



**Advancing New Pathways for
Shared Leadership in High Performance Teams:
A Four-Dimensional Model and
Solution-Focused Team Development**

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Abstract

Over the past two decades, a growing body of the leadership literature has focused on informal leadership, which emerges through social interaction and is independent of a formal title. A particularly fruitful area of informal leadership research has been team sports, as competitive teams need to be entitative and meet standards of excellence. Commonly, this is referred to as athlete leadership, which includes formal (i.e., captains) and informal leadership roles (i.e., players). The theoretical underpinnings of athlete leadership emerged from organizational leadership research, in particular team leadership. Team leadership research has focused on two major themes: leadership functions (i.e., what is being done to fulfil group needs) and forms (i.e., who contributes to the leadership of a group). The present dissertation thesis addresses the research gaps pertaining to both lines of research in high-performance teams. First, recent developments in organizational psychology suggest that current conceptualizations of athlete leadership functions need to be revised. In particular, previous models of athlete leadership have not attended to the dimension of change-orientation. This dimension describes leadership behaviors that support a team's adaptation to changes in the environment. Thus, in the first empirical study, we developed and tested a revised four-dimensional model of athlete leadership including change-oriented leadership. Second, empirical findings from organizational and sport psychology show that shared forms of team leadership support group functioning. However, to date there has been no intervention study in the context of sports teams that accounts for the role of shared leadership as a phenomenon that emerges through social interaction. Accordingly, in the second study, we developed and evaluated an intervention that promotes shared leadership as an emergent team phenomenon. To this end, we utilized a systemic family therapy approach, focusing on the development of new interactional patterns in social systems. Both studies are discussed considering the overarching themes of hierarchy, group change, and systemic family therapy.

1. Introduction

“When leadership is viewed as a property of whole systems, as opposed to solely the property of individuals, effectiveness in leadership becomes more a product of those connections or relationships among the parts than the result of any one part of that system” (O’Connor & Quinn, 2004, p. 423).

Humans evolved living in groups (Baumeister & Leary, 1995; Campbell, 1975) and depended largely on collaborative action for survival (Bloom, 2000; Van Vugt & Kameda, 2017). Today, collaboration remains an essential part of modern life. For instance, collaborative work in teams is an essential part of organizations (Devine et al., 1999) and a key driver in scientific and technological advancement (Wu et al., 2019). People collaborate to achieve levels of productivity and problem solving, which go beyond individual capacities. Accordingly, collaborative problem solving has been recognized as an essential skill in the 21st century (Fiore et al., 2018). Collaborative work is an essential building block of productivity, learning and performance in organizations, education and sports. There are crucial advantages to collaboration, including quality enhancement due to labor division, evolution of ideas through interaction, and multiple sources of knowledge, experience and perspectives (Graesser et al., 2018). Potential disadvantages pertain to inefficient communication, decrease in individual performances, diffusion of responsibility, and conflicts or disagreements among team members (Graesser et al., 2018). Thus, collaborative action requires coordinated effort in order to be effective and it has been argued that leadership has emerged in human evolutionary history as an answer to the need of group coordination (Van Vugt et al., 2008). Although studies showed that leadership structures emerge quickly and without formal appointment (Hogg et al., 2012; Slater, 1955; Vugt & Cremer, 1999), leadership research has predominantly focused on top-down leadership by singling out formally appointed individuals, such as elected officials, managers and sport coaches. With advances in leadership research, the scope of leadership literature has widened over time (Haslam et al., 2011). One of the most essential developments in newer conceptualizations of leadership focused on the existence of leadership provided by team

members. This is also called informal leadership, and is independent of a formal position (Pearce & Conger, 2003). The interest in informal leadership has surged over the last decade. Different disciplines, such as social, organizational and sport psychology have investigated the antecedents, processes, and outcomes of informal leadership. In particular, sport teams have served as a relevant subject of research, as they need to be entitative and meet high levels of performance excellence (Mullen & Copper, 1994). In this context, athlete leadership serves as the umbrella term for leadership exhibited by team members (Loughead et al., 2006). This includes formal (i.e., captains) and informal leaders (i.e., team members). Thus, athlete leadership considers the complexity of leadership by including all potential sources of leadership shown by team members. Previous research on athlete leadership has demonstrated that athlete leadership is associated with numerous factors of effective team functioning (e.g., Eys et al., 2007; Fransen et al., 2017; Fransen et al., 2020; Fransen et al., 2014; Loughead et al., 2016; Morgan et al., 2015). However, while research demonstrated its significance, there is a lack of research pertaining to the fundamental aspects of athlete leadership.

There are two major research gaps which require further attention. First, advances in organizational psychology literature have shown potential deficits of current models of athlete leadership (Yukl, 2012). Since its conceptualization, athlete leadership researchers were interested in understanding what athlete leaders do in order to further the field (Loughead et al., 2006). Accordingly, leadership behaviors (i.e., leadership functions) have been a primary focus in athlete leadership research (e.g., Cotterill & Fransen, 2016; Fransen et al., 2014). Most commonly, models of athlete leadership behavior identified the dimensions of task, social, external and motivational leadership (Fransen et al., 2014; Loughead et al., 2006). However, a major review of behavioral leadership research suggests the existence of change-orientation as a fundamental dimension of leadership (Yukl, 2012). Prior to this dissertation, this had not been considered in the athlete leadership literature. Accordingly, the first aim of the present dissertation was the development of a revised athlete leadership model, which includes all essential leadership functions. Thus, the first research article provides a theoretical account and empirical testing of an extended athlete leadership model. The results suggest that change-oriented leader-

ship constitutes a relevant dimension of athlete leadership behavior. Consequently, our study supports the revised model of athlete leadership. This allows a comprehensive foundation for future research, especially for behavioral approaches to athlete leadership.

Second, as athlete leadership has been associated with effective team functioning, there is a need for effective interventions to foster its development. Since its conceptualization, athlete leadership has been connected to other lines of research investigating informal leadership (Loughead et al., 2006). Most importantly, athlete leadership has built on shared leadership theory, which originated from research in organizational psychology (Pearce & Conger, 2003). By definition, shared leadership is understood as “an emergent team property that results from the distribution of leadership influence across multiple team members” (Carson et al., 2007, p. 1218). Consequently, shared leadership is assumed to emerge from social interactions among team members. However, existing interventions have not fully considered this aspect of athlete leadership. Therefore, the second goal of this dissertation is the development and evaluation of an intervention, considering athlete leadership as an emergent phenomenon. To this end, we built on solution-focused brief therapy (SFBT), which constitutes a systemic and social constructionist approach to family therapy (for an overview, see Franklin et al., 2011). As a systemic approach, SFBT highlights the importance of the social environment for change (Cottrell & Boston, 2002; de Shazer et al., 1986). As a social constructionist approach, SFBT emphasizes the importance of language for people’s understanding of the world (Berg & De Jong, 1996). Consequently, as a primary mechanism of change, it emphasizes the co-construction of meaning during the therapeutic dialogue (Trepper et al., 2011). Building on SFBT principles, our intervention consisted of four workshops working with the whole team. The results suggest that the newly developed intervention is a viable and effective method of fostering shared leadership development in sports teams. Furthermore, as the first intervention study using SFBT for sports team development, the study holds several implications for future research and practitioners.

Therefore, the present dissertation will introduce the topic of leadership by providing a definition of leadership in section 1.1. This will be followed by a short

overview of leadership research. Section 1.2.1 encompasses the history of leadership research spanning from the great person theories to the behavioral approach, which is particularly important for athlete leadership and the first research problem. Section 1.2.2 continues the history of leadership and highlights how the focus has widened by including collective forms of leadership. Section 1.3 will outline the first introduction and conceptualization of athlete leadership in the literature. Sections 1.4 and 1.5 describe two gaps in the literature, which are addressed in the present dissertation. This provides the basis for the two research articles of the present dissertation, which will be described in terms of their aims and methods in section 2 and 3. Section 4 comprises reprints of both publications. In section 5, I will discuss the theoretical and practical implications of the overall results in terms of three general themes in the articles: (5.1) the role of hierarchy for group functioning, (5.2) change and models of group development and (5.3) change within teams as social systems. In section 5.4, I will discuss future research and implications. In section 6, I will summarize and conclude the present dissertation.

1.1 Defining Leadership

Until recently, researchers have not been able to agree on a common definition of leadership, which is representative of a highly diverse and interdisciplinary field. However, the majority of definitions commonly share key components: (1) leadership is conceptualized as a process, (2) it is based on influence, (3) it occurs within groups, and (4) it involves common goals (Northouse, 2016). Each one of these components illuminates key insights for the study of leadership. Leadership is viewed as a process, emphasizing its nature as an outcome of a transactional event between people. Thus, leadership is not considered a trait, which resides within an individual. Moreover, the description of leadership as a process refers to a bidirectional relationship between leaders and followers. That is, leaders and followers affect each other. In addition, social influence constitutes a cornerstone of leadership (Hogg, 2017). Accordingly, Chemers (2001) defined leadership as “a process of social influence through which an individual enlists and mobilizes the aid of others in the attainment of a collective goal” (p. 376). Consequently, leadership is a group phenomenon. This can span from small groups to whole organizations.

Lastly, leadership efforts aim to achieve common goals, which unites leaders and followers by a mutual purpose.

1.2 Understanding Leadership

An alternative way of understanding leadership is turning towards its research history. Historical advances of leadership research are key elements to understanding the most recent developments and contemporary understandings of the phenomenon. This can be attributed to two essential characteristics of the leadership literature. First, the conceptualization of leadership is connected to societal developments. For instance, in a review of leadership research waves, Lord et al. (2017) list a number of contextual factors including globalization, diversification (in terms of gender), and technology. Accordingly, the understanding and conceptualization of leadership has changed over time. Second, the investigation of leadership has developed from empirical advances and helped to understand its complexities and overcome misconceptions. Hence, earlier research constitutes an important source for a better understanding of the topic. Accordingly, in the present dissertation I will provide a short account of the most relevant aspects of the leadership literature.

