consistent with the SNA data, given Ryan was not rated as the best quality leader in the network.

Leadership core influences athletes. One major tenet of the ILM is the top leaders' ability to influence the network in a downward fashion. In the present study, it was found that the athlete core played a major role in influencing their peers. For example, one noticeable trend found from an analysis of interview data was the notion that the leadership core could influence and lead due to their experience on the team. March stated, "we had a lot of older girls on the team last year. Like it was basically you're fifth year or first year, like there was no in between. So, I feel like the top-down [leadership] model was pretty prevalent.” For reference, Missy, Sandy and Joyce all had three or more years as part of this program. In addition to their number of years with the program, they also had playing experience playing with other teams. Assistant Coach Flynn outlined “I would say Missy was a leader, Sandy and Joyce were in that category [of strong leaders] too. All of them were older students.” The follower Kate agreed saying, “I would say they were the top two [Missy and Sandy] that I looked up to, just because they did take that main leadership role, and they're older and been in the game longer than most”.

This notion of leading through experience was found to be important to many of the network members. For example, Kate, a follower, stated, “I would say that leadership is being a role model for definitely younger athletes and your teammates, to make them follow what the

team is all about.” Kate’s perspective is important, as it represents how a follower wants to be led by her team leaders. From the perspective of an athlete leader, these characteristics remained consistent with followers’ wants and needs. Athlete leader Sandy acknowledged her leadership role, and additionally outlined how she approached the leadership process. She deemed her responsibilities as "leading by example. Always talking, being vocal, working the hardest. You're talking, you're picking people up. All that to, you know, make your team better.”

This importance of the athlete leadership core in the qualitative data aligns with the quantitative results. As indegree centrality was representative of a direct indicator of a network member’s perceived quality of leadership toward an individual, it was found to be a strong indicator for understanding influence. In quantitative results, Missy, Sandy and Joyce all received the highest athlete indegree centrality scores. Milly’s statement helps triangulate these data as she said, “I always went to the athlete leader[s] first.” Through assessing both quantitative and qualitative data, the leadership core of Missy, Sandy and Joyce was found to wield downward vertical influence within this network.

Missy is the best leader. Building on the notion of athlete leadership and influence, it was also important to determine is the network member who was considered and perceived as the best leader. Within this network, all interview participants identified Missy as the best leader on the team. Missy is an athlete on the team and one of three formal team captains. This finding was found to be consistent with the quantitative findings, given Missy was found to hold the highest indegree and betweenness centrality scores in the network. Missy was found to be perceived as the best leader, acting as a bridge between all members of the network.

Participants outlined instances where Missy would act as catalyst to affecting change amongst the athletes on and off the field of play. Sandy stated, "if she [Missy] didn't like how

things are going, she would stop practice and yell at all of us and be like, ‘Can we please pick it up? Like, what the hell are we doing?’” Ryan, the Head Coach, also acknowledged Missy as “the backbone of the team.”

Aside from the basketball setting, Missy was also seen as a strong leader, as she would check in on her teammates and foster open lines of communication with all members. Sandy said that “if she [Missy] noticed, like I wasn't having like the best day she'd be like, you good? Like make sure I'm okay. She was kind of like, our mom.”

Missy's awareness of her leadership position allowed her to leverage her position to influence her peers. Missy stated, “It was almost like fresh eyes for Sandy and Joyce, they were still leaders on our team, but I just held myself to a really, really high standard and knew that a lot of the girls relied on me not only on the court but off the court.”

Team members' reliance on Missy was found to be reinforced by quantitative data, given she received the highest indegree and betweenness centrality scores. As such, her peers considered her a strong leader and she operated as a bridge between all members within the network (Fransen et al., 2014, 2015b). As stated previously, betweenness and indegree centrality are strong predictors of leadership quality (Fransen et al., 2015b). Therefore, between quantitative data indicating Missy as receiving the highest centrality scores, and qualitative data indicating Missy was consistently perceived by network members as the strongest leader in the network, a clear finding was that Missy was the strongest perceived leader within the network.

Head Coach Leadership. Within the present study, an athlete was found as the best leader within the team. However, a figure of major importance within the network was found to be Ryan, the team's Head Coach. Sandy, a formal leader outlined, “[The] head coach will always have final say, it's their [the head coach's] team.” However, the leadership process within this

network was found to be much more complex than the top-down nature of leadership that Sandy refers to in her statement. Simply labelling this network's leadership as authoritarian or exclusively top-down leadership would be inaccurate. As seen in the previous section, athletes are integral members of this network's leadership process, but it is the head coach who operationalizes the environment (Fransen et al., 2020; Johnson et al., 2012). While the head coach may not be perceived as the best leader, it is important to understand the role and influence of the head coach in the leadership process.

Head Coach determines athlete leaders. As previously outlined, unlike the coaches Fransen et al. (2014) studied, the captains that Ryan selected were also perceived as the best leaders in this network. According to Ryan, he decides who are the right people to serve as the leaders, stating "Well, there's ample opportunities for them to be shared leaders, but it's the old adage, some are more equal than others. And you have to do a lot to get in that inner circle, especially during the year." Here, Ryan refers to an "inner circle," which is essentially his core leadership group. When asked about this inner circle, Ryan identified formal captains, Missy, Sandy and Joyce as the only members. Ryan's words outline that while the opportunity to be a leader is available to all, he determines who he trusts to serve in a leadership position. Flynn, as Assistant Coach outlines how that selection process feels from his perspective, stating "Ryan hasn't treated fourth-year or fifth-year players differently, but they were trusted just by the way they carry themselves in their behaviours." This concept of trust built through experience aligns with previous comments regarding how the strongest perceived athlete leaders are typically older and have more experience.

While playing experience was found to be an important indicator for leadership in this network, so is the experience of working alongside the Head Coach. Sandy, a formal leader

outlined "We were the most senior girls on the team. We've been through the program; we know what his expectations are." Understanding Ryan's expectations allowed for Ryan to have trust in delegating leadership to the athlete core. Ryan outlined this by saying, "A true leader has to promote and trust his players. It's doling out of that leadership responsibility to people I trust that can do it with a lot of teaching, understanding, and communication." This is further illustrated by Ryan describing how he met often with his leadership core, "we used to sit down all the time with Missy, Sandy and Joyce to find out what was going on." The concept of trust in athlete leaders aligns with quantitative data, where Ryan rated Missy, Sandy and Joyce as great leaders. It is only through this trust that the head coach can truly work alongside the leadership core to further nurture a leadership environment within the team network.

Head Coach sets environment and vision. Vallée and Bloom (2016) outlined how championship quality coaches set a clear vision for their team. Highly successful coaches enact This singular vision for their programs, along with the long-term goals of success and high standards are enacted by successful coaches. Ryan outlined this concept of setting a vision saying, "At times we are democratic, but you need one vision." Flynn, the Assistant Coach corroborated this finding, saying "Ryan never altered his vision to please one person. This is who I am, this is who we are. We all have different personalities, but we have to buy into his vision." As Sandy, formal leader, stated "The Head Coach will always have final say, that's their team." Based on interview data, Ryan was found to set the vision and direction for the network. While the Head Coach was not perceived by network members as the strongest leader, Ryan is the person who determines the vision and direction of the team.

In terms of vision and vision alignment, network members all have their own unique experiences playing basketball outside of their present team. Due to this, it becomes increasingly

important to have members align to a single vision of success. Ryan alludes to this saying “People win with all kinds of sets, all kinds of formulas, all kinds of systems. But what's important, why they win is because five people are on the same page, or they're thinking together, offensively and defensively. When you get that, that's a special thing.” Here, Ryan illustrates that, each player comes with their own idea or vision of how to win based on their personal experiences. The lack of alignment on how to approach the game of basketball can lead to misalignment and conflict. To achieve vision alignment, Ryan outlines his strategy of operationalizing his leadership core to disseminate his vision. “Well, it's my vision, then I try and disperse, I try and promote it, and disperse all the pieces I need to whoever is there. So, when you talk about cohesion on a team, that's important.” The latter portion of Ryan’s words refers to the operationalization of others to help align the vision and assist with team cohesion, which is important to note.

Athlete Leaders disseminate Head Coach’s vision. While the head coach is responsible for creating and sharing the vision, athlete leaders are integral in this process as well (Johnson et al., 2012). The reason for this is because of the athlete leader’s ability to assist in the dissemination and alignment of the head coach’s vision throughout the team (Johnson et al., 2012). Within this network, while the head coach was found to set the vision and the culture; it was also found that it is up to the athletes to buy in and act upon these expectations. About this, Missy, the best leader within this network, outlined her perspective:

The head coach is going to instill qualities and other people and they're going to share them with each other, then that's how everything works...I spent a lot of time talking with Ryan and being alongside him, watching film, being in practices, seeing what was happening. That really helped me build that relationship with him to an understanding of

his coaching philosophy, because every coach is going to be different. I wanted to see what he valued and respected in players and teammates, what he wanted in order to succeed. **And so, knowing that those specific elements of the vision and qualities they were instilled in me, and then that's how I instilled them in the team.**

Here, Missy actively works to truly immerse herself in Ryan's coaching philosophy and buy into his vision for the team. Furthermore, the relationship between Ryan and Missy was elevated because she spent a year injured and focused on understanding Ryan's coaching vision instead of playing basketball. Due to this active integration into the leadership process, Missy's perceived effectiveness as a leader, seen in the quantitative and qualitative data, increased exponentially. This perceived effectiveness can be attributed to her alignment with Ryan's vision which drove her leadership behaviours. The process of having Missy translate Ryan's vision was found to be effective, as Kate found that through interacting with the leadership core, she better understood Ryan's vision. Kate stated "I would say he [Ryan] does set the vision, say it, and share that with the whole team, but like the leaders, they would portray the vision in a different way to us. I think that created a better environment and more understanding of the vision." It was found that the leaders in this network were essential in aligning network members with the Head Coach's vision.

Bottom-Up Leadership

During interviews, participant responses outlined the presence of bottom-up leadership within this network. Bottom-up leadership refers to the subordinates' ability to influence the leaders hierarchically positioned above them. Within the network, athlete leaders were found to be able to influence the head coach and followers were found to be able to influence athlete leaders.