1.2.1 History of Leadership Research:

The Emergence of Leadership Functions

In the last century, leadership research has started to receive an enormous amount of attention (for an overview, see Northouse, 2016). In the beginning of the 20th century, between 1930 and 1950, leadership research was dominated by the goal to identify general differences in personality between leaders and non-leaders. This approach to leadership was labelled “trait approach” and theories that emerged during that time were coined “great man theories” (for an overview, see Haslam et al., 2011; Northouse, 2016). According to this approach, people acquire personality characteristics early in life, which provides them with qualities for leadership later in life (e.g., House, 1977). However, empirical studies have showed mixed results. In a major review of personality-focused leadership research published between 1904 and 1947, Stogdill (1948) synthesized over 120 studies on leadership traits. Stogdill

concluded that leaders are different from followers in terms of some traits, such as sociability, initiative, persistence, productivity, or verbal ability. However, the capacity of these traits to predict leadership status varied greatly across studies. According to Stogdill, this pattern occurred due to the need for leaders to emerge by virtue of excelling within group activities, as leaders need to take responsibility for group coordination and goal attainment. Yet, there are no universal set of traits that predict leadership status. Furthermore, he concluded that situational factors are crucial and “that persons who are leaders in one situation may not necessarily be leaders in other situations” (Stogdill, 1948, p. 65). Nevertheless, the review did not call for a complete abandonment of traits altogether, but for an interactional approach.¹

Seeking to improve empirical results investigating traits, a new approach focused on leaders’ actions (for an overview, see Hogg, 2017). This marked the beginning of the behavioral approach to leadership. Most prominently, this approach was advanced by two research groups, the first group at Harvard led by Robert Bales (e.g., Bales, 1950) and the second at the Ohio State Leadership Center (e.g., Stogdill, 1974). Among the most important findings was the identification of two orientations of leadership, task-oriented and person-oriented behaviors (House & Aditya, 1997). These were identified in some form by both research groups. Bales and colleagues used small groups in order to investigate the emergence of leaders during social interactions. They observed the emergence of two types of leaders, a task specialist and a socio-emotional specialist (Bales, 1950; Slater, 1955). A task

¹With advances in personality research, the trait approach produced more consistent results (House & Aditya, 1997). For instance, Stogdill conducted a second review, which showed an average correlation of .30 between traits and leadership (Stogdill, 1974). More recently, a meta-analysis of “Big Five” personality dimensions showed a multiple R of .48 between all five dimensions and leadership (Judge et al., 2002). Nevertheless, more complex views of leadership, which include situational components, appear to indicate better relationships between traits and leader behavior or leader effectiveness (House & Aditya, 1997).

specialist supports a group by providing ideas or solutions to a given problem and supporting goal achievement. A socio-emotional specialist supports the group by attending to group members' needs, and helping with emotional tensions. Similarly, by asking hundreds of people in various settings about typical leader behaviors, the Ohio State researchers identified the dimensions of *initiating structure* and *consideration* (Bass, 1990a; Fleishman, 1973; Stogdill, 1950). *Initiating structure* is concerned with task completion itself, such as coordinating activities or allocating responsibilities. *Consideration* refers to leader behaviors that are oriented towards the followers or their relationship with the followers, such as building trust, respect, or camaraderie. The Ohio State research group suggested that these dimensions are independent of one another. That is, a leader can show both types of behavior simultaneously. A more recent review of these meta categories of leadership behaviors concluded that the two orientations have shown to be core elements of effective leadership (Judge et al., 2004).

Yet, the behavioral approach has been criticized for various reasons. Common criticisms are related to an overemphasis of behavior, the use of questionnaires with problematic validity, and a lack of theoretical foundations (House & Aditya, 1997). Moreover, survey research revealed mixed results concerning the relationship between leadership behavior and performance as well as other outcomes, such as job satisfaction (for an overview, see Northouse, 2016; Yukl, 2013). However, the inclusion of other methodological approaches, such as critical incidents or experimental studies “suggests that effective leaders have a high concern for task objectives and interpersonal relationships” (Yukl, 2013, p. 86). More importantly, it provided a fundamental starting point to identifying the building blocks of athlete leadership behaviors (Loughead et al., 2006).

1.2.2 History of Leadership Research:

From Individual to Shared Leadership

Moving beyond individual behavior, athlete leadership research takes a more holistic approach by focusing on influence-structures within teams. This builds on the idea that social influence can be distributed across team members (Carson

et al., 2007; Pearce & Conger, 2003). Accordingly, leadership can be shared by a group of people. It is important to understand the history of this area of research to understand the most recent developments. The majority of leadership research has focused on (formally appointed) individuals as the only source of leadership. Over time, the focus has widened to include the influence of group members in the leadership context. Therefore, the following section will describe how leadership research has progressed beyond more traditional approaches, turning its attention to collective forms of leadership.

After interest in the behavioral approach diminished, leadership scholars continued to study leader behavior in the light of situational variables (for an overview, see Yukl, 2013). These so-called contingency theories added to a better understanding of situational influences. For instance, one of the most prominent theories is Fiedler's contingency theory (Fiedler, 1967; Fiedler, 1971). The core tenet of the theory is the notion that the effectiveness of different leadership behaviors is dependent on the situation. Building on the differentiation between task and relations-oriented leadership, the theory postulated that a certain style (e.g., high task orientation) would be particularly effective in situations with high or low control (in contrast to medium control) over the situation. However, the results of this and other theories were still unsatisfactory. Based on the notion that contingency theories exclude the exchange between leaders and followers, research focused on transactional theories of leadership (for an overview, see Hogg, 2017). These theories assume that leaders and followers engage in exchange processes, where leaders offer rewards in exchange for the attainment of goals (Hogg, 2017). However, these theories were incapable of explaining performance outcomes to a large degree, which led researchers to explore different approaches to leadership, which are subsumed by the label of new-genre leadership (Avolio et al., 2009). Where previous theories have been governed by an assumption of a rational cost-benefit relationship between leaders and followers, this new approach focused on the provision of purpose, which focuses on values and is supposed to motivate additional effort (Avolio et al., 2009; Bass, 1990b; Conger & Kanungo, 1998; Judge & Piccolo, 2004). Most prominently, this approach is represented by charismatic and transformational leadership theories. Both theories emphasize the influence of leaders on followers in terms of

adopting a vision or even inspire identification with the leader.

This brief summary constitutes only a simplified version of the greater paradigmatic developments within the vast and interdisciplinary field of leadership research. Nevertheless, it has been a general theme that scholars mostly focused on leadership as a dichotomous phenomenon comprised of individual, formal leaders on the one side and multiple followers on the other (Collinson, 2005). Even transformational leadership, which puts a strong emphasis on the development of followers, focuses mostly on individual leaders. To some degree, the notion of the leader as a transformational force resembled the early notions of leadership that coined the label “great man theories” (Conger, 1999). As Conger put it, “[t]he heroic leader had returned – reminiscent of ‘great man’ theories” (Conger, 1999, p. 149). This view of leaders as decisive elements of team or organizational effectiveness has been called the “romance of leadership” (Meindl et al., 1985). The terminology builds on the notion that observers tend to attribute team or organizational effectiveness to leaders, as they are more visible than other factors. The authors argue that this might be due to the complexity of any of these systems (i.e., teams or organizations), which cannot be processed by an observer. Put differently, “[t]he significance placed on leadership is a response to the ill-structured problem of comprehending the causal structure of complex, organized systems” (Meindl et al., 1985, p. 79).

The notion that group member can add to the leadership of a team provides a very different perspective on leadership compared to the “romance of leadership”. Different approaches to this notion have surfaced repeatedly over the course of leadership research history. However, these early precursors of shared leadership did not spark a completely new perspective on leadership. They vary from early mentions (e.g., Gibb, 1954) to theories of leadership, which generally consider team members as sources of influence, such as social exchange theory (Festinger, 1954), participative decision-making (Vroom & Yetton, 1973) and emergent leadership (Hollander, 1961) (for an overview, see Pearce & Conger, 2003). However, with a theoretical account of shared leadership as an emerging subject within the leadership literature (Pearce & Conger, 2003), the topic has developed further and was followed by a surge of theoretical and empirical work. Some authors even argue that it has

matured towards a new leadership paradigm (Contractor et al., 2012; Zhu et al., 2018). Empirically, shared leadership has shown to be a better predictor of team effectiveness than vertical leadership (i.e., formal or appointed leaders) (Pearce & Sims, 2002; Wang et al., 2014). Nevertheless, research on shared leadership is still at an early stage. There are numerous approaches, constructs and theories. Amid the proliferation of theories and models, there are only few common threads that pervade across the literature. Among the most important ones is the distribution of roles and influence across the team (Zhu et al., 2018). However, this distribution can take on many different forms. The three-dimensional model proposed by Contractor et al. (2012) helps to understand the multiple forms of shared leadership. According to their model, collective forms of leadership² can be described using three dimensions: member concentration, role multiplexity and temporal stability (see Figure 1.1).

The first dimension, member concentration, refers to the dispersion of influence across the team. In a centralized structure, one or a few members would provide leadership to the team. The second dimension, role multiplexity, refers to sets of leadership roles or functions that need to be fulfilled, as covered by the behavioral approach to leadership. Lastly, the dimension of temporal stability or rotation refers to changes within the other two dimensions over time. Using this three-dimensional model, vertical leadership would be depicted as one individual

²The authors use the term “collective leadership” in their work. They argue that the term “collective” is more encompassing than shared leadership (e.g., rotating a single leadership role across multiple members over time can be subsumed under “collective leadership” but not under “shared leadership”). In general, however, the terminology for “shared leadership” and “collective leadership” is subject so controversy in the literature. That is, some scholars argue for subtle differences between collective and shared leadership, while other scholars use these terms interchangeably (Zhu et al., 2018). To avoid confusion within the present dissertation thesis, the terms “collective leadership” and “shared leadership” are being used interchangeably.

(i.e., member concentration) enacting all leadership roles (i.e., role multiplexity) over the course of all points in time (i.e., temporal stability or rotation). An extreme form of shared leadership would entail all members enacting (i.e., member concentration) all leadership roles (i.e., role multiplexity) over the entire time period (i.e., temporal stability or rotation).

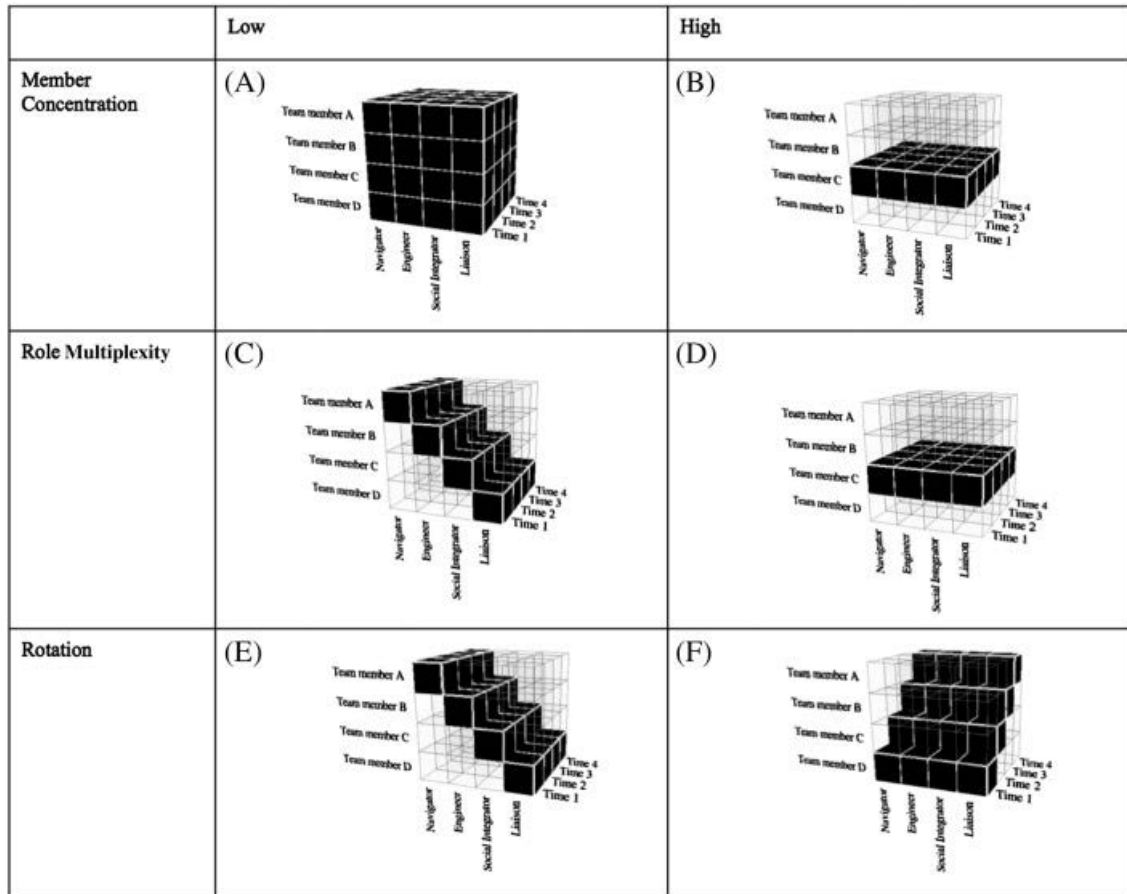


Figure 1.1: The three dimensions of collective leadership: member concentration, role multiplexity and temporal stability. Illustration from Contractor et al. (2012).

In between those ends of the spectrum, shared leadership can take on many different forms (Zhu et al., 2018): For instance, team members can co-perform the same type of leadership at the same time. Another form might be in a serial fashion, where informal leaders emerge over time or take turns in taking on a leadership role. Moreover, the sharing can occur by fulfilling different functions. That is, in line with different strengths or preferences, different team members might take on

different leadership functions. Concluding, shared leadership can vary from team to team, however, a core feature is that multiple team members contribute to the leadership of the team.

These developments in leadership research over time provided the basis for the conceptualization of athlete leadership. Therefore, the next section will present the core aspects and general theoretical framework of athlete leadership.

1.3 The Conceptualization of Athlete Leadership

By definition, an athlete leader is “an athlete occupying a formal or informal role within a team who influences a group of team members (i.e., a minimum of two team members) to achieve a common goal” (Loughead et al., 2006, p. 144). Most importantly, this definition includes informal leadership, which emerges through social interactions and does not imply official election. The inclusion of informal leadership marked an important starting point for further systematic research.

The theoretical frame for athlete leadership is based within (organizational) team leadership research (Loughead et al., 2006). Generally, this type of research is concerned with leadership within teams as organizational units, whose work is characterized by the need to coordinate activities to achieve common goals (Hill, 2016). This makes it a particularly suited framework for athlete leadership research in team sports. Athlete leadership research can be characterized by core characteristics of team leadership. Commonly, team leadership focuses on two major research areas: *leadership functions* and *leadership forms* (Larson & DeChurch, 2020). The notion of leadership functions builds on functional leadership theory (McGrath, 1962), which suggests that it is the leaders role “to do, or get done, whatever is not being adequately handled for group needs” (p. 5). This means that team effectiveness is dependent on the fulfillment of group needs, and whoever assumes responsibility for their satisfaction is contributing to the leadership of the team (Morgeson et al., 2010). Put differently, the fulfillment of these leadership functions makes sure that

a team is effective. For instance, the function of “goal focusing” serves to clarify where the team wants to go and it needs to be carried out when team members move in separate directions (Hill, 2016). As these functions describe behavior that is conducive to effective leadership, team leadership research has strong ties to the behavioral approach to leadership. As pointed out earlier, these functions have been identified by studies within the behavioral approach to leadership. The Hill model of team leadership (Hill, 2016) lists three categories of leadership functions: task leadership actions (e.g., structuring for results), relational leadership actions (e.g., managing conflict) and environmental leadership actions (e.g., negotiating support). The inclusion of the third function builds on research on *boundary spanning* (e.g., Ancona & Caldwell, 1990). Activities related to the notion of boundary spanning origin from the need for a team to mediate between itself and the environment. For example, a team needs to identify resources and obtain important information from the surrounding organization. In the context of athlete leadership, Loughhead et al. (2006) adapted these three dimensions to the sports context, using the terms *task*, *social* and *external leadership*. For instance, an athlete contributing to the task leadership of a team might do so by “[helping] to clarify responsibilities for teammates” (Loughhead et al., 2006, p. 148). While an athlete contributing to the social leadership of a team might “[help] solve interpersonal conflicts that may arise within the team” (Loughhead et al., 2006, p. 148). Accordingly, exemplary behavior for an athlete contributing to external leadership includes “[buffering] team members from outside distractions (e.g., media, financial/budget issues)” (Loughhead et al., 2006, p. 148).

The *forms of leadership* refer to the topology or pattern of how leadership within a team is carried out (Contractor et al., 2012; Larson & DeChurch, 2020). As highlighted by Contractor et al. (2012), such forms of leadership can range from hierarchical, to rotated, or shared leadership. The Hill-model assumes a form of shared leadership, which deliberately includes both forms of leadership, formal and informal (Hill, 2016; Morgeson et al., 2010). This is based on the observation that, typically, in every-day groups, different people assume leadership roles in different situations (McGrath, 1962). This translates to a key tenet of shared leadership, which is that both influence and power are being shared among multiple individu-

als (Pearce et al., 2009). Essentially, it builds on the notion of a dynamic change between leading and following, dependent on the situation. The same person may act as a leader in one situation and a follower in another. Accordingly, researchers speak of a team’s leadership capacity (Day et al., 2004; Hill, 2016). This term shifts the focus from leadership as an input to social processes, to leadership as an output of effective social processes. This emphasizes that the origins of shared leadership can be located within the social interactions among team members. In organizational research, shared leadership is commonly understood as an emergent phenomenon that develops over time (Carson et al., 2007; Day et al., 2004; Kozlowski et al., 2016). Both aspects, functions and forms, of leadership in sport teams bare significant research gaps.

1.4 The First Research Gap:

The Dimensions of Athlete Leadership Behavior

Loughead et al. (2006) adopted a three-dimensional model of leadership behavior (i.e., task, social and external leadership). The original three-dimensional model was complemented by Fransen et al. (2014), who proposed the addition of the dimension of *motivational leadership*. They understand the role of *motivational leadership* as someone who “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” (p. 1392). According to the authors, this leadership role³ had been introduced based on research,

³The authors do not talk of leadership functions, but of leadership roles. For instance, this approach has been used by Bales and Slater (e.g., Bales, 1950; Slater, 1955) who observed role differentiation in small groups, as highlighted in section 1.2. While they speak of roles instead of functions, both are connected by behavioral leadership research, which examines behavior as a common denominator.

which suggests that coaches and players “emphasise the importance of motivating and cheering during the game” (p. 1390). While further studies demonstrated that motivational leadership is qualitatively different from other dimensions of athlete leadership (e.g., Fransen et al., 2015), it represents a rather isolated strand of research. To this point, athlete leadership literature has been in line with general leadership literature from other disciplines. Most importantly, it has been in line with organizational leadership literature, which has been its primary source of influence. Accordingly, all other dimensions have strong empirical support (Judge et al., 2004; Yukl, 2012; Yukl et al., 2002). Additionally, a recent review of leadership behavior research suggests the existence of a different leadership dimension, change-oriented leadership. This dimension emerged from a factor analysis analyzing data from over 50 years of research (Yukl, 2012; Yukl et al., 2002). Surprisingly, change-oriented leadership has not been considered by previous athlete leadership research.