Athlete Leaders influencing the Head Coach. In assessing top-down leadership, athlete leaders were found to play an essential role in the leadership process of this team. Athlete leaders were found to be important in influencing both the followers and the head coach. As previously described, Ryan would spend time with the athlete leadership core to understand their perspective. Sandy outlined an instance where she talked to Ryan about increasing the intensity of practices, stating “A couple times I suggested one or two drills to increase the energy, and like he thought about it, and then he eventually did it. But he's not going to do it right away.” Ryan also outlined how he would receive advice from the leadership core on how to improve team performance, offering “I created the set, but they [Missy, Sandy and Joyce] said they have to be on the same side to make it work, and I agreed to do it.” This collaborative process was found to align with quantitative data, where the athlete leadership core of Missy, Sandy and Joyce was found to influence Ryan. The trust built between Ryan and the leadership core allows them to be active participants in the leadership process hence their formal role.

It was also found that Ryan did not simply do whatever was asked of him by the leadership core. Sandy said, "There were times he would do what we suggest, sometimes he would say, no this is how we're doing it. We're the group of people he can discuss things with, but at the end of the day, it's his [Ryan's] decision." This finding reinforces the notion that bottom-up leadership is not a dominant leadership style; rather, there are aspects of bottom-up leadership that can contribute to the overall leadership experience.

Shared Leadership

From an analysis of interview data, network members were found to consistently point to aspects of shared leadership. In its purest form, shared leadership refers to the equalization of all within a network allowing members to all influence each other equally (Locke, 2003). While

traditional shared leadership may not be the exclusive leadership model within this network, there are aspects of shared leadership that are important to explore in this study.

Role-based leadership. A common thread throughout the previous sections is the acknowledgement of a leadership system rooted in individuals playing their roles. It was found within quantitative data, that roles of follower, formal leader, informal leader and coaches all existed within this network. As such, the network resembled a shared leadership context, as not a singular member was found to be responsible for the total leadership of the team. Rather, each network member was found to play their specific role at the highest level. So, while everyone may not have been equal, as presented in traditional shared leadership theory, everyone was found to contribute to the leadership process and had a role to play.

Everyone has a role to play. Interview participants referred to how defined roles played an essential part in their leadership experience. For example, Ryan outlined this by saying, "There's leadership from the [head] coach, and his assistants, but there's also leadership from the players. So, combining that together, I think that's where effective leadership really occurs." In this sense, regardless of the assigned role, Ryan was found to believe that the responsibility of leadership is shared throughout the network. Informal leader Tammy echoed the importance of leadership roles saying, "Everyone had a role, knew their role and followed it. So, since everyone was on that same page they knew how to act." While each role may have different expectations, each member was found to be important to the leadership process, regardless of their role.

Followers. March, a follower, acknowledged her role as a follower stating, "I would try and be a voice on our team, but I would say, I wasn't necessarily like a leader in the big scheme of things." As a follower, March understands that while her voice may contribute to the team, it

is not as important to the Head Coach as the athlete leadership core would be. March further emphasized this notion, stating “I feel like people know their place. I’m not going to come to the coach with an issue I know that I’m not going to get the right answer, so I would give it to Missy and then the leaders go to the coach.” March’s thoughts demonstrate that as a follower, she understood the hierarchy and influence process within the network. March knew to go to her formal leaders with concerns and not the head coach directly due to her place and role in the network.

Informal leaders. Throughout interviews, other network members who were informal leaders, such as Millie and Mary were singled out as also playing leadership roles. For example, March, a follower, said Mary was important to her in the leadership process, given “she wasn’t playing a lot, but she was a quiet leader just leading by example.” Sandy, a formal leader, also acknowledged Millie’s emergence as a leader on the team, stating “Millie was like slowly getting her leadership voice but she was young. The team listened to her sometimes because she was good [at basketball].” This acknowledgement of Millie as a leader aligns with the quantitative data, where Millie had the third highest indegree centrality score. However, it is important to acknowledge that Millie’s performance as a leader within this network was impeded by the lack of her own social connection with the others in the network. While Millie had the third highest indegree centrality score, she ranked 11/18 in betweenness centrality scores. This is because Millie also held the lowest outdegree centrality score which refers to how connected in leadership she feels to those in her network. Millie clarifies this saying, “Outside of Missy, the others just didn’t have what I was looking for in terms of leadership qualities. I wanted a more vocal leader to help with accountability.” Due to Millie’s inability to connect with the leadership

activities of others in the network, it impeded her ability to act as a connector within the network despite being highly rated as one of the best leaders within the *Leadership Quality Network*.

While Millie may not have viewed many leaders within the network, Tammy, an informal leader, shared her thoughts on leaders' different roles within the network, stating:

I feel like we have many different types of leaders on our team. You have vocal leaders who will communicate what is needed and making sure everybody's on the same page, but also, we have some leaders who do lead by action and give a certain intensity, for everybody to follow. There are leaders everywhere, not just the captains. (Tammy)

In this network, it is evident from both quantitative and qualitative data that informal leaders play a role in the leadership process. In this present network however, the formal leaders comprising the athlete leadership core of captains were found to demonstrate a greater role within the leadership process than the informal leaders.

Assistant Coaches. One role group that required clarification for the researcher in the present study was the role of the assistant coach. From quantitative data, the assistant coaches were found that they were not perceived as strong leaders within the context of the full network. However, Ryan, the Head Coach, rated each of his two assistant coaches highly in their leadership quality. These high ratings and the importance of the assistant coaches to Ryan were clarified within qualitative interviews. Ryan stated "Well, I think the athletes have more role in the overall leadership than the assistants, to tell you the truth. The assistants assist with different things, sometimes they take on a leadership role, but they really support me."

Flynn, an assistant coach, outlined how he perceives his role, commenting "I'm not quite impacting the athletes as much, but I'm not quite a subordinate. I would make suggestions and help him [Ryan] with tasks." Sandy, a formal leader, corroborates the role of Assistant Coaches,

saying "Our assistants, they just, they assist in practice, but in terms of feedback, they wouldn't really give a lot of feedback from a leadership perspective, maybe like tweaks here and there."

Aligning with Ryan and Sandy's perspectives, Flynn said "I do lead the drills and that kind of stuff, so I do have some, leadership within the structure of a practice. But mostly it's getting, taking what I see and translating it to suggestions for Ryan." This finding aligns with quantitative data, where while the athletes did not rate their assistant coaches the highest in terms of leadership, the Head Coach did. Despite being rated lower than the athlete leadership core in centrality scores however, the assistant coaches were rated higher than the non-athlete leaders.

Through an analysis of this information, it is evident that the assistant coaches within this network do not necessarily lead or influence the athletes but play a role within the team to support the head coach. Flynn, an assistant coach, outlines his perceived view of his position within the network, stating:

So, you kind of have your followers at the bottom, then your athlete leaders leading into Ryan. There's kind of that bridge between them [athletes and Ryan] and I'm kind of on the outside. But Ryan and I are connected and have a more of a tight relationship than myself and the athletes. (Flynn)

Flynn provides his perception of his role and the difference in the relationship he has with the athletes compared to the relationship he has with the head coach.

The qualitative findings regarding the role of the assistant coach in this context aligns with quantitative data. On a macro scale, the assistant coaches were found to have low betweenness or indegree centrality scores, where the average indegree centrality score for the assistant coaches was found to be 2.42/4.00, which indicate some of the lowest betweenness centrality scores in the network (see Table 6). These ratings demonstrate that both the assistant

coaches do not act as leaders or connectors between members and most in the network do not perceive assistant coaches as strong leaders. That said, it was found that Ryan, the head coach, rated the assistant coaches on average 3.43/4.00 in terms of leadership quality/indegree centrality, indicating Ryan, as head coach, is influenced by and relies on assistant coaches within the network. This notion of variable vertical influence is representative in the assistant coaches' limited upward vertical influence, wherein they are able to influence the head coach and vice versa; and furthermore, they have limited downward vertical influence, wherein they are able to slightly influence athletes within the network. The difference in perceived leadership between the athletes and the head coach aligns with the notion of the role of the assistant coaches being a support system for the head coach.

Lateral Influence. One major tenet of shared leadership is within the members' ability to influence each other throughout the network. While this network does not present traditional shared leadership theory due to the identification of bottom up and shared leadership models, the aspects of it within this network align with the Integrated Leadership Model (ILM) where those on the same "level" were found to influence each other (Locke, 2003). In the present study, this represents the ability of those within, and sometimes outside, their specific role group to influence each other.

Outside the leadership core. During interviews, informal leaders and followers described their ability to influence each other. For example, Tammy, an informal leader says, "Everyone played their roles, so they just knew what they had to do. If somebody had a recommendation, they would be able to openly express it without feeling like their, their opinion doesn't matter, anything like that." This feeling of openness to share ideas and thoughts was found to represent

lateral and shared influence. However, it was found that the line of communication throughout the network was not as necessarily open as Tammy presented. Kate, a follower, said:

Sometimes we'd be confused about stuff. Usually, we talked about it amongst ourselves then we would go to the leaders [Sandy & Missy] and be like, hey, why do you think this happening? And then they would think about it and go talk to coaches. Then they came back to us and explain it.

Here, lateral influence among this network is demonstrated by the fact that followers meet with each other, discuss issues and talk, isolated from the leadership core; however, the latter part of this quote also demonstrates how traditional shared leadership was not present and lines of communication were not as open as Tammy indicated. Rather, members outside the coaches and the formal leadership core were found to influence each other laterally, demonstrating this aspect of shared leadership. Kate outlines this saying, "and all the younger players we had our group. We talked about what we're doing, what the leaders [Sandy & Missy] said to us when they weren't around, just to kind of bounce ideas off each other." Here, Kate demonstrates the existence of shared leadership within the non-formal leadership group in this network.

Within the leadership core. Within the present study, the concept of the athlete leadership core proved to be extremely important. As found within quantitative data, lateral influence amongst the athlete leadership core was found to exist. For example, Missy rated Sandy on average 2.50/4 and rated Joyce on average 3.50/4 across the four leadership roles, where Sandy rated Missy on average 2.25/4 and 3.25/4 across the four leadership roles. Finally, Joyce rated Sandy on average 3.25/4 and Missy on average 4/4 across the four leadership roles. This consistency of high indegree centrality ratings among these formal athlete leaders was

found to represent lateral influence. This finding is consistent with qualitative findings. Missy outlines this lateral influence by saying:

A single leader can only do so much and say so much. Although everybody respects and looked to me, I still had to make sure that there were other people helping to lead. In a team, like, there's multiple people who can be leaders, there's not just one of you [leaders].