Change-oriented leadership refers to those behaviors which enable innovation, collective learning, and adaptation to external changes (i.e., changes in the environment). More specifically, it consists of the behavioral components of “advocating change, articulating an inspiring vision, encouraging innovation, and encouraging collective learning” (Yukl, 2012, p. 72). Theoretical considerations support the inclusion of change-oriented leadership for the sport team context. First, part of this dimension incorporates a motivational component (e.g., articulating an inspiring vision). Accordingly, motivational leadership could be considered a facet of change-oriented leadership. Thus, previous findings for the relevance of motivational leadership could be indicative for the existence of change-oriented leadership as a larger theme of behavior. Second, change-orientation corresponds to central elements within the new-genre leadership paradigm (e.g., transformational leadership) (Yukl, 2012). Thus, a four-dimensional model of athlete leadership including change-oriented leadership would include behavior that has been identified as essential to leadership (e.g., Judge & Piccolo, 2004). Third, adaptations to changes in the environment appear to be important for sports teams, as they are usually embedded within other systems, such as team management, clubs, leagues, and associations. Accordingly, this poses the question: does athlete leadership also

encompass change-oriented leadership functions?

1.5 The Second Research Gap:

The Emergence of Shared Athlete Leadership

Research in team sports has shown that athlete leadership corresponds with effective team functioning (for an overview, see Loughhead, 2017; Loughhead et al., 2020). Naturally, scholars and practitioners have been interested in ways of actively promoting athlete leadership. Even though the conceptualization of athlete leadership was built on shared leadership, previous interventions have focused mostly on individual athletes, disregarding that it needs to emerge within the respective group context. For instance, previous intervention studies focused on formal leadership only (e.g., Gould & Voelker, 2010), on leaders as individuals (e.g., Cotterill, 2016), or worked with subgroups instead of the full team (Duguay et al., 2016). These intervention studies did not fully attend to a key characteristic of shared leadership, which is captured within its definition as “an emergent team phenomenon that results from the distribution of leadership influence across multiple team members” (Carson et al., 2007, p. 1218). The term *emergent* refers to any phenomenon which “originates in the cognition, affect, behaviors, or other characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon” (Kozlowski & Klein, 2000, p. 55).

This calls for an athlete leadership intervention, which considers the emergent nature of shared leadership. Such an intervention needs to integrate a team in its entirety in order to allow a functioning shared leadership structure to emerge. To this end, solution focused brief therapy (SFBT) offers a possible framework for shared leadership development, as it considers behavior as embedded within interactions (de Shazer et al., 1986). Originally, SFBT was developed within the context of family therapy (for an overview, see Franklin et al., 2011). However, its principles promoting change have been applied to other settings, such as leadership development in organizations (for an overview, see McKergow, 2011). To our knowledge, only one study has applied SFBT to team development in sports (McCormick,

2014). Therefore, the second study of this dissertation seeks to develop, implement, and evaluate a SFBT intervention for shared leadership in high performance sports teams.

2. Aims of the Studies

2.1 Study 1

The first study aimed to develop and test a state-of-the-art athlete leadership model, including task-, social-, external-, and change-oriented leadership. This comprised of several secondary aims. First, an up-to-date model needed to reflect most recent advances in leadership research. Therefore, it should be based on a review of existing literature (i.e., leadership models). Second, such a model needed to incorporate the competitive environment of team sports. Since, leadership research is interdisciplinary, the resulting model (i.e., resulting descriptions) needs to reflect the respective context. Third, the model needed to be tested in the field by assessing the views from athletes and coaches on the relevance of the three updated dimensions and the inclusion of change-oriented leadership.

2.2 Study 2

The main goals of the second study were the development, implementation, and evaluation of a shared leadership intervention focusing on the emergent nature of shared leadership. In relation to the first main goal (i.e., development), the study consisted of two secondary aims. First, the intervention needed to identify and develop an approach to shared leadership development as an emergent team property. To this end, the intervention needed to be based on an approach that allows for the development of team properties by considering team member interactions. Second, the intervention needed to incorporate all dimensions of athlete leadership, in order to cover athlete leadership in its entirety. Integrating the findings from the first study, such an intervention would ensure to cover all relevant dimensions of athlete leadership. In relation to the second main goal (i.e., implementation of the intervention), we aimed to work with existing sports teams over the course of a season to ensure ecological validity. In relation to the third main goal (i.e., evaluation), we aimed to evaluate the intervention by combining both quantitative and qualitative data in order to ensure a holistic understanding of the research problem (i.e., the

effectiveness of the intervention to promote shared leadership).

3. Methodology

3.1 Study 1

To assess, whether change-oriented leadership is relevant in the investigation of athlete leadership, we tested whether the dimension would predict perceptions of athlete leadership effectiveness. Since change-oriented leadership had not been introduced as a dimension of athlete leadership, we first needed to review the existing models. Consequently, the first study comprised two methodological steps.

For the development of a revised model of athlete leadership, we synthesized existing taxonomies of leadership behavior. Based on this review, we proposed a model of athlete leadership, consisting of four dimensions (i.e., task-, social-, external-, and change-oriented leadership) and 20 sub-dimensions. For each sub-dimension, we created a short descriptive item that captured the essence of the respective leadership behavior. Subsequently, these items were evaluated by six sport psychology experts using a rating procedure based on Aiken's (1985) validity (V) index and qualitative feedback. Subsequently, the items were translated to German using a back-translation procedure (Brislin, 1979).

To gather insights on the validity of the revised model, it was quantitatively tested by assessing sport team members' and coaches' perceptions of leader effectiveness and leader behavior. This was done with a survey, which was completed by 161 competitive team sport athletes and 63 coaches in Germany. Each participant was asked to rate members of their team concerning to what degree they perceived each team member as an effective leader as well as to what degree they were showing the four meta-categories of leadership behavior. Perceived leadership effectiveness was measured with items that were used in previous studies investigating the construct (Van Knippenberg & Van Knippenberg, 2005; Van Quaquebeke et al., 2011). Each leadership dimension was measured with composite items based on our extended athlete leadership model (i.e., four summary items, combining the respective sub-dimensions). The results were analyzed for players and coaches separately.

3.2 Study 2

In line with the aims of study two, we developed, implemented, and evaluated a shared leadership intervention. Its innovative character stems from two characteristics: First, we accounted for the emergent nature of shared leadership by utilizing solution-focused brief therapy. SFBT considers behavior to be embedded in social systems, and it has been developed as a therapeutical framework that allows the interventionist to engender change for groups of people (e.g., Franklin et al., 2011). Second, we accounted for all four dimensions of the revised model of athlete leadership (i.e., task, social, change and external leadership) (Maechel et al., 2020). Building on our previous findings from the first study, the intervention included change-orientated leadership.

To meet the two main goals (i.e., to account for all behavioral dimensions and the emergent nature of shared leadership), we conceptualized four workshops, each of which addressed one of the four dimensions of the revised model of athlete leadership. Each workshop followed a detailed process documented by an intervention manual (for a detailed description, please see the intervention manual in the appendices). The manual covers the context of the intervention, facilitation guidelines and a detailed account of every workshop's agenda. Specifically, the first three workshops (i.e., task, social, and change leadership) consisted of four parts: (a) a presentation of the leadership dimension, (b) an individual reflection of the team's current and ideal state, (c) a group discussion and (d) group goal setting. After the first workshop, all remaining workshops started with a short reflection on the previous workshop's topic. The fourth workshop (i.e., external leadership) followed a different process. Instead of a presentation and reflection on external leadership, we reflected on the previous workshops and prepared as well as initiated a discussion with the coach. This discussion aimed to align and ensure the team's (shared leadership) development with its vertical leadership.

Furthermore, each workshop followed the SFBT methodology. That is, SFBT considers the therapeutic dialogue as they key mechanism for behavior change (Trepper et al., 2011). Put differently, the interventionist and the clients co-

construct possible solutions for the client's goals. To this end, the authors of SFBT have developed a range of therapeutic techniques that serve the purpose of identifying goal states, steps towards these goals and client resources conducive to them (e.g., De Jong & Berg, 2013; de Shazer et al., 2007).

In relation to the third goal (i.e., implementation) the intervention was tested in three phases. After a development phase, the intervention was tested in three trial runs with existing sports teams. Subsequently, we conducted the intervention in four consecutive workshops over the course of a season. Three sport psychologists served as interventionists for the teams of the intervention group. In order to achieve a comprehensive evaluation of the outcomes of the intervention, we collected both quantitative and qualitative data using a convergent mixed methods experimental design. In line with mixed methods methodology, we conducted a separate data analysis and combined interpretation (Creswell, 2014). Data collection took place prior to the intervention (i.e., time 1) as well as after the intervention (i.e., time 2). Our initial sample comprised of eight teams with a total of 86 athletes at time 1. Due to attrition, our sample was reduced to six teams and 60 athletes at time 2. The quantitative data was collected using the Shared Professional Leadership Inventory for Teams (SPLIT; Grille & Kauffeld, 2015) at both times of measurement. We conducted a multivariate analysis of variance (MANOVA) in order to assess whether the intervention group developed differently than the control group between time 1 and time 2.

For the qualitative data collection, we conducted focus group interviews with a selection of athletes and individual interviews with the coaches from all teams in the intervention group at time 2. Both, the focus groups and individual interviews were semi-structured (for more details, see the interview guides in the appendices). Most importantly, these interviews aimed to evaluate the outcomes of the intervention (e.g., "In general, what were the outcomes of the intervention?"). We analyzed the qualitative data using reflexive thematic analysis (Braun & Clarke, 2006, 2019). This type of analysis allows the researcher to generate themes from the data, which help to describe and report important findings within the overall data set. We concluded the analysis of our data with a combined interpretation in the discussion

section.

4. Publications and Submissions

4.1 Article 1

Authors: Christopher Maechel, Todd M. Loughhead, Jürgen Beckmann

Title: The Testing of a Four-Dimensional Model of Athlete Leadership and Its Relation to Leadership Effectiveness

Journal: Frontiers in Psychology

Doi: <https://doi.org/10.3389/fpsyg.2020.01361>

Summary: Leadership behaviors are a key component of athlete leadership research. Typically, studies investigate the dimensions of task, social and external leadership behaviors. Another line of research included motivational leadership as a fourth dimension. However, general leadership research has identified change-oriented leadership as a core component of leadership. Therefore, in the present study, we developed and tested a novel four-dimensional model, including task-, social-, external- and change-oriented leadership. The model was developed by combining and extending existing models from organizational and sport psychology. This resulted in four dimensions (i.e., task-, social-, external- and change-oriented leadership) and twenty sub-dimensions (e.g., clarifying goals, individual support, or managing conflict). For every sub-dimension, the authors created a statement describing corresponding leadership behavior. For each dimension, these statements were combined to capture the essence of the dimension. The validity of the model was assessed using expert ratings. To test the model, we asked a sample of athletes and coaches to rate every player on their team on perceptions of leadership effectiveness and the four dimensions of leader behavior. This data were analyzed using multilevel modeling. It showed that for players and coaches, change-oriented leadership significantly predicted perceived leadership effectiveness while controlling for the other three dimensions. More specifically, players and coaches showed differences in predictor values. For players, the predictors of task-, social and change-oriented leadership were statistically on the same level. For coaches, the predictor value of task-oriented leadership was higher than those of social- and change-oriented lead-

ership. For players and coaches, the predictor values of external leadership showed to be lower than those of the other dimensions. This has several implications for theory and practice. Most importantly, the results support the inclusion of change-oriented leadership as a fourth dimension in models of athlete leadership behavior. Moreover, there appear to be differences in the relative importance that athletes and coaches place on the different dimensions of athlete leadership behavior, presenting a potential course for future research. For practice, the results suggest that athlete may serve as change agents. As change-oriented leadership is understood to be an adaptive response to environmental change, teams might be able to benefit from athlete leadership to navigate change successfully. In summary, the present study helps to structure existing findings while opening new pathways for future research.

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Contribution: The study is part of the dissertation by Christopher Mächel (CM) and has been supervised by Jürgen Beckmann (JB) and Todd Loughhead (TL). The study was conceptualized by CM and TL. Both authors also developed the four-dimensional model of athlete leadership. The data collection and analysis was conducted by CM. All the authors contributed to the writing of the manuscript and approved its final version.



The Testing of a Four-Dimensional Model of Athlete Leadership and Its Relation to Leadership Effectiveness

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Athlete leadership researchers have typically investigated three dimensions of athlete leadership behaviors, which include the meta-categories of task-, social-, and external-oriented leadership. More recently, motivational leadership was added as a fourth dimension. Researchers in organizational leadership have advanced another dimension, referred to as change-oriented leadership (Yukl, 2012). Therefore, in the present study, we tested a four-dimensional model that includes the dimensions of task-, social-, external-, and change-oriented leadership. Two samples of 161 athletes and 69 coaches rated every player on their team on the four-dimensional model and on perceived athlete leadership effectiveness. A multilevel regression analysis showed that all four dimensions of athlete leadership significantly predicted perceived athlete leadership effectiveness for players and three dimensions (i.e., social-, task-, and change-oriented leadership) for coaches. These results support the importance of change-oriented leadership in relation to athlete leadership.

Keywords: athlete leadership, shared leadership, functional leadership theory, change-oriented leadership, leadership effectiveness

INTRODUCTION

Leadership is a crucial component for team functioning in high-performance sport teams (Chelladurai, 2007). For instance, researchers have demonstrated that effective leadership is associated with increased individual performance (Bormann and Rowold, 2016), positive motivational climate (Seifriz et al., 1992; Duda, 2001), intrinsic motivation (Amorose and Horn, 2000), collective efficacy (Magyar et al., 2004; Price and Weiss, 2013), increased team cohesion, and athlete satisfaction (Kim and Cruz, 2016). These results are not surprising since leadership constitutes a fundamental process in group dynamics. However, research has predominantly focused on individualistic, top-down forms of leadership (i.e., coaches, managers), mostly disregarding lateral or bottom-up leadership (i.e., athletes). In the last decade, the study of athlete leadership has emerged as a research area, investigating leadership provided by the athletes to their teams. In fact, empirical studies have demonstrated a relationship between athlete leadership and team cohesion (Price and Weiss, 2011; Loughhead et al., 2016), team resilience (Morgan et al., 2013, 2015), athlete satisfaction (Eys et al., 2007), role clarity (Crozier et al., 2013), and team effectiveness (Fransen et al., 2017).

By definition, athlete leadership is viewed as athletes occupying a formal or informal leadership role within the team and influencing team members to achieve a common goal (Loughead et al., 2006) – that is, athletes emerge as leaders by fulfilling either a formal or an informal leadership role. The former refers to those players who are designated with an official leadership role, such as captain or assistant captain. The latter refers to those athletes who emerge as leaders as a result of social interaction and are regarded by their teammates as providing leadership. By having both formal and informal leaders fulfill leadership roles, the definition implicitly acknowledges that athlete leadership on sport teams is a shared process, which is investigated in the shared leadership literature (Pearce and Conger, 2003). A key tenet of shared leadership is that the complexity and the ambiguity make it difficult for a single leader to successfully perform all the various leadership functions. In other words, “leadership is probably best conceived as a group quality, as a set of functions which must be carried out by the group” (Gibb, 1954, 884). This shared element is also captured by other leadership theories, such as functional leadership theory (McGrath, 1962; Morgeson et al., 2010). This theory suggests that leaders need “to do, or get done, whatever is not being adequately handled for group needs” (McGrath, 1962, 5). This implies that the leadership functions, which serve to meet the team’s needs, do not need to be performed by the same individual; rather, anyone who fulfills these responsibilities is considered to assume a leadership role. As such, Loughead et al. (2019) noted the shared nature of athlete leadership by indicating that it is “a shared team process comprised of mutual influence and shared responsibility amongst team members, who lead each other toward the achievement of a common goal.”

The shared nature of athlete leadership has been demonstrated in several studies using various research methodologies. For instance, Loughead et al. (2006) used dispersion statistics to highlight the shared nature of athlete leadership. The results indicated that 8–15% of athletes were viewed as formal leaders and 29–47% of athletes were viewed as informal leaders within their respective teams. Furthermore, when team members were asked about the ideal number of athlete leaders in a team, the results showed that 85% of athletes should fulfill a leadership role (Crozier et al., 2013). Another research method used to demonstrate the shared nature of athlete leadership is social network analysis. Social network analysis is a methodological tool that examines the “relationships among social entities, and on the patterns and implications of these relationships” (Wasserman and Faust, 1994, 3). For instance, in order to visually and quantitatively examine the distribution of athlete leadership, Duguay et al. (2019b) sampled four competitive youth teams. Within each team, every player was asked to rate the extent that they looked for leadership to each of their teammates. The results showed that there were no leadership isolates, indicating that every team member provided leadership to at least one other member of the team, supporting the notion that athlete leadership is a shared phenomenon.

Given that numerous athletes are able to contribute to the leadership of the team, the question then becomes: what are the specific leadership functions that are shared? To date,

athlete leadership research has focused on four leadership functions: task, social, external, and motivational. The task-related functions are oriented toward the team’s task goals (e.g., clarifying team goals) and were first identified in the Ohio State studies (Fleishman, 1953), referring to the behavioral factor of *initiating structure*, which constitutes a leader’s effort toward goal attainment and the establishment of means of communication. The social-related functions are oriented toward individual team members (e.g., satisfying individual needs) and were also first identified in the Ohio State studies (Fleishman, 1953), within the behavioral factor of *consideration*. It refers to behavior oriented toward followers that demonstrate concern, appreciation, and respect as well as providing support. The external-related functions originate from research on *boundary spanning*, which can be described as an effort to initiate and manage external connections (Ancona and Caldwell, 1992; Marrone, 2010). Generally, these functions provide a team with linkages to its external environment (e.g., advocating and representing the team). Lastly, the operationalization of motivational leadership originated within athlete leadership research. Its function is to encourage teammates and promote emotions conducive to team performance during on-field situations (Fransen et al., 2014). Taken together, all four functions have shown to be empirically relevant for athlete leadership in sports. The dimensions of task and social leadership were among the first functions identified in the sports context (Rees and Segal, 1984). Later, Loughead et al. (2006) corroborated their findings while demonstrating the relevance of external leadership for athlete leadership. Lastly, Fransen et al. (2014) demonstrated that motivational leadership was present within the sports context. All four functions are used in athlete leadership research today (Cotterill and Fransen, 2016).

While the research showing the presence of the four leadership functions (task, social, external, and motivational) has helped to advance our understanding of athlete leadership, no attempt, to our knowledge, has been made to bring together these related functions in order to give a broader understanding of the phenomenon of interest, in this case, athlete leadership. Yukl (2012) advanced a taxonomy of leadership that appears to be suitable for the study of athlete leadership. Specifically, Yukl et al. (2002) reviewed 50 years of leadership research in organizational psychology, providing the most comprehensive and integrative overview of behavioral leadership research to date (Yukl et al., 2002; Yukl, 2012). They concluded that *task-oriented*, *relations-oriented*, *change-oriented*, and *external* leadership serve as the four meta-categories of effective leadership behavior, and within those four categories, a total of 15 sub-dimensions are contained. The significance for athlete leadership is twofold. First, Yukl’s taxonomy promotes conceptual clarity with regard to the relevance and the structure of leadership functions. As a research area grows, such as athlete leadership, there is usually a proliferation of taxonomies (Fleishman et al., 1991; Yukl et al., 2002). In athlete leadership research, the original three-dimensional model advanced by Loughead et al. (2006) has already been extended with the inclusion of *motivational leadership* (Fransen et al., 2014). While this fourth component has shown to be empirically relevant (Fransen et al., 2017), it does not have a comparably strong historical background

as task-, social-, and external-oriented leadership (Loughead et al., 2006). In this regard, Yukl's taxonomy provides an empirically tested and comprehensive reference point that could help to structure the existing research knowledge. For instance, *motivational leadership* shares aspects of change orientation (e.g., inspirational motivation) while disregarding others (e.g., advocating change) from Yukl's taxonomy. On the one hand, this supports the existence and the necessity of such a leadership function. On the other hand, it raises the question on whether a four-dimensional model of athlete leadership, including task-oriented, social-oriented, external-oriented, and motivational leadership, covers all aspects of athlete leadership. Second, Yukl's taxonomy highlights potential areas of future research. In relation to athlete leadership, change-oriented leadership has only been examined in the context of transformational leadership research (Callow et al., 2009). While there is some conceptual overlap, transformational leadership does not cover all leadership behaviors identified by the meta-category of change orientation (Yukl et al., 2002). Specifically, this meta-category refers to activities that serve to advocate for change, articulate an inspiring vision, encourage innovation, and inspire collective learning (Yukl, 2012). The importance of the change-oriented dimension is supported by various leadership theories, such as transformational or charismatic leadership (e.g., Bass, 1985; Shamir et al., 1993). Additionally, the ability to encourage innovation and provide inspiration to others has been identified as an essential component of leadership in organizational research (Williams and Foti, 2011; Waite, 2014) as well as in sport, for both coaches (Vella et al., 2012; Bormann and Rowold, 2016) and players (Callow et al., 2009). Furthermore, all four meta-categories were shown to be valid dimensions for shared leadership in organizational teams (Grille and Kauffeld, 2015).