Despite being rated as the best leader, both quantitatively and qualitatively, Missy indicated the needed support of others in the leadership process. Sandy, a formal leader, also outlines how the leadership core would meet with each other to have discussions, stating "If he [Ryan] wasn't listening to us, we'd be like, hey guys, what can we do? We [the leadership core] would talk a lot with each other." Throughout the research, the notion of athlete leadership core has remained a constant theme and was found to have vertical influence both upwardly, toward the head coach, and downwardly, to the other athletes. As outlined, the athlete leaders have also shown the ability to influence each other laterally, also demonstrating aspects of shared leadership.

Within the coaching staff. As seen in the previous section, the assistant coaches were found to play a different role outside of leadership, as it pertains to this network. While they may not be perceived as leaders, they were found to play a significant role, as it pertained to working with the head coach. The quantitative data demonstrated that Ryan, the Head Coach, highly rated the assistant coaches in their leadership, and thus influence him in this network. Moreover, within the qualitative portion of this study, a question as to what extent the assistant coaches influence each other was raised. Per quantitative data, the assistant coaches were found to less influence each other, as they rated each other quite low pertaining to leadership quality. On average, Roy rated fellow assistant coaches (i.e., Michael, Tyler, Flynn) a score of 2.50/4.00

across the four athlete leadership roles, Michael rated his fellow assistant coaches a score of 2.17/4.00 on average across the four athlete leadership roles, Tyler rated his fellow assistant coaches a score of 3.50/4.00 on average across the four athlete leadership roles and Flynn rated his fellow assistant coaches a score of 2.25/4.00 on average across the four athlete leadership roles. These ratings were found to represent weak lateral influence. An explanation for this can be that due to additional work commitments, the assistant coaches do not spend much time together. Flynn explains, “**I was a part-time assistant**, I still had a full-time job. I wasn’t there all the time, but it’s not like I didn’t know what was going on. **But I didn’t know some of the everyday specifics and I wasn’t in the office every day.**” The fact that assistant coaches largely did not work full time partially explains why Michael, Flynn and Roy as part-time assistant coaches rated with low centrality scores. Simply, there were not around to have the same interactions with the athletes as were Ryan, the head coach, and the athlete leadership core. However, Flynn explain that the coaches did talk amongst each other saying, “There's conversations that we had with each other [the coaches] about athletes that we would never have with them [the athletes],” which may demonstrate that through such conversations amongst each other, the coaches had developed some lateral influence.

While all other assistant coaches work with the team in a part-time manner, Tyler, the strength and conditioning coach, was a full-time coach with this team. Sandy explains this by saying, "Ryan really appreciates Tyler's opinion like, on like, the fitness side of things. So, like, Tyler would have a little bit more weight than other coaches because he was there every day.” Based on Tyler’s full-time status, it was found he had more connection with the athletes in the network, which may explain his high rating on indegree and betweenness centrality scores.

Conclusion

Overall, qualitative data was found to align with quantitative data collected in the first phase of this study. Furthermore, qualitative data was found to provide valuable insight into how the leadership network is experienced and address the research questions for the present study. Qualitative data demonstrated the existence of the Integrated Leadership Model (ILM) through the presence of the three leadership models (i.e., Top-Down, Bottom-Up, Shared Leadership Models) and additionally demonstrated the existence of with vertical and lateral influence in the present network. While it was found that all three leadership styles were presented variably, each leadership style was found to hold an important role in the leadership experience of network members. These roles will be further explored in the following section.

In addressing a data triangulation, the Social Network Analysis (SNA) tool was found as an accurate method to assess leadership networks. Throughout this section, the researcher outlined the consistencies between quantitative SNA data and qualitative semi-structured interview data. For example, quantitatively, network members could identify the highest quality leaders, based on centrality scores, where for example, Missy was ranked first of 18 network members among both indegree centrality and betweenness centrality scores. Qualitatively, Missy was consistently identified by participants throughout the interviews as being the “best” leader within the network. Such strong alignment between quantitative and qualitative data in turn strengthens the accuracy of using the SNA tool.

Additionally, network members who were interviewed successfully identified Ryan, the head coach as a high level but not the best leader. This finding further aligns with quantitative data, given Ryan was ranked fourth highest of the 18 members in the network pertaining to indegree centrality. During interviews however, members verbalized why he remained a top and important leader within the network. While he may not be the best-perceived leader, he remained

an important figure within the network, reflected in both the SNA and interview data. Building on Fransen et al.'s (2014, 2015a, 2015b) research, this study uses mixed methods to assess leadership networks through triangulating quantitative (SNA) and qualitative (semi-structured interview) data.

CHAPTER V

DISCUSSION

RQ1: The Integrated Leadership Model

To address RQ1, the researcher needed to determine which aspects of the Integrated Leadership Model (ILM) existed within the present network. The ILM combines components of the Top-Down, Bottom-Up and Shared leadership models (Locke, 2003). In integrating the theoretical components as such, the ILM allows for both vertical and lateral influence to exist between leaders and followers (Locke, 2003). In using the Mixed Methods Lite (MML) approach, qualitative methods were used to enhance quantitative findings of the present study.

The quantitative data collected was found to align with the existence of the ILM in this network. Through assessing centrality scores, significant levels of vertical and lateral influence were found to exist within the network. As represented within indegree centrality scores, the head coach demonstrated ability to vertically influence the athletes “below” him and also demonstrated that the athlete leadership core in turn vertically influences him. Moreover, it was found that the athlete leadership core demonstrated an ability to both vertically influence other athletes “below” them and laterally influence each other.

The qualitative data consistently align with quantitative data and provided deeper insights into the leadership network. For example, the qualitative data clarified how the network members experience the leadership process, which addressed RQ2. In doing so, it was found that aspects of all three leadership styles (i.e., Top-Down, Bottom-Up and Shared) to varying levels exist within this network. This result confirms the presence of the ILM as the dominant leadership style in this network. Moreover, a strong presence of top-down leadership with some aspects of shared and bottom-up leadership was found to exist, given network members

consistently mentioned both the head coach and the athlete leadership core having downward vertical influence on network members. Top-down vertical leadership was found as an essential style exerted within this network's leadership structure, whereas upward vertical influence was demonstrated solely by the athlete leadership core in their ability to influence the head coach. Athletes outside the athlete leadership core were not found to have the ability to exert bottom-up influence to either the head coach or athlete leadership core. From an analysis of qualitative data, aspects of bottom-up leadership were referred to much less than aspects of top-down leadership. In terms of shared leadership, those classified within the same role groups were found to be exerting influence each other laterally. However, traditional shared leadership was not found to exist in this network, as members did not occupy equal positions within the network.

Using a Mixed Methods Lite (MML) approach allowed for a triangulation of both quantitative and qualitative data to build a richer understanding of what is happening and why it is happening (Greene, 2012). In addressing RQ1, by combining quantitative and qualitative data for the present study, this network was found to demonstrate the existence of the three leadership styles as highlighted within the ILM. Therefore, the ILM was found to exist within the network in the present study.

RQ2: The Leadership Experience

Proposed Leadership Model. A Mixed Methods Lite (MML) approach was utilized in the current research, which used quantitative Social Network Analysis (SNA) methodology and qualitative Semi-Structured Interview methodology to provide a comprehensive understanding of how leadership is experienced within this U SPORTS basketball team. In doing so, the researcher confirmed the existence of the Integrated Leadership Model (ILM). The researcher found however, in both quantitative and qualitative phases, that Locke's (2003) model (see

Figure 2) for the ILM does not align with the present findings. Locke's (2003) model consists of only two levels of leadership, along with equal integration of the three leadership styles contained within the ILM. The results of the present study instead point to a multi-level hierarchical structure of leadership that integrates variable aspects of Top-Down, Bottom-Up and Shared leadership. As found in both quantitative and qualitative data, this network of leadership is exceedingly complex and there are no existing models that address said complexity. Therefore, based on the results from this study, the researcher proposes a new model titled the *Integrated Shared Leadership Model*.

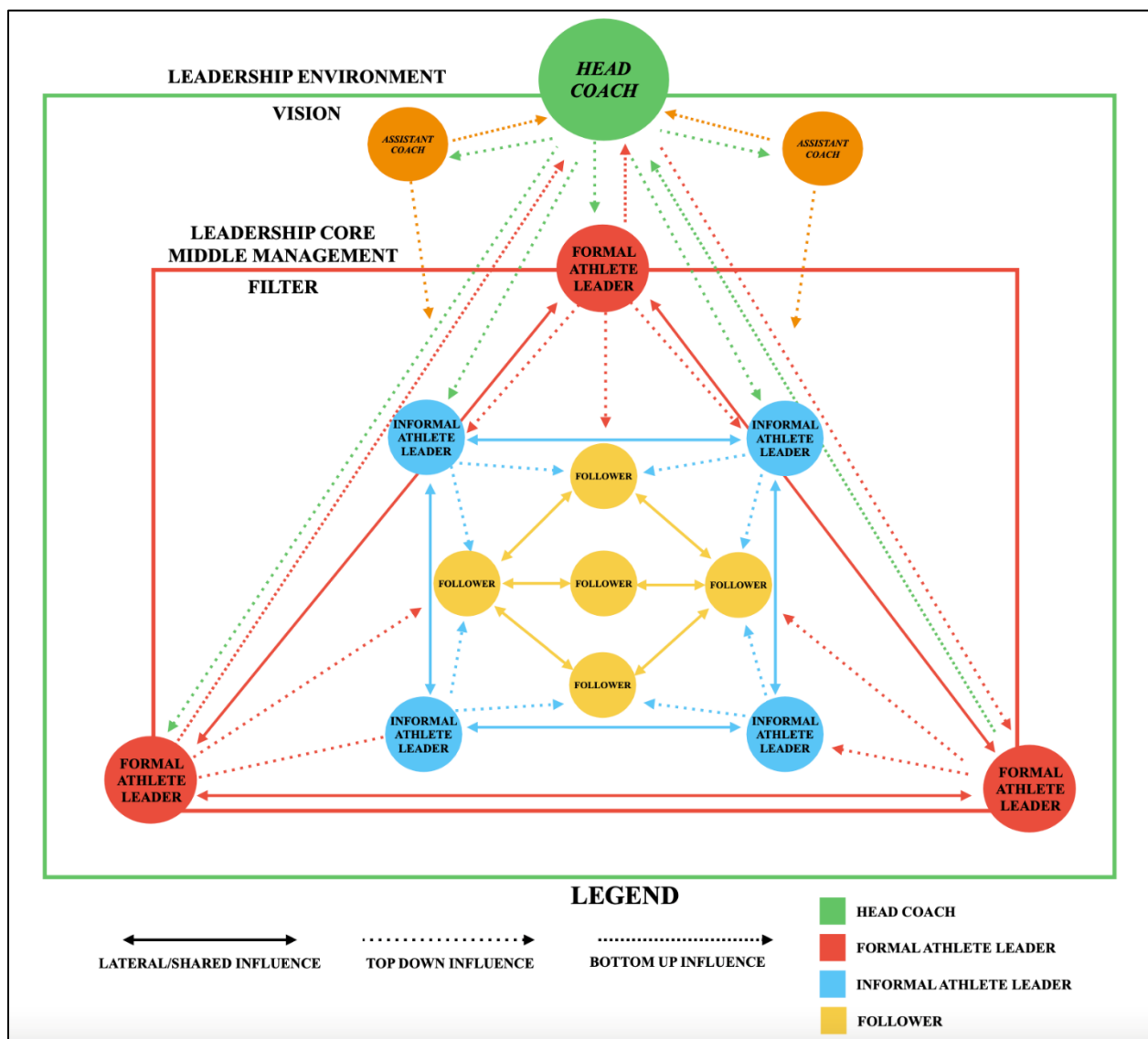


Figure 5. Integrated Shared Leadership Model.