Thus, the aim of the current study is to investigate athlete leadership using Yukl's (2012) four meta-category taxonomy (task-oriented, relations-oriented, change-oriented, and external leadership). To accomplish this objective, the present study examined the presence of these four meta-categories, in relation to athlete leadership, by surveying both athletes and coaches. In order to evaluate the significance of the four functions of leadership, we chose to use perceived leadership effectiveness as the dependent variable. It has been shown that evaluations of leadership effectiveness correspond with objective measures of group performance (Hogan et al., 1984) and sport team performance (Fransen et al., 2017). In order to determine whether the addition of change-oriented leadership is relevant for athlete leadership research, we investigated whether this dimension contributes unique variance to a model predicting perceived leadership effectiveness and whether the inclusion of change orientation improved the model fit. Therefore, the following hypotheses were tested: for athletes (H1a) and coaches (H1b), controlling for the dimensions of social-, task-, and external-oriented leadership, change-oriented leadership will significantly predict perceived athlete leadership effectiveness. For athletes (H2a) and coaches (H2b), the four-dimensional model will show a significantly better model fit than the three-dimensional model.

MATERIALS AND METHODS

Participants

The participants consisted of both athletes and coaches. The athletes were 161 (82 females, 79 males) German professional-level ($n = 57$), national-level ($n = 17$), regional-level ($n = 20$), and district-level ($n = 67$) athletes with an average age of 23.98 years ($SD = 6.94$). These athletes represented 81 different teams, from 60 clubs, and competed in a variety of interactive team sports, including volleyball ($n = 70$), basketball ($n = 35$), handball ($n = 27$), field hockey ($n = 15$), ice hockey ($n = 7$), soccer ($n = 5$), and lacrosse ($n = 2$). The coaches were 63 (57 males, six females) German professional ($n = 29$), state ($n = 7$), regional ($n = 13$), and district ($n = 14$) league coaches. The mean age of the coaches was 40.86 years ($SD = 10.39$); they had been coaching, on average, for 16.14 years ($SD = 10.14$). They represented 63 different teams, from 59 clubs, covering a variety of different team sports, including basketball ($n = 24$), volleyball ($n = 20$), ice hockey ($n = 11$), handball ($n = 5$), and field hockey ($n = 3$).

Measures

Athlete Leadership Functions

The items for the four athlete leadership functions (task-oriented, relations-oriented, change-oriented, and external) were derived from Yukl (2012) and Kogler Hill's (2016) conceptualization of these four functions – that is, the authors compiled descriptions that captured the essence of each of the four functions. To do so, the authors developed 20-item statements. They represent the 15 sub-dimensions from Yukl's (2012) taxonomy of leadership as well as five additional items based on the existent athlete leadership literature. In order to establish content validity, six sport psychology experts with a background in leadership and group dynamics were asked to independently rate the degree to which each description matched each of the 20 leadership dimensions, which satisfied Lynn's (1986) recommendation of at least five judges to avoid against chance agreement. The expert judges were asked to rate the degree to which each item matched each of the four athlete leadership functions. To reduce rating bias, the expert judges were provided with the items but were not told which items linked to the four athlete leadership functions. The expert judges rated each item on a five-point Likert scale from 1 (poor match) to 5 (excellent match) based on the suggestions from Dunn et al. (1999).

Decisions on whether to retain or revise items were based on Aiken's (1985) validity (V) index and the qualitative feedback from the expert judges. The V coefficients were compared to Aiken's table, and coefficients larger than 0.79 were statistically significant at the 0.05 level. Nineteen out of 20 sub-dimensions showed a significant match ($V > 0.79$, $p < 0.029$). Only one item description, *establishing structure*, indicated a non-significant match ($V = 0.42$, $p > 0.05$). *Establishing structure* was then modified based on the feedback from the experts. Lastly, the 20 sub-dimensions were put into each of their respective four athlete leadership functions (task-oriented, relations-oriented, change-oriented, and external) to create a composite description of that particular function. The experts concluded that the descriptions

presented in **Table 1** reflected the respective dimensions. For example, the description for social-oriented leadership read: “This person promotes teamwork and engagement amongst team members. He/she provides feedback, advice and/or mentoring in order to help individual team members develop. He/she fosters a constructive way of dealing with conflicts that may arise to maximize the team’s effectiveness. He/she recognizes and praises team members for good performance. He/she shows concern for individual members, provides support and is trusted by them. He/she sets an example for teammates to follow that is consistent with the values of the team.” The participants rated each of their teammates (athletes) or players (coaches) on each of the four athlete leadership functions using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The original model was produced in English; therefore, the model was first translated to German by following a back-translation procedure (Brislin, 1979). In order to uphold meaning for the sports context, we engaged in three back-translation iterations, including a version from a professional translator and two versions from sport psychology experts. The outcome was discussed among a group of four sport psychology experts until a consensus was reached. Based on the German version of our extended model, we derived composite items serving as descriptions for each of the four leadership dimensions. This approach builds on earlier paradigms to identify and evaluate athlete leadership (Loughead and Hardy, 2005; Eys et al., 2007; Fransen et al., 2015).

Perceived Leadership Effectiveness

To assess perceived leadership effectiveness, we used three items for our athlete participants and two items for our coach participants. These items were adapted from van Knippenberg and van Knippenberg (2005) and had been translated to German (Van Quaquebeke et al., 2011). One item had not been translated before and needed to be subjected to the back-translation process as described above. Because we were also assessing informal leadership and the original items came from a business context, we slightly adapted the items by replacing specific leadership terminologies with more general ones. The items included: “This person is very effective as a leader,” “He or she is a good leader,” and “This person motivates me to exert myself on behalf of the team.” The participants indicated their agreement on statements of leader effectiveness for their fellow team members using a seven-point scale ranging from 1 (totally disagree) to 7 (totally agree). We computed a composite score of perceived leadership effectiveness for every rated player by averaging the responses to each item. An analysis of reliability showed a good level of internal consistency (Cronbach’s $\alpha = 0.88$). Intraclass correlations (ICC) indicated that, for players, 22% of total variance in perceived athlete leadership effectiveness is attributable to individuals ($ICC_1 = 0.22$, $ICC_2 = 0.79$). For coaches, we excluded one item because it did not fit the coaches’ perspective (“This person motivates me to exert myself on behalf of the team”). Thus, the composite score of the averaged perceived leadership effectiveness consisted of only two items. For the reliability analysis, we used Spearman–Brown statistic ($R = 0.93$, $ICC_1 = 0.19$, $ICC_2 = 0.79$), which provides

a better estimate for two-item scales than coefficient alpha (Eisinga et al., 2013).

Procedure

Approval for the study was obtained from the first author’s university research ethics commission¹. An email detailing the nature of the study, including a link to the online survey, was sent to sport associations, clubs, coaches, and athletes. In addition, we also approached, in person, league organizers and individual clubs to recruit participants at tournaments and team practices. Data collection occurred electronically, both online and offline, using Qualtrics software. Due to the geographical location of the lead researcher, most athletes completed the survey offline (60.25%), while most coaches completed the survey online (87.3%). The questionnaire first asked the participants to list all players in their current team. Every participant then rated every player in their team in terms of perceived athlete leadership effectiveness and athlete leadership functions.

Data Analysis

To test our hypotheses, the data were analyzed using multilevel modeling to account for the nested structure of the data. This controls for the dependency within the data, which originates from the same sources that provided multiple ratings (ratings nested within players). The analysis was conducted with R version 3.52 (R Core Team, 2019). Our model consisted of two levels, which distinguished between within-individual variance (level 1) and between-individuals variance (level 2). In a multilevel analysis, an unconditional model (null model) serves as a starting point for further analysis (Raudenbush and Bryk, 2002; Nezlek, 2011). This model includes a random intercept and excludes all predictors. In general, the unconditional model serves different functions. First, it assesses the need for multilevel modeling by indicating whether there is significant variation in the intercept across individuals. Second, it shows the distribution of total variability across different levels. Lastly, it provides a basis for evaluating the predictive improvement of additional models. For our analyses, we built our models incrementally by first adding the three predictors of social-, task- and external-oriented leadership to the unconditional model. This represented the original three-dimensional model of athlete leadership that has been examined in previous research (3D model). Subsequently, we added change-oriented leadership to the previous model, representing the four-dimensional model (4D model). Extending the three-dimensional model (3D model) with change-oriented leadership enables us to test both sets of hypotheses. First, controlling for all predictors of the three-dimensional model (3D model), a significant predictor of change-oriented leadership would support hypotheses 1a (players) and 1b (coaches), showing that change-oriented leadership explains unique variance. Second, a comparison of both models (3D and 4D model), indicating a significant better model fit for the four-dimensional model, would support hypothesis 2a (players) and 2b (coaches), showing that the inclusion of change-oriented leadership leads to less unexplained observations.

¹Ethics Commission of the Technical University of Munich.

TABLE 1 | A four-dimensional model for the study of athlete leadership.

	Dimension	Description
Task-oriented functions	Clarifying goals	Helps the team focus on its goals
	Establishing structure	Clarifies and coordinates team activities, determines the steps and resources necessary to accomplish these activities
	Decision-making	Identifies team-related problems and facilitates decisions to resolve these
	Maintaining standards of performance	Makes sure the team's and/or team members' performance are meeting or exceeding expectations
	Training	Helps team members develop their skills and tactics
Relations-oriented functions	Personal development	Provides feedback, advice, and/or mentoring in order to help individual team members develop
	Managing conflict	Fosters a constructive way of dealing with conflicts that may arise to maximize the team's effectiveness
	Promoting teamwork	Promotes teamwork and engagement among team members
	Recognizing	Recognizes and praises team members for good performance
	Individual support	Shows concern for individual members, provides support, and is trusted by them
	Role modeling	Sets an example that is consistent with the values of the team for teammates to follow
	Empowering	Considers the suggestions of teammates and involves them in important decisions
Change-oriented functions	Inspirational motivation	Promotes a positive vision concerning the future of the team
	Intellectual stimulation	Challenges team members to think about problems in new ways
	Advocating change	Explains why change is desirable for the team
	Fostering collective learning	Encourages learning between team members to help the team develop
External-oriented functions	Networking	Develops and/or maintains favorable relationships with others outside the team who can provide useful information or assistance
	Representing team	Represents the team's interests in meetings with coaching staff, administrators, or key stakeholders
	External monitoring	Observes the environment to identify opportunities for the team or to protect it from distractions and unnecessary demands
	Information gathering	Assesses information about the team's performance and shares relevant information with the team

Furthermore, because perceived athlete leadership effectiveness was assessed with only two out of three items for coaches, we included an additional test of all three models with the same items for players (retest). This served the purpose of providing a set of models which are comparable to the coach sample. All models were evaluated by assessing individual predictors as well as comparing improvements in model fit. For all our multilevel analyses, we used maximum likelihood estimation. The predictor values were group-mean-centered as we targeted relationships on the first level of analysis (Enders and Tofghi, 2007).

RESULTS

For players and coaches, means and standard deviations were calculated. In the player sample, the average ratings were $M = 3.92$ ($SD = 1.72$) for social-oriented leadership, $M = 3.74$ ($SD = 1.77$) for change-oriented leadership, $M = 3.64$ ($SD = 1.77$) for task-oriented leadership, and $M = 3.36$ ($SD = 1.88$) for external-oriented leadership. In the coach sample, the average ratings were $M = 3.78$ ($SD = 1.84$) for social-oriented leadership, $M = 3.58$ ($SD = 1.85$) for change-oriented leadership, $M = 3.48$ ($SD = 1.81$) for task-oriented leadership, and $M = 3.29$ ($SD = 1.83$) for external-oriented leadership. The average ratings on perceived leadership effectiveness were $M = 3.8$ ($SD = 1.66$) in the player sample and $M = 3.61$ ($SD = 1.77$) in the coach sample. A summary of bivariate correlations among all variables is presented in

Table 2. To test our hypotheses, we conducted multilevel modeling on the four different models that are presented below. The results begin with a test of the null model, followed by the 3D model and the 4D model. Lastly, we included a retest model for the player sample with two athlete leadership effectiveness items.

Null Model

A comparison of our random intercept model (null model) to a baseline model with a fixed intercept showed that the intercepts vary significantly across individuals for players, $SD = 0.78$ (95% CI: 0.68, 0.90), $X^2(1) = 271.98$, $p < 0.001$, as well as for coaches, $SD = 0.75$ (95% CI: 0.61, 0.96), $X^2(1) = 110.05$, $p < 0.001$. Thus, the intercept is significantly different for the participants in terms of our outcome variable, which justifies the use of multilevel modeling.

3D Model

Next, we added all predictors of the three-dimensional model of athlete leadership in one block. This model served as a reference model to test our hypotheses. In accordance with a meta-analysis from the organizational literature, which showed that social-oriented leadership, in comparison to task-oriented leadership, had the strongest relation with leadership outcomes (Judge et al., 2004), our athlete leadership functions were added to the model in the following order: social-oriented leadership, task-oriented leadership, and external-oriented leadership. For players (H1a), all three predictors

TABLE 2 | Correlations for all study variables.

	Players					Coaches				
	1	2	3	4	5	1	2	3	4	5
PLE		0.75	0.76	0.62	0.76		0.75	0.80	0.61	0.74
Social	0.75		0.72	0.59	0.67	0.75		0.76	0.66	0.74
Task	0.71	0.75		0.64	0.70	0.77	0.71		0.63	0.77
External	0.60	0.64	0.72		0.61	0.52	0.56	0.61		0.64
Change	0.67	0.69	0.78	0.69		0.77	0.76	0.71	0.59	

For players and coaches, coefficients above the diagonal are within-person level 1 correlations (number of observations for players = 2125; for coaches = 989). Coefficients below the diagonal are between-person level 2 correlations. PLE refers to perceived leadership effectiveness. Social, task, external and change refer to the respective athlete leadership function.

significantly predicted perceived leadership effectiveness (social, $\beta = 0.41$, $p < 0.001$; task, $\beta = 0.39$, $p < 0.001$; external, $\beta = 0.14$, $p < 0.001$). In order to evaluate the model fit and enable comparisons, we used Schwarz's Bayesian criterion (BIC) (Field et al., 2012). BIC is more conservative than other common goodness-of-fit measures when the sample size is large and the number of parameters is small. Furthermore, there is no objective reference for what constitutes small and large values; however, BIC allows for comparisons of models predicting the same outcome variable, with smaller values representing a better model fit (for an overview of the results, see **Table 3**). In comparison to the unconditional model, the model fit improved significantly from the null model (BIC = 7,920.51) to the 3D model (BIC = 5,727.62), $X^2(1) = 2,232.85$, $p < 0.001$. Adding two-way interaction terms between any of the three dimensions did not lead to a better model fit. In particular, for social- and task-oriented leadership, BIC = 5,735.18, $X^2(1) = 0.10$, $p = 0.75$; for social and external-oriented leadership, BIC = 5,732.60, $X^2(1) = 2.68$, $p = 0.10$; and for task and external-oriented leadership, BIC = 5,735.11, $X^2(1) = 0.18$, $p = 0.67$.

Similarly, we tested the three-dimensional model for coaches. All three predictors significantly predicted perceived leadership effectiveness (social-oriented leadership, $\beta = 0.34$, $p < 0.001$; task-oriented leadership, $\beta = 0.52$, $p < 0.001$; and external-oriented leadership, $\beta = 0.08$, $p < 0.01$). The model fit improved from the null model (BIC = 3,844.01) to the 3D model (BIC = 2,782.16), $X^2(1) = 1,082.55$, $p < 0.001$, in comparison to the unconditional model. A two-way interaction term between any of the three athlete leadership dimensions did not further improve the model fit, specifically, for social- and task-oriented leadership, BIC = 2,789.0, $X^2(1) = 0.05$, $p = 0.82$; for social- and external-oriented leadership, BIC = 2,788.7, $X^2(1) = 0.35$, $p = 0.55$; and for task- and external-oriented leadership, BIC = 2,788.65, $X^2(1) = 0.4$, $p = 0.53$.

4D Model

To test hypothesis 1a and 1b, we extended the 3D model by adding change-oriented leadership (4D model). For players (H1a), all four predictors significantly predicted perceived

leadership effectiveness (social-oriented leadership, $\beta = 0.31$, $p < 0.001$; task-oriented leadership, $\beta = 0.28$, $p < 0.001$; external-oriented leadership, $\beta = 0.07$, $p < 0.001$; and change-oriented leadership, $\beta = 0.33$, $p < 0.001$). Thus, we reject the null hypothesis for H1a. The model fit for the 4D model (BIC = 5,446.47) improved in comparison to the 3D model (BIC = 5,727.62), $X^2(1) = 288.82$, $p < 0.001$. Thus, we reject the null hypothesis for H2a. Adding two-way interaction terms between change-oriented leadership and any of the three other leadership dimensions (i.e., social-, task-, and external-oriented leadership) did not lead to a better model fit. In particular, for change- and social-oriented leadership, BIC = 5,452.46, $X^2(1) = 1.67$, $p = 0.20$; for change- and task-oriented leadership, BIC = 5,453.98, $X^2(1) = 0.15$, $p = 0.70$; and for change- and external-oriented leadership, BIC = 5,452.84, $X^2(1) = 1.29$, $p = 0.26$. For coaches (H2b), social-, task-, and change-oriented leadership significantly predicted perceived leadership effectiveness (social-oriented leadership, $\beta = 0.28$, $p < 0.001$; task-oriented leadership, $\beta = 0.43$, $p < 0.001$; and change-oriented leadership, $\beta = 0.20$, $p < 0.001$). Thus, we reject the null hypothesis for H1b. However, the predictor of external-oriented leadership was not significant ($\beta = 0.05$, $p = 0.066$). The 4D model (BIC = 2,752.7) in comparison to 3D model (BIC = 2,782.16) showed a better model, $X^2(1) = 36.36$, $p < 0.001$. Thus, we reject the null hypothesis for H2b. The model fit was not improved by adding two-way interaction terms between change-oriented leadership and any of the three other leadership dimensions. For change- and social-oriented leadership, BIC = 2,759.59, $X^2(1) = 0.009$, $p = 0.92$; for change- and task-oriented leadership, BIC = 2,758.91, $X^2(1) = 0.69$, $p = 0.41$; and for change- and external-oriented leadership, BIC = 2,759.11, $X^2(1) = 0.48$, $p = 0.49$. The results for the main models are presented in **Table 3** for players and in **Table 4** for coaches.

For both models and samples, we tested for multilevel analysis assumptions for parametric data (Field et al., 2012). For the coach sample, normality, linearity, and homoscedasticity were inspected visually and met the requirements. Multicollinearity was tested by computing the variance inflation factor (VIF) and tolerance statistics and these indicated no violations (3D model, social-oriented

TABLE 3 | Multilevel regression models: estimates and fit (athletes).