As seen in Figure 5, this model preserves the core of the ILM, as seen in Locke (2003), through the integration of top-down, bottom-up and shared leadership models. Additionally, this model retains the unique combination of vertical and lateral influence from Locke's (2003) ILM.

However, this proposed model builds on Locke's (2003) work in further capturing the complexity of a leadership network within a U SPORTS basketball team by presenting a novel structure and influence process.

Structure. Locke (2003) presented the ILM as having two groups, including followers and leaders (see Figure 2). However, as seen in existing sport research, several different groups and hierarchical levels exist within the leadership process. Johnson et al. (2012) and Fransen et al. (2014) outlined the components of successful sports teams consisting of the head coach, formal athlete leaders, informal athlete leaders and followers. Crozier et al. (2017) also identified multiple groups within the athlete leadership process being informal athlete leaders, formal athlete leaders and non-athlete leaders. In the present study, the researcher identified the groups/roles within this leadership network as Head Coach, Assistant Coaches, Formal Athlete Leaders, Informal Athlete Leaders and Followers. In the proposed model, these groups are represented and operate through the goal of vision alignment in a hierarchical structure using vertical and lateral influence.

The Head Coach. As found in both quantitative and qualitative data on the network under study, the head coach was found to be a central figure in the leadership process who holds both vertical and lateral influence. In the proposed model, the head coach retains this vertical, primarily downward, influence. In this model, the head coach can influence every member within the network, given it is the head coach who operationalizes the environment for leadership, consistent with both Fransen et al. (2020) and the findings of this study. Such

operationalization is represented in the proposed model through the outermost box that contains the “Leadership Environment.” The other component to this box is the vision of the network, for which the head coach has primary responsibility to set. The vision being set at the top aligns with the findings of this study and is consistent with the existing research from Lara-Bercial & Mallett (2016) and Vallée & Bloom (2016). It is for these reasons that the head coach remains at the most vertically positioned or “top” of the proposed leadership model.

Formal Athlete Leadership Core. From this study, the formal athlete leadership core was found to contain the “best” leaders within this network. This finding is consistent with Fransen et al. (2014), where athlete-driven leadership was found as the best leadership on their respective teams. However it is inconsistent with Fransen et al. (2014), who found that largely, team captains are typically not seen as the “best leader” on their teams. Given Fransen et al. (2014) found that in 1% of teams, the captain is the best leader on the team, the network in the present study may well represent part of the 1% of teams identified by Fransen et al. (2014).

Johnson et al. (2012) and Fransen et al. (2014) found that it took athlete leaders to support the Head Coach in creating an effective leadership environment. Such support was shown by athlete leaders taking an active role in the leadership process (Johnson et al., 2012).

Given the head coach still sets the vision and direction for the team however, the athlete leaders fall under him within the scope of leadership in this proposed model. In the proposed model, formal athlete leaders are responsible for helping to disseminate the head coach's vision downward to other members of the team, thus outlining vertical influence. It must also be noted that the formal athlete leaders exert vertical upwards influence to the head coach, as represented in both quantitative and qualitative data. Furthermore, formal athlete leaders within this network demonstrated the ability to influence each other, thus representing lateral influence. The roles of

other members outside of the formal athlete leadership core (i.e., informal leaders and followers) are discussed in the following sections.

Informal Leaders. Based on the quantitative data, informal leaders were found to have a role in the leadership process. These members were found to be highly rated regarding indegree centrality scores, however, these members were found to rate far lower on betweenness centrality scores than the formal leadership core. This means that while through informal leaders' actions, they can be occasionally viewed as leaders, they largely do not act as connectors in leadership with others throughout the network. This finding is peculiar as in Fransen et al. (2014), researchers found that 99% of teams did not find their team captains as the best leaders in the network. Instead, this research pointed to informal leaders as being the best rated in the network (Fransen et al., 2014). The lack of perceived leadership quality amongst informal leaders is primarily because there is a lack of trust, which may be for a variety of reasons, between the head coach and the informal leaders. As outlined within the qualitative data, experience as a member of the team was found as an important contributor to perceived leadership. Due to the experience working with the Head Coach, Ryan, formal athlete leaders Missy, Sandy and Joyce were trusted as leaders. As outlined by Ryan, "My [leadership] approach is to make that circle [of core leaders] small, to get it small, get a tighter, not bigger, smaller." In analyzing this quote, Ryan only trusts a small group of athletes to operate within this leadership role. Due to the limitation of the leadership core, Ryan may have impeded the ability for informal leaders act as leaders. As outlined throughout the qualitative data, the Ryan operationalized the leadership of the formal athlete leaders. However, by not doing the same for the informal athlete leaders, it may have negatively impacted the perception of the informal leaders' leadership quality in the eyes of other network members. In considering the context of this network, along with both the

qualitative and quantitative data, the lack of trust from Ryan towards the informal athlete leaders may have impeded their ability to develop and operate as leaders. Therefore, in the present network informal leaders were found to vertically influence downwards towards followers but could not vertically influence upwards. Furthermore, as represented in the model, informal leaders were found to be able to influence each other through lateral influence, a finding which aligns strongly in the qualitative data.

Followers. As outlined throughout the study, not everyone in the network can take on a leadership role, which means network members with no leadership roles need to be followers. As outlined in both quantitative and qualitative data, a clear group of followers was found to exist within the present network. While these members do not wield vertical influence, they were found to influence laterally each other. This lateral influence was not clear in the quantitative data but was found to be extremely prominent in the qualitative data. Additionally, while followers were found to exert no vertical influence, they were found to be influenced by the groups around them through vertical influence.

Assistant Coaches. As found in quantitative and qualitative data, the assistant coaches play a very limited leadership role within the context of this leadership network. Assistant coaches were found however, that they still influence and are influenced by the head coach, which demonstrates a limited degree of vertical influence. As Flynn, assistant coach outlined:

So, you kind of have your followers at the bottom, then your athlete leaders leading into Ryan. There's kind of that bridge between them [athletes and Ryan] and I'm kind of on the outside. But Ryan and I are connected and have a more of a tight relationship than myself and the athletes. (Flynn)

Here, Flynn provides insight into his role within the team, which is also represented within the proposed leadership model.

Operationalizing the Model. As captured in the proposed model above, the leadership experience and structure for this U SPORTS basketball team is complex. While it is important to understand what the leadership looks like for this network, it is also important to understand how it operates. Scholars note that one major component of consistent success in sport has been vision alignment between the head coach and athletes (Lara-Bercial & Mallett, 2016; Vallée & Bloom, 2016). Due to the complexity of the leadership network within this team, and sport teams in general, the potential for vision misalignment exists, which can negatively impact success. Therefore, a major takeaway for the present study is to understand who sets the vision and how it can be aligned with others to achieve success.

Setting the vision. In the present study, the researcher found that the head coach is responsible for setting both the leadership environment consisting of all members within the network and their behaviours as well as the team vision. This aligns with Vallée & Bloom (2016) and Lara-Bercial and Mallett's (2016) research, where the head coach is a central figure in the leadership process. According to Lara-Bercial and Mallett (2016), the first component of serial winning coaches is having a big-picture vision for their teams. Vallée and Bloom (2016) defined vision as the head coach's perspective of the program that encompasses long-term goals and direction as well as selling their coaching philosophy to athletes. In qualitative findings, Ryan, the head coach, consistently outlined how he sets the vision for his team. For example, Ryan stated "Well, it's my vision, then I try and dispel, I try and promote it, and dispel all the pieces I need to whoever is there." As represented in the proposed model, the head coach of a U SPORTS basketball team is responsible for setting his or her vision and disseminating that throughout the

rest of the network; an important component because vision and value alignment has been found as essential for success in both sport and organizational research (Donoso-Morales et al., 2017; Hamm et al., 2008; Paarlberg & Perry, 2007; Vallée & Bloom, 2016). In this study, value congruence can be related to vision congruence. Paarlberg and Perry (2007) found that everyone possesses a “zone of existing values” representative of one’s own unique values, that are developed based on a lifetime of personal experiences. These researchers found that employees will override organizational values in acting with their personal values if value incongruence exists, which ultimately leads to reduced performance (Paarlberg & Perry, 2007). In the present study, value alignment can be equated to vision alignment which will be further explored in the following section. Due to each individual’s existing experiences, vision alignment is not a simple task as it requires members to buy into a singular idea of how to drive success (Vallée & Bloom, 2016). How this model best operationalizes athlete leaders to support vision alignment is next discussed.

Aligning the vision. In determining value congruence between a non-profit sport organization and its employees, Hamm et al. (2008) found a positive relationship between value congruence and outcome variables of performance and commitment to an organization. While these researchers acknowledged several factors that could impact employee retention and performance, value congruence was identified as a main contributing factor to these outcomes (Hamm et al., 2008). Within the realm of high-performance sport, and within the present study, value congruence may also be equated to the alignment and buy-in of athletes towards a head coach’s vision for a team. As previously discussed, there are many ways to find success in basketball. Ryan outlines this saying:

People win with all kinds of sets, all kinds of formulas, all kinds of systems. But what's important, why they win is because five people are on the same page, or they're thinking together, offensively and defensively, when you get that that's a special thing.

As seen above, the alignment of a coach's vision amongst athletes is not so different from aligning the values of employees within an organization. As outlined by Vallée & Bloom (2016), setting a vision is essential for successful coaches. The vision is a coach's full perspective of their program that encompasses their long-term goals and overall direction for the team (Vallée & Bloom, 2016). However, simply setting a vision is not enough, enacting it and having the athletes "buy in" to the vision is what allows for a coach and their program to achieve sustainable success (Vallée & Bloom, 2016). Previous organizational behaviour research has also demonstrated a positive relationship between value/vision congruence and outcome variables of performance and commitment to an organization (Hamm et al., 2008). Vision alignment improves performance while vision misalignment impairs performance (Donoso-Morales et al., 2017; Hamm et al., 2008; Paarlberg & Perry, 2007; Vallée & Bloom, 2016). Therefore, within a leadership network in a sport context, it is essential for the network be aligned to the head coach's vision.

Continuing with this inquiry, Paarlberg and Perry (2007) and Hamm et al. (2008) determined that the main way to mitigate value incongruence in organizations is to establish strong middle management. When aligning the values and goals among multiple individuals in a team, middle managers become essential. Effective middle managers take core organizational values and interpret them in a way that makes such values and corresponding work meaningful for employees. Through this process, middle managers help to bridge the gap between upper management and employees in understanding and enacting values. Ultimately, research findings

have outlined a positive relationship between the level of value congruence and the outcome variables of performance, commitment and intentions to remain (Hamm et al., 2008; Paarlberg & Perry, 2007). Linking these managerial findings to a sport team context, such "strong middle management" may be equated to strong athlete leadership. Just as seen in organizations, through strong athlete leadership, it may be possible to improve value/vision alignment to improve performance (Hamm et al., 2008; Paarlberg & Perry, 2007; Vallée & Bloom, 2016).

Within this study, this concept of "middle management" is consistent with the present findings pertaining to the role of the athlete leadership core. This aligns with the notion that sport teams require a group of leaders to help align all players with the coach's vision. This notion of middle management supported through the quantitative data and understanding what betweenness centrality represents in SNA research. Betweenness centrality represents the ability for members to act as a "gate" within a network, acting as connectors between members (Fransen et al., 2015a). In the present study, those with high betweenness centrality scores may be considered "middle managers" or "leaders." It was found in the present study that the athlete leadership core (see Table 10) had some of the highest betweenness centrality scores. Missy, the best perceived leader within the network, had the highest betweenness centrality score. She clearly operated as a "middle manager," as she herself highlighted reality, saying "I had a responsibility [to instill the vision] because I knew Ryan's philosophy. I had to try to instill that in the team and in the new players that came in." Furthermore, Kate, a follower, outlines this vision alignment process, saying "I would say he [Ryan] does set the vision, say it, and share that with the whole team, but like the leaders, they would portray the vision in a different way to us. I think that created a better environment and more understanding [of the vision]".

It is evident that the way for head coaches to ensure vision alignment in this sport team context is to operationalize their athlete leaders to help disseminate and align the vision throughout the network. As seen in the proposed model, the athlete leadership core acts as middle management to align the vision for the remainder of the network.

Conclusion

It is evident that the leadership experience within this U SPORTS basketball team is dynamic and complex. Introducing the Integrated Leadership Model (ILM) to serve as a theoretical framework helps respect the hierarchical nature of sport teams, but also demonstrates the importance of athlete leadership in the sport team context. Through their research, Fransen et al. (2014, 2015a, 2015b, 2020) argued for the use of shared leadership theory within a sporting context using Social Network Analysis (SNA). Through use of a mixed methods approach, the findings are compelling when arguing for the ILM to serve as a dominant leadership theory when studying sport teams. This study found critical aspects of top-down, bottom-up and shared leadership throughout both quantitative and qualitative data, all of which is represented in the proposed leadership model, rooted in ILM theory. Furthermore, the findings build upon Locke's (2003) work by developing a model of leadership, with the ILM as foundational. The proposed leadership model is representative of the complex structure of leadership networks within U SPORTS basketball teams. It is the hope that this model may inform practitioners on how to best operationalize their leadership networks to align vision and improve performance.

CHAPTER VI

CONCLUSIONS

Fransen et al. (2014, 2015a, 2015b, 2020) pioneered the use of Social Network Analysis (SNA) to assess the leadership of sports teams. In such research, Fransen et al. (2014, 2015a, 2015b, 2020) used the quantitative SNA tool to inquire in to the dynamics of shared leadership within team sport. These researchers did not exclusively examine one specific sport or team; and rather examined multiple teams, across a variety of sports. In the present study, the hope was to extend Fransen et al.'s (2014, 2015a, 2015b, 2020) research by exploring how leadership is experienced within one specific team using a mixed methodological approach. In doing so, the SNA tool was triangulated through the use of a qualitative method (semi-structured interviews) and an understanding of how a U SPORTS basketball team experiences leadership could be further developed. This study extends the literature pertaining to research on U SPORTS athletic teams, which is extremely limited. Furthermore, the findings strongly support the Integrated Leadership Model (ILM) as the dominant leadership style in this network. A new understanding of how the ILM is presented in a U SPORTS basketball team's leadership network is furthered with the findings of this research.

Practical Implications

This study aligns with Fransen et al.'s (2014, 2015a, 2015b, 2020) research, which demonstrated the usefulness of the Social Network Analysis (SNA) tool within sport teams. This research also builds upon the literature by introducing the Integrated Leadership Model (ILM) as a compelling leadership theory to integrate with research using the SNA tool. While existing research highlights shared leadership as a theoretical lens and uses the SNA tool to view leadership of sport teams, the findings of the present study highlight the existence of not just

shared leadership, but top-down and bottom-up leadership models within the present network. This is important because the vertical and lateral influence was found to be a core tenet of the leadership experience within this U SPORTS basketball team. The ability to understand this complex leadership process is a valuable tool for sport practitioners.

As Fransen et al. (2014, 2020) found, coaches often have difficulty identifying the best athlete leaders within their teams. The ability to accurately identify leaders is important and research has shown that when participants are aware of their athlete leader identities it increases their performance in the leadership role (Fransen et al., 2020; Kwok et al., 2018; van Kruijsbergen et al., 2020). This acknowledgement and awareness of one's leadership role is also known as "priming the leader identity" (Kwok et al., 2018). For example, van Kruijsbergen et al. (2020) found that the clarification of leadership roles through interventions improved social and external leadership scores. Moreover, Kwok et al. (2018) found that the priming of the leader identity by top leaders motivated participants to actively engage in relationship building, which improved their peers' perception of them as leaders (Kwok et al., 2018). By using SNA, a head coach may be advantaged when identifying and priming the identities of a leadership core, as identified in this study. In doing so, coaches can prime athlete leaders' identities, so they are aware of their status within the network and perform better as leaders. The SNA tool provides coaches with a tool to identify their leaders and how to best operationalize them in all leadership processes.

Furthermore, this study provides a new model on how to understand the leadership experience of teams that participate in U SPORTS basketball. The Integrated Shared Leadership Model integrates findings from existing research on successful sports teams (Grandzol et al., 2010; Johnson et al., 2012; Lara-Bercial & Mallett, 2016; Vallée & Bloom, 2016) and Social

Network Analysis (Fransen et al., 2014, 2015a, 2015b, 2020) to develop a new model of leadership, which is representative of the complex leadership structures of sports teams. The vision set by the head coach is a core tenet in the existing research on successful sports teams (Donoso-Morales et al., 2017; Vallée & Bloom, 2016). However, an exceedingly overlooked aspect of this process is the necessary factors that contribute to successfully aligning the head coach's vision throughout the network. Due to the complex structure of sports teams, it is often difficult to achieve vision alignment. However, through understanding what the leadership structure looks like, it may become easier to understand how the influence process works. By understanding this, sport practitioners may identify their own leadership core and operationalize it to align their vision across the network. In so doing, vision alignment may help to improve performance (Hamm et al., 2008; Paarlberg & Perry, 2007; Vallée & Bloom, 2016).

Delimitations

Delimitations are defined as characteristics that limit the scope and define boundaries of a study (Simon, 2010). Due to the rigour required to conduct this study, it was only realistic for the researcher to conduct an analysis of one team. However, as outlined in recent SNA research, the study of a single network is encouraged due to the uniqueness of each individual whole network (Duguay, Loughheed et al., 2020). While the researcher recognizes that studying one team delimits the scope of the study, the bounded sample provides purposefulness to the sample and thus provides robust data. Furthermore, one other delimitation is that SNA requires participation from 75% of members network members to be validated for research purposes. While the researcher hoped for full participation in the study from 100% of all network members, in managing expectations around data collection, a high likelihood existed that such full participation would not be achieved. Therefore, when the participation rate falls below 100%,

some missing perspectives may have limited the findings. Furthermore, the researcher did not interview each member who did participate in the study, delimiting interviews to only eight members. To address this delimitation, the researcher ensured enough interviews were conducted using a purposeful sample to meet the point of data saturation to achieve the requisite level of data richness.

Limitations

Limitations are considered potential weaknesses of a research study that are out of the researcher's control (Simon, 2010). One key limitation is that the researcher's position in U SPORTS basketball may have affected participants' willingness to provide informed consent to the study. Due to the highly guarded nature of high-performance sport and within sport teams, teams may have believed the researcher was aiming for a "competitive edge," regardless of the researcher's commitment to ethical practices. Best efforts were made to generate rapport with potential coach participants, but this limitation may have impacted this study.

The inability to conduct research in-person (i.e., SNA data collection, conduct semi-structured interviews) due to the COVID-19 pandemic presented another limitation to this study. For example, in-person interviewing is ideal for the researcher to assess body language and facial cues; however, due to current pandemic-related restrictions, this approach was not possible. As a result of this, online video conferencing platforms were used to conduct interviews. Furthermore, potential issues arise when the researcher must rely on technology such as file corruption, poor internet or power outages. While these limitations were beyond the researcher's control, contingencies were put in place to deal with any arising issues during the research process.

Variable differences in sport and the ability to generalize findings present an additional limitation to this study. As Chelladurai (1984) outlined, each individual sport has its own unique

variables that affect task outcome. The sport of basketball is an open, interdependent variable sport, where the task outcome of the team is affected by the actions of each member (Chelladurai, 1984). However, this is not necessarily the case for all sports, as each sport has its own specific variables that cause experiences to vary for participants, from sport to sport (Chelladurai, 1984). Therefore, it is prudent to assert that the findings denoting the leadership experience in the present study cannot be generalized across all sports. Rather, it is important to look at networks based on specific sport contexts, as Chelladurai (1984) found, in moving from multi-sport to single-sport inquiries (Chelladurai et al., 1989).

While the sport of basketball is unique in terms of play composition, demographics are another variable that must be considered. Currently, Danford and Donnelly (2018) offer the only sampled demographic information collected from U SPORTS athletic programs. These researchers collected demographic information from student-athletes who competed in basketball, hockey, volleyball and football at nine Canadian universities. When assessing the diversity of these programs, it is evident that not all teams were constructed as the same, pertaining to race. For example, the number of self-identifying Black student-athletes increased from 12.6% across the five sports to 37.6% in men's basketball across these nine institutions, demonstrating that men's basketball has a much higher proportion of racialized individuals than the other sports (Danford & Donnelly, 2018).

Furthermore, when comparing male to female racial distributions in U SPORTS basketball teams, such distributions are completely different. For example, among all women's basketball teams across the nine U SPORTS institutions studied, 79% of athletes self-identified as white, while 50.4% of their male counterparts self-identified as white (Danford & Donnelly, 2018). In comparison, black women comprised only 16% of women's basketball student-

athletes, while black men comprised 37.6% of men's basketball student-athletes at these nine institutions (Danford & Donnelly, 2018). Based on these differences pertaining to race across U SPORTS sport programs, it must be understood that each team will have their own unique experiences. Due to the additional variable of race, findings for this study cannot be generalized across all U SPORTS institutions and sports teams.

Building on this, another limitation for this study is that only one team participated in this research. Due to the rigour of the study and data richness sought by the researcher, conducting a singular case study was deemed appropriate. Fransen et al. (2014, 2015a, 2015b, 2020) used multiple teams across multiple sports to conduct their SNA inquiry. This aggregation of network data was valuable however, this means the results for all teams and sports were generalized. As outlined throughout this document, there is existing research that supports and encourages the inquiry into single whole networks, rather than the aggregation of data in SNA (Duguay, Hoffmann, et al., 2020). The methodology used in the present study yielded rich data to help inform the research questions; however, the limited sample of one team is a limitation to the study.

Future Research

While various limitations to the present study have been outlined, such limitations may also be seen as an opportunity for future research. For starters, sport specific inquiry and whole network analysis in SNA demonstrate a methodological avenue for future research. Furthermore, sport specific inquiry can also lead to comparative analyses of the leadership experiences between different sports and genders. Rather than treating all teams as being the same, sport specific inquiry can provide generative insights on various populations that participate across different sports.

Another line of potential research is to use the mixed methods tool from this study to assess the leadership of multiple teams that fall within the same sport criteria. For example, it would be interesting to see if all women's U SPORTS basketball teams experience leadership similarly to the network in the present study. The ability to triangulate data using multiple team networks would provide a deeper understanding of how leadership is constructed within a specific context.

Furthermore, as seen in research conducted by Kwok et al. (2018) and van Kruijsbergen et al. (2020), interventions to prime the leader identity have resulted in positive performance in the leadership role. Therefore, future research may continue to explore the use of interventions using the present SNA tool to improve the identification of leaders and operationalize them to improve individual and team performance through vision alignment. Finally, it must be noted that the network of leadership presented in the current study is a cross-sectional analysis and a snapshot of this team at a particular point in time. As seen in van Kruijsbergen et al. (2020), leadership networks do not remain static and change over time. Future research, using the same methodological tools as in this study, may be conducted on teams using a longitudinal approach to provide understanding on how teams evolve over a season. Due to the flexibility of the SNA tool, there are endless avenues for future research.

Conclusion

As seen throughout this thesis, there is no "one size fits all" approach to leading a team and achieving success. However, if provided a tool such as the SNA, it is possible to identify core leaders to help align team vision, team values, and ultimately drive success (Fransen et al., 2020). The present study builds on Fransen et al.'s (2014, 2015a, 2015b, 2020) research and their Social Network Analysis (SNA) tool to assess the networks of leadership within a sports team by

adding a qualitative method. In adding a qualitative methodology of semi-structured interviews, this present study provided context to the quantitative data to understand what the networks look like and how members experience them.

In addition, this study also helped build on existing literature. First, this research helped extend the literature on U SPORTS basketball teams, which is presently scarce. Second, the results of the study helped to build on the understanding of which leadership model is prevalent within the context of a sport team. Fransen et al. (2014, 2015a) focused on strictly understanding the role of athlete leaders within a team. Findings from these two studies determined, as corroborated in this study, that athlete leaders play an essential role in the leadership process. Fransen et al. (2015b) continued this line of research and acknowledged the potential of Locke's (2003) Integrated Leadership Model (ILM) as a model to underpin the understanding of athlete leadership within a team, a finding that again aligns with the findings of the present study.

Fransen et al. (2020) determined however that shared leadership, rather than the ILM, is the prevalent leadership model within sports teams. The findings of the present study do align with this notion that there are aspects of varying influence and role based leadership. However, the study fails to elevate the importance of the Head Coach has on a team's network, as Fransen et al. (2020) found. Here, Fransen et al. (2020) determined that the coach is responsible for enabling the leadership environment and identifying the best leaders. However, the present findings go beyond this and determine that the Head Coach is responsible for setting a vision and promoting it throughout the network. Furthermore, the complexity of structure does not just present "shared and lateral influence" as Fransen et al. (2020) proposed, the network contains top-down, bottom-up and shared leadership influence that best aligns with the ILM.

The sport of basketball relies on the interdependent relationships of members within a network to build trust. Without understanding what this network looks like, it becomes increasingly difficult to achieve the indicators of success as found in existing research like vision alignment (Donoso-Morales et al., 2017; Hamm et al., 2008; Paarlberg & Perry, 2007; Vallée & Bloom, 2016). Venturing blindly into the leadership process is dangerous and ill-advised. The results of the present study help practitioners avoid this pitfall by providing a tool to identify the structure of leadership within their present network and to operationalize leadership actions that may drive success. Doing so allows coaches and athletes to approach the day-to-day activities of their team confidently as they search for success in the complex and beautiful world of team sport.

APPENDICIES

APPENDIX A

INVITATION LETTER

Dear Participant,

You are being invited to participate in a study that involves research. The purpose of this study is to understand the leadership environment and structure of a basketball team in U SPORTS along with how they are perceived by members of a team. There is limited research on U SPORTS student-athletes, and we hope to build on existing research within a U SPORTS context.

WHAT'S INVOLVED

As a participant, you, and your team, will be asked to complete a series of perceived leadership questionnaires. Through this, the researcher will generate sociograms that will map out the leadership of your team. These questionnaires will take roughly 30 to 45 minutes to complete. Following this, you may be asked to participate in an interview where you will be on video, and audio recorded answering questions posed by the researcher. The interview will take approximately one hour to complete.

BENEFITS

There is no compensation for this study, but the benefit for participation in this study will assist in developing the literature within a U SPORT context. Furthermore, it will help develop an understanding of how the tools used within this study can be used in the future, outside the scope of this research, to help develop leadership within U SPORTS athletic teams.

While participating in this study will have benefits, there are also risks that the participant must be aware of:

Psychological Risks: There is the potential for you to feel worried when participating in this study as you may not be identified as a strong leader. This feeling cannot be completely eliminated, but we will mitigate this through maintaining confidentiality and anonymity, while also offering resources to assist with psychological welfare.

Social Risks: This study presents potential social risks as you may be seen in a different light if not perceived as a leader within the network. Due to this, it could result in a change of “status” or “reputation” internally within their team. This is understandable, however the research team will attempt to mitigate this risk as your data will remain confidential and anonymous throughout every step of this study.

WHY PARTICIPATE?

There is no compensation for this study, but participation in this study will assist in developing the literature within a U SPORT context. Furthermore, it will help develop an understanding of

how the tools used within this study can be used in the future, outside the scope of this research, to help develop leadership within U SPORT teams.

If you are willing to participate, or interested in the study but require more information, please send an email to William Gatchalian (wgatchalian@brocku.ca) to proceed with next steps.

Thank you!

William Gatchalian
Student Investigator
wgatchalian@brocku.ca

Dr. Michael Van Bussel
Assistant Professor - Sport Management - Brock University
mvanbussel@brocku.ca

APPENDIX B**INFORMED CONSENT FORM (HEAD COACH VERSION)****Project Title: Exploring Perceived Leadership Networks in a U SPORTS Basketball Team**

This study will explore how a U SPORTS basketball team views their leadership structure and experience their perceived leadership network.

Principal Investigator:

William Gatchalian
Graduate Student, MA Candidate
Applied Health Sciences, Sport Management Brock University
1812 Sir Isaac Brock Way
St Catharines, ON
Canada, L2S 3A1
wgatchalian@brocku.ca

Faculty Supervisor:

Dr. Michael Van Bussel
Assistant Professor
Applied Health Sciences, Sport Management Brock University
1812 Sir Isaac Brock Way
St Catharines, ON
Canada, L2S 3A1
mvanbussel@brocku.ca

You are invited to participate in a study that involves research. The purpose of this study is to understand the leadership environment and structure of a basketball team in U SPORTS along with how they are perceived by members of a team. There is limited research on U SPORTS athletes and this study hopes to build on existing research within a Canadian sport context.

WHAT'S INVOLVED

As the Head Coach, you will also be asked to provide thee contact information (emails) of those within your team's network. For this study, participation will be limited to those that have daily interactions with you and your team.

As a participant, you, and your team, will be asked to complete a series of perceived leadership questionnaires. In these questionnaires, you will be asked to rate the quality of leadership of your team members. As the Head Coach, you will also be asked to provide thee contact information (emails) of those within your team's network. For this study, participation will be limited to those that have daily interactions with you and your team. The names will be pre-filled as your network will be pre-defined by your Head Coach. These questionnaires will take roughly 30 to 45 minutes to complete and will be conducted over Qualtrics. You can access their *Privacy Statement* [here](#).

Through completing these questionnaires, the researcher will then create sociograms of your team's leadership network. Sociograms are an output of Social Network Analysis (SNA) and create a visualization of your data. In this study, these sociograms will represent who you, and those on your team, perceive as leaders within your team's network. SNA requires 75% participation from your team. If this threshold is not met, the researcher will then destroy your data immediately. In the case your team meets 75% participation, the study will continue.

Your SNA data will be stored and protected on a password protected USB only accessible to the researcher. Your data will be stored for a year past the successful defense of the researcher's thesis.

Following this, you may be asked to participate in an interview where you will be recorded on video and audio answering questions posed by the researcher. The interviews will be conducted and recorded using Microsoft Teams. You can access their *Privacy Statement* [here](#). The questions for this interview will relate to your perception of leadership within your team and how you view your role within your team's leadership network. The interview will take approximately one hour to complete. To assist with interview transcription, the researcher will be using the software *Otter.ai*. You can access their *Privacy Policy* [here](#).

Your interview data (video and audio recordings) will be stored and protected on a password protected USB only accessible to the researcher. Your data will be stored for a year past the successful defense of the researcher's thesis.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. During all stages of this study, it is your right to refuse to answer any question or complete any component of this study. Furthermore, you may withdraw from this study at any time. If you decide to withdraw from the study, your data will be subsequently destroyed at that time.

If you wish to withdraw from the study, please email wgatchalian@brocku.ca with your intent to remove yourself from the study as soon as possible. Please be aware that if withdrawal is requested during the interview process, withdrawal of data may not be possible.

While participating in this study will have benefits, there are also risks that you must be aware of:

Psychological Risks: There is the potential for you to feel worried when participating in this study as you may not be identified as a strong leader. This feeling cannot be completely eliminated, but we will mitigate this through maintaining confidentiality and anonymity, while also offering resources to assist with psychological welfare.

- *Brock University Personal Counselling Services*– 1 (833) 276- 2533
- *Niagara Region Crisis Outreach and Support Team (COAST)*– 1 (866) 550-5205
- *Canadian Mental Health Association (Niagara)*– (905) 641-5222

Social Risks: This study presents potential social risks as you may be seen in a different light if not perceived as a leader within the network. Due to this, it could result in a change of “status” or “reputation” internally within their team. This is understandable, however the research team will attempt to mitigate this risk as your data will remain confidential and anonymous throughout every step of this study.

As the researcher, I am extremely grateful for your time and consideration in participating in this study. While I have attempted to make this study as well constructed as possible, I acknowledge that there is always room to improve. At any point in the study, I would appreciate feedback on your experience with the study and how it can be improved. **Anonymous feedback can be provided [here](#).**

ANONYMITY

By participating in the study, your name will appear on the questionnaires in order to allow the members of your network to rate your quality of leadership. Following the collection of the questionnaire data, your name will be assigned a pseudonym only known by the researcher. This master list will be kept on a password protected USB drive. Furthermore, all reporting of data will follow the same protocol and eliminate any and all identifiable points of information.

During the interview process, if selected, you will be asked questions on your perception of your team’s leadership and how you view your role within the team’s network. In asking these questions, the researcher may ask you how you perceive specific individuals and their leadership behaviors. Please note that no direct questions regarding your perceptions of others within your network will be shared with others in the interview process.

Immediately following your interview, pseudonyms will be applied to the transcripts and subsequent reporting to protect the anonymity of your data.

Shortly after the completion of your interview, a copy of your transcript will be sent to you which will give you an opportunity to review the accuracy of our conversation and to add or clarify any points you wish. Access to the interview data will be restricted to myself, William Gatchalian, and my faculty research supervisor, Dr. Michael Van Bussel.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences. Should you wish to know more about the study and subsequent results and publications, please indicate so below. Please feel free to contact either myself or my faculty research supervisor at any time, should you have questions or concerns regarding the study and subsequent results and publications.

WHY PARTICIPATE?

There is no compensation for this study, but participation in this study will assist in developing the literature within a U SPORT context. Furthermore, it will help develop an understanding of

how the tools used within this study can be used in the future, outside the scope of this research, to help develop leadership within U SPORTS athletic teams.

ETHICS CLEARANCE

This study, *Exploring Perceived Leadership Networks in a U SPORTS Basketball Team*, has been reviewed and received ethics clearance through the Research Ethics Board at Brock University [21-255]. If you have any comments or concerns about your rights as a research participant, please contact the Office of Research Ethics at (905) 688-5550 Ext. 3035, reb@brocku.ca.

INFORMED CONSENT

By completing this survey, you agree to participate in this study as described, and have made the decision based on the information contained herein. You may ask questions at any time while completing this survey, or in the future, and may withdraw this consent at any time.

YES, I provide my consent to participate in this study []

NO, I do not provide my consent to participate in this study []

Name: _____

Signature: _____

I would like to know more about future publications and results: **YES** [] **NO** [] Thank you for your assistance in this project. Please keep a copy of this form for your records.

APPENDIX C**INFORMED CONSENT FORM (OTHER PARTICIPANTS)****Project Title: Exploring Perceived Leadership Networks in a U SPORTS Basketball Team**

This study will explore how a U SPORTS basketball team views their leadership structure and experience their perceived leadership network.

Principal Investigator:

William Gatchalian
Graduate Student, MA Candidate
Applied Health Sciences, Sport Management Brock University
1812 Sir Isaac Brock Way
St Catharines, ON
Canada, L2S 3A1
wgatchalian@brocku.ca

Faculty Supervisor:

Dr. Michael Van Bussel
Assistant Professor
Applied Health Sciences, Sport Management Brock University
1812 Sir Isaac Brock Way
St Catharines, ON
Canada, L2S 3A1
mvanbussel@brocku.ca

You are invited to participate in a study that involves research. The purpose of this study is to understand the leadership environment and structure of a basketball team in U SPORTS along with how they are perceived by members of a team. There is limited research on U SPORTS athletes and this study hopes to build on existing research within a Canadian sport context.

WHAT'S INVOLVED

As a participant, you, and your team, will be asked to complete a series of perceived leadership questionnaires. In these questionnaires, you will be asked to rate the quality of leadership of your team members. The names will be pre-filled as your network will be pre-defined by your Head Coach. These questionnaires will take roughly 30 to 45 minutes to complete and will be conducted over Qualtrics. You can access their *Privacy Statement* [here](#).

Through completing these questionnaires, the researcher will then create sociograms of your team's leadership network. Sociograms are an output of Social Network Analysis (SNA) and create a visualization of your data. In this study, these sociograms will represent who you, and those on your team, perceive as leaders within your team's network. SNA requires 75% participation from your team. If this threshold is not met, the researcher will then destroy your data immediately. In the case your team meets 75% participation, the study will continue.

Your SNA data will be stored and protected on a password protected USB only accessible to the researcher. Your data will be stored for a year past the successful defense of the researcher's thesis.

Following this, you may be asked to participate in an interview where you will be recorded on video and audio answering questions posed by the researcher. The interviews will be conducted and recorded using Microsoft Teams. You can access their *Privacy Statement* [here](#). The questions for this interview will relate to your perception of leadership within your team and how you view your role within your team's leadership network. The interview will take approximately one hour to complete. To assist with interview transcription, the researcher will be using the software *Otter.ai*. You can access their *Privacy Policy* [here](#).

Your interview data (video and audio recordings) will be stored and protected on a password protected USB only accessible to the researcher. Your data will be stored for a year past the successful defense of the researcher's thesis.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. During all stages of this study, it is your right to refuse to answer any question or complete any component of this study. Furthermore, you may withdraw from this study at any time. If you decide to withdraw from the study, your data will be subsequently destroyed at that time.

If you wish to withdraw from the study, please email wgatchalian@brocku.ca with your intent to remove yourself from the study as soon as possible. Please be aware that if withdrawal is requested during the interview process, withdrawal of data may not be possible.

While participating in this study will have benefits, there are also risks that you must be aware of:

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Social Risks: This study presents potential social risks as you may be seen in a different light if not perceived as a leader within the network. Due to this, it could result in a change of “status” or “reputation” internally within their team. This is understandable, however the research team will attempt to mitigate this risk as your data will remain confidential and anonymous throughout every step of this study.

As the researcher, I am extremely grateful for your time and consideration in participating in this study. While I have attempted to make this study as well constructed as possible, I acknowledge that there is always room to improve. At any point in the study, I would appreciate feedback on your experience with the study and how it can be improved. **Anonymous feedback can be provided [here](#).**

ANONYMITY

By participating in the study, your name will appear of the questionnaires in order to allow the members of your network to rate your quality of leadership. Following the collection of the questionnaire data, your name will be assigned a pseudonym only known by the researcher. This master list will be kept on a password protected USB drive. Furthermore, all reporting of data will follow the same protocol and eliminate any and all identifiable points of information.

During the interview process, if selected, you will be asked question on your perception of your team's leadership and how you view your role within the team's network. In asking these questions, the researcher may ask you how you perceive specific individuals and their leadership behaviors. Please note that no direct questions regarding your perceptions of others within your network will be shared with others in the interview process.

Immediately following your interview, pseudonyms will be applied to the transcripts and subsequent reporting to protect the anonymity of your data.

Shortly after the completion of your interview, a copy of your transcript will be sent to you which will give you an opportunity to review the accuracy of our conversation and to add or clarify any points you wish. Access to the interview data will be restricted to myself, William Gatchalian, and my faculty research supervisor, Dr. Michael Van Bussel.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences. Should you wish to know more about the study and subsequent results and publications, please indicate so below. Please feel free to contact either myself or my faculty research supervisor at any time, should you have questions or concerns regarding the study and subsequent results and publications.

WHY PARTICIPATE?

There is no compensation for this study, but participation in this study will assist in developing the literature within a U SPORT context. Furthermore, it will help develop an understanding of how the tools used within this study can be used in the future, outside the scope of this research, to help develop leadership within U SPORTS athletic teams.

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University [21-255]. If you have any comments or concerns about your rights as a research participant, please contact the Office of Research Ethics at (905) 688-5550 Ext. 3035, reb@brocku.ca.

INFORMED CONSENT

By completing this survey, you agree to participate in this study as described, and have made the decision based on the information contained herein. You may ask questions at any time while completing this survey, or in the future, and may withdraw this consent at any time.

YES, I provide my consent to participate in this study [____]

NO, I do not provide my consent to participate in this study [____]

Name: _____

Signature: _____

I would like to know more about future publications and results: YES [____] NO [____] Thank you for your assistance in this project. Please keep a copy of this form for your records.

Appendix D: Follow Up Email

Dear Participant,

According to my records, you have yet to complete your SNA questionnaires. You can access the questionnaires [here](#) and I ask that you complete them as soon as you can. By participating in this study, you are helping to advance the leadership research within a U SPORTS basketball context.

However, if you have decided to withdraw from the study, please do let me know as well.

If you have further questions regarding the study, feel free to contact me by responding to this email (wgatchalian@brocku.ca).

APPENDIX E

SOCIAL NETWORK ANALYSIS QUESTIONNAIRES

Participant Information

Name:

Age:

#Of years with team:

Program of Study:

Position with Team (Player, Coach, etc.):

Do you self-identify as a (Select one)

Follower

Formal Leader (E.g., Team Captain)

Informal Leader (E.g., Non-Captain Senior Athlete)

Task Leader

Definition: A task leader is in charge on the field; this person helps the team to focus on our goals and helps in tactical decision-making. Furthermore, the task leader gives his/her teammates tactical advice during the game and adjusts them if necessary.

Likert Scale:

- 0 = Extremely Poor Task Leader
- 1 = Poor Task Leader
- 2 = Moderate Task Leader
- 3 = Good Task Leader
- 4 = Extremely Good Task Leader

TEAM MEMBER	TASK LEADERSHIP SCORE RATING				
Coach #1	0	1	2	3	4
Coach #2	0	1	2	3	4
Player #1	0	1	2	3	4
Player #2	0	1	2	3	4
Player #3	0	1	2	3	4
Player #4	0	1	2	3	4
Player #5	0	1	2	3	4
Player #6	0	1	2	3	4
Player #7	0	1	2	3	4
Player #8	0	1	2	3	4
Player #9	0	1	2	3	4
Player #10	0	1	2	3	4
Player #11	0	1	2	3	4
Player #12	0	1	2	3	4
Player #13	0	1	2	3	4
Player #14	0	1	2	3	4

Motivational Leader

Definition: The motivational leader is the biggest motivator on the field; this person can encourage his/her teammates to go to any extreme; this leader also puts fresh heart into players who are discouraged. In short, this leader steers all the emotions on the field in the right direction in order to perform optimally as a team.

Likert Scale:

- 0 = Extremely Poor Motivational Leader
- 1 = Poor Motivational Leader
- 2 = Moderate Motivational Leader
- 3 = Good Motivational Leader
- 4 = Extremely Good Motivational Leader

TEAM MEMBER	MOTIVATIONAL LEADERSHIP SCORE RATING				
Coach #1	0	1	2	3	4
Coach #2	0	1	2	3	4
Player #1	0	1	2	3	4
Player #2	0	1	2	3	4
Player #3	0	1	2	3	4
Player #4	0	1	2	3	4
Player #5	0	1	2	3	4
Player #6	0	1	2	3	4
Player #7	0	1	2	3	4
Player #8	0	1	2	3	4
Player #9	0	1	2	3	4
Player #10	0	1	2	3	4
Player #11	0	1	2	3	4
Player #12	0	1	2	3	4
Player #13	0	1	2	3	4
Player #14	0	1	2	3	4

Social Leader

Definition: The social leader has a leading role besides the field; this person promotes good relations within the team and cares for a good team atmosphere, e.g., in the dressing room, in the cafeteria or on social team activities. Furthermore, this leader helps to deal with conflicts between teammates besides the field. He/she is a good listener and is trusted by his/ her teammates.

Likert Scale:

- 0 = Extremely Poor Social Leader
- 1 = Poor Social Leader
- 2 = Moderate Social Leader
- 3 = Good Social Leader
- 4 = Extremely Good Social Leader

TEAM MEMBER	SOCIAL LEADERSHIP SCORE RATING				
Coach #1	0	1	2	3	4
Coach #2	0	1	2	3	4
Player #1	0	1	2	3	4
Player #2	0	1	2	3	4
Player #3	0	1	2	3	4
Player #4	0	1	2	3	4
Player #5	0	1	2	3	4
Player #6	0	1	2	3	4
Player #7	0	1	2	3	4
Player #8	0	1	2	3	4
Player #9	0	1	2	3	4
Player #10	0	1	2	3	4
Player #11	0	1	2	3	4
Player #12	0	1	2	3	4
Player #13	0	1	2	3	4
Player #14	0	1	2	3	4

External Leader

Definition: The external leader is the link between our team and the people outside; this leader is the representative of our team to the club management. If communication is needed with media or sponsors, this person will take the lead. This leader will also communicate the guidelines of the club management to the team regarding club activities for sponsoring.

Likert Scale:

- 0 = Extremely Poor External Leader
- 1 = Poor External Leader
- 2 = Moderate External Leader
- 3 = Good External Leader
- 4 = Extremely Good External Leader

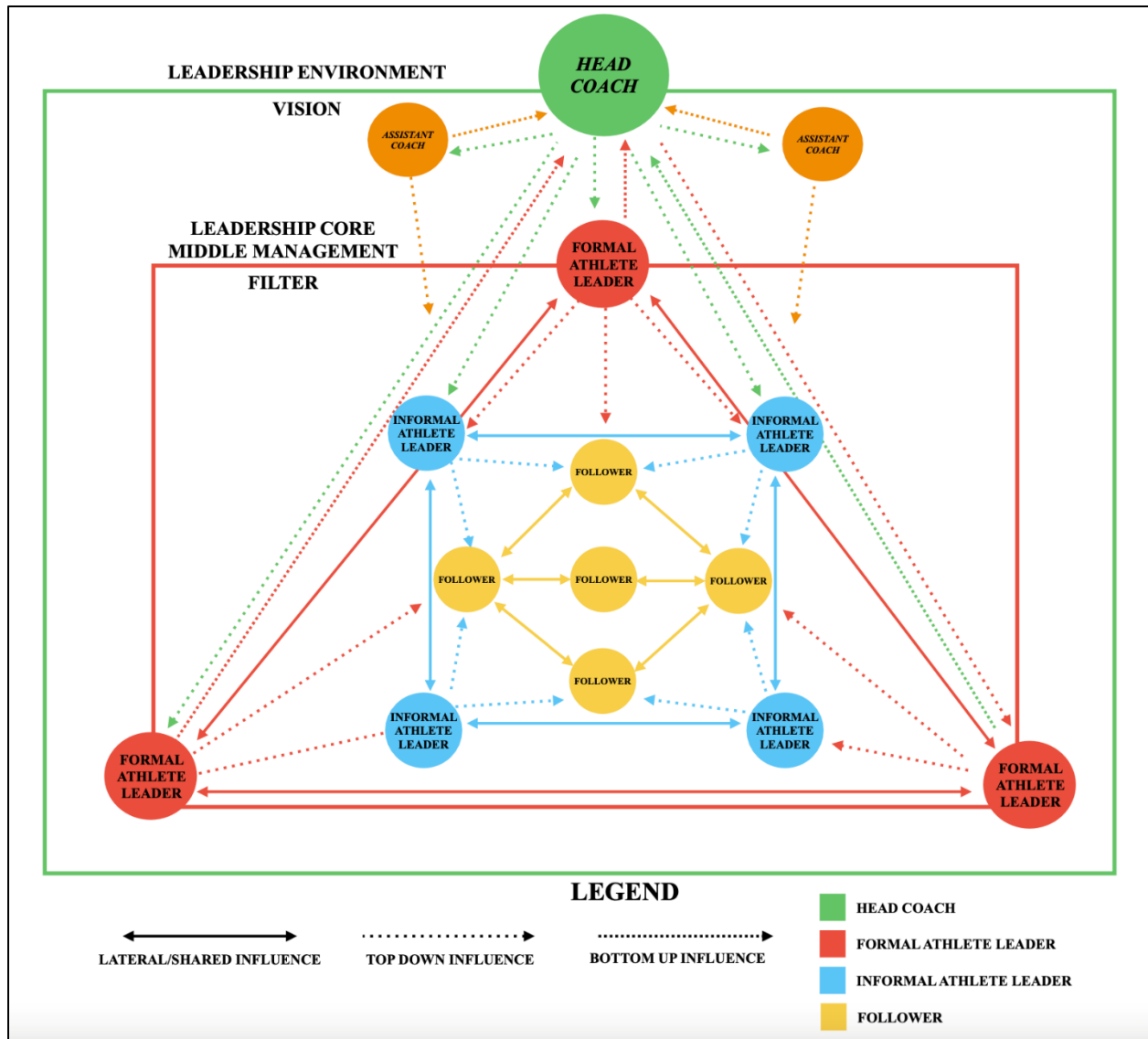
TEAM MEMBER	EXTERNAL LEADERSHIP SCORE RATING				
Coach #1	0	1	2	3	4
Coach #2	0	1	2	3	4
Player #1	0	1	2	3	4
Player #2	0	1	2	3	4
Player #3	0	1	2	3	4
Player #4	0	1	2	3	4
Player #5	0	1	2	3	4
Player #6	0	1	2	3	4
Player #7	0	1	2	3	4
Player #8	0	1	2	3	4
Player #9	0	1	2	3	4
Player #10	0	1	2	3	4
Player #11	0	1	2	3	4
Player #12	0	1	2	3	4
Player #13	0	1	2	3	4
Player #14	0	1	2	3	4

APPENDIX F**INTERVIEW GUIDE**

- 1. What does leadership mean to you?**
 - i. How would you define a strong athlete leader?
 - ii. How would you define strong leadership from your Head Coach?
- 2. What role do you believe that the athletes play within the leadership of your team?**
- 3. Do you believe that your team captain is the best leader on your team?**
 - i. If yes, why is this the case and how does he/she demonstrate that leadership?
 - ii. If no, why? And who would you deem the best leader and why?
- 4. In your team, how do you perceive your leadership role and how do you think others perceive you?**
 - i. How do you feel about being identified as a leader (or not a leader) within your team? And do you agree with that assessment?
- 5. Do you think that this sociogram (show. anonymized overall leadership sociogram) is an accurate representation of your team's leadership?**
 - i. If yes, what aspects of the sociogram tell you that this is accurate?
 - ii. If no, what aspects of the sociograms seem inaccurate and how would you fix it?
- 6. Who do you believe this person is on the sociogram (point to node) and explain why?**
 - i. What role does this person play on your team?
- 7. If I were to say that every member of your team is equal in influence and stature, how would you respond?**
 - i. Who influences you in a leadership perspective?
 - ii. Are there certain people that you look to when things are not going well, and you need support?
- 8. How do you operate within the team to use your leadership position to benefit others?**
 - i. Do you feel like you're treated differently due to your leadership qualities? If so, how?
- 9. Do you have anything else to add about leadership on your team?**
- 10. Do you have any questions for me about the study?**

APPENDIX G

INTEGRATED SHARED LEADERSHIP MODEL



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