	Null model	3D model	3D model ¹	4D model	4D model ¹
	B [CI] (SE)	B [CI] (SE)	B [CI] (SE)	B [CI] (SE)	B [CI] (SE)
Fixed effects					
Intercept (γ_{00})	3.85 [3.71, 3.99] (0.07)**	3.86 [3.72, 4] (0.07)**	3.66 [3.52, 3.8] (0.07)**	3.86 [3.72, 4] (0.07)**	3.67 [3.53, 3.8] (0.07)**
Social		0.41 [0.37, 0.45] (0.02)**	0.38 [0.34, 0.42] (0.02)**	0.31 [0.28, 0.35] (0.02)**	0.29 [0.25, 0.33] (0.02)**
Task		0.39 [0.35, 0.43] (0.02)**	0.44 [0.39, 0.48] (0.02)**	0.28 [0.24, 0.32] (0.02)**	0.32 [0.28, 0.37] (0.02)**
External		0.14 [0.11, 0.17] (0.02)**	0.17 [0.14, 0.21] (0.02)**	0.07 [0.04, 0.11] (0.02)**	0.11 [0.07, 0.15] (0.2)**
Change				0.33 [0.30, 0.37] (0.02)**	0.31 [0.27, 0.35] (0.02)**
Random effects					
Intercept	0.78 [0.68, 0.9]	0.86 [0.76, 0.97]	0.85 [0.76, 0.96]	0.86 [0.77, 0.97]	0.86 [0.76, 0.96]
Model fit					
BIC	7937.49	5727.62	6193.14	5446.47	6006.8

The predictor variables are group-mean-centered. The confidence intervals (95%) are inside the square parentheses. The standard errors are inside the round parentheses. The null model represents the unconditional model. The 3D model included the predictors of social-, task-, and external-oriented leadership. The 3D model¹ represents a retest of the 3D model, with a reduced number of items. The 4D model included the predictors of social-, task-, external- and change-oriented leadership. The 4D model¹ represents a retest of the 4D model, with a reduced number of items. ** $p < 0.001$.

TABLE 4 | Multilevel regression models: estimates and fit (coaches).

	Null model	3D model	4D model
	B [CI] (SE)	B [CI] (SE)	B [CI] (SE)
Fixed effects			
Intercept (γ_{00})	3.64 [3.43, 3.86] (0.11)**	3.65 [3.43, 3.86] (0.11)**	3.65 [3.43, 3.86] (0.11)**
Social		0.34 [0.28, 0.4] (0.03)**	0.28 [0.22, 0.34] (0.03)**
Task		0.52 [0.46, 0.58] (0.03)**	0.43 [0.37, 0.5] (0.03)**
External		0.08 [0.03, 0.13] (0.03)*	0.05 [0, 0.1] (0.03)
Change			0.20 [0.13, 0.26] (0.03)**
Random effects			
Intercept	0.76 [0.61, 0.96]	0.84 [0.69, 1]	0.84 [0.7, 1.01]
Model fit			
BIC	3844.01	2782.16	2752.70

The predictor variables are group-mean-centered. The confidence intervals (95%) are inside the square parentheses. The standard errors are inside the round parentheses. The null model represents the unconditional model. The 3D model included the predictors of social-, task-, and external-oriented leadership. The 4D model included the predictors of social-, task-, external-, and change-oriented leadership. * $p < 0.01$, ** $p < 0.001$.

leadership, tolerance = 0.37, VIF = 2.69; task-oriented leadership, tolerance = 0.39, VIF = 2.56; external-oriented leadership, tolerance = 0.53, VIF = 1.9; 4D model, social-oriented leadership, tolerance = 0.34, VIF = 2.95; task-oriented leadership, tolerance = 0.32, VIF = 3.15; external-oriented leadership, tolerance = 0.5, VIF = 1.99; change-oriented leadership, tolerance = 0.33, VIF = 3.02). For the player sample, the assumptions of normality, linearity, and homoscedasticity were equally inspected and met the requirements. The VIF and tolerance statistics likewise indicated no violations of multicollinearity (3D model, social-oriented leadership, tolerance = 0.46, VIF = 2.19; task-oriented leadership, tolerance = 0.42, VIF = 2.4; external-oriented leadership, tolerance = 0.56, VIF = 1.8; 4D model, social-oriented leadership, tolerance = 0.42, VIF = 2.4; task-oriented leadership, tolerance = 0.37, VIF = 2.7; external-oriented leadership, tolerance = 0.53, VIF = 1.9; change-oriented

leadership, tolerance = 0.42, VIF = 2.37). There were no missing values in our data.

Retest

To account for the missing item in the coaches' data, we tested all three models with the players' data for the same two items that the coaches completed. All retested models are indicated with a superscript numerator. The comparison of the null model¹ to the fixed intercept baseline model showed that the intercepts varied significantly across individuals for players, justifying the use of multilevel modeling, $X^2(1) = 224.23, p < 0.001$. Intraclass correlations indicated that, for players, 19% (ICC1 = 0.19, ICC2 = 0.76) of total variance in perceived leadership effectiveness was attributable to individuals (between-individuals variance). The retest of the three-dimensional model, 3D model¹, showed that all three predictors significantly predicted perceived leadership effectiveness (social-oriented leadership, $\beta = 0.38, p < 0.001$;

task-oriented leadership, $\beta = 0.44$, $p < 0.001$; and external-oriented leadership, $\beta = 0.17$, $p < 0.001$). In comparison to the unconditional model, the model fit improved from the null model¹ (BIC = 8,200.80) to the 3D model¹ (BIC = 6,193.14), $X^2(1) = 2,030.64$, $p < 0.001$. For the 4D model¹, all four predictors significantly predicted perceived leadership effectiveness (social-oriented leadership, $\beta = 0.29$, $p < 0.001$; task-oriented leadership, $\beta = 0.32$, $p < 0.001$; external-oriented leadership, $\beta = 0.11$, $p < 0.001$; and change-oriented leadership, $\beta = 0.31$, $p < 0.001$). The model fit for the 4D model¹ improved in comparison to the 3D model¹ (BIC = 6,193.14) and to the 4D model¹ (BIC = 6,006.8), $X^2(1) = 194.00$, $p < 0.001$. For these models, the assumptions of normality, linearity, and homoscedasticity were also inspected visually and met the requirements. The VIF and tolerance statistics indicated no violations of multicollinearity as indicated by the values from the prior test for the player sample.

DISCUSSION

The results for players and coaches support the inclusion of change-oriented leadership as a fourth dimension within the athlete leadership taxonomy. Specifically, for both players and coaches samples, controlling for task-, social-, and external-oriented leadership, change-oriented leadership significantly predicted athlete leadership effectiveness. Furthermore, the inclusion of change-oriented leadership increased the model fit in comparison to the three-dimensional model consisting of task-, social-, and external-oriented leadership. These findings lend support for the use of a four-dimensional over a three-dimensional model in future research.

In the following section, we are looking at each predictor individually. We have structured the results by the numeric values of the individual predictors. Statistically, there is no difference for change-, social- and task-oriented leadership when considering a 95% confidence interval for players. For coaches, there is a difference between the confidence intervals of task leadership and both dimensions of social- and change-oriented leadership. External-oriented leadership is statistically lower than all other dimensions for both samples (i.e., players and coaches). Specifically, within the four-dimensional model, change-oriented leadership was shown to significantly predict perceived leadership effectiveness ($\beta = 0.33$) for players. This outcome corroborates the findings of a meta-analysis conducted by Judge and Piccolo (2004), indicating a positive relationship between transformational leadership (a form of change-oriented leadership) and leader effectiveness. The second largest predictor in our player sample was social-oriented leadership ($\beta = 0.31$), followed by task-oriented leadership ($\beta = 0.28$). The order of these two functions of athlete leadership supports previous findings that place social-oriented leadership above task-oriented leadership (Judge et al., 2004). Judge and colleagues' meta-analysis found moderately strong relationships between consideration – a form of social-oriented leadership ($\hat{\rho} = 0.48$) – and initiating structure – a form of task-oriented leadership ($\hat{\rho} = 0.29$) – with leadership outcomes. In the present study, external-oriented leadership was the fourth largest predictor of

leadership effectiveness ($\beta = 0.07$). This finding is similar to a previous athlete leadership research (Fransen et al., 2014), where external-oriented leadership ranked as the least important in comparison to task-oriented, social-oriented, and motivational athlete leadership functions.

For coaches, the ranking of the four athlete leadership functions is slightly different from those of our player sample. The largest predictor of perceived athlete leader effectiveness was task-oriented leadership ($\beta = 0.43$), followed by social-oriented leadership ($\beta = 0.28$), and change-oriented leadership ($\beta = 0.20$). A significant predictor of change-oriented leadership supports previous research which showed that adolescent players who used transformational leadership behaviors were seen as more effective athlete leaders by their coaches, including higher ratings of peer satisfaction with leadership as well having higher effort-enhancing skills (Zacharatos et al., 2000). External-oriented leadership was not shown to predict athlete leader effectiveness in our sample of coaches. However, it should be noted that external-oriented leadership was close to being significant. Considering the predictor weights, our results suggest that coaches appear to put particular emphasis on efforts toward goal attainment and coordination (i.e., task orientation). Change-oriented leadership was shown to be less influential for coaches than for players, which could be due to its nature of challenging the *status quo*, which implies the pursuit of “a future that is different from today” (van Knippenberg and Sitkin, 2013, 47). In more general terms, leaders have shown to be pillars of continuity and stability as well as important agents of change (van Knippenberg et al., 2008; Rast et al., 2016). In that light, task leadership could be understood as leadership functions that provide stability or, at least, do not undermine it. As such, coaches might see those as effective athlete leaders who support them by providing stability within the team. In fact, in a qualitative study investigating coaches' perceptions of athlete leadership, the coaches reported that one of their main requirements for their athlete leaders was to follow their instructions (Bucci et al., 2012). Similarly, they expected athlete leaders to promote a team culture that was based on the coaching staff – that is, coaches prefer athlete leaders to be an extension of the coaching staff. Therefore, it is not surprising that change-oriented leadership ranked lower than task-oriented leadership. It was still a significant predictor of perceived athlete leadership effectiveness. However, Bucci et al. (2012) also found that one of the coaches reported that there is value in athlete leaders providing different types of leadership. He had selected a leadership group with complementary skills in order to extend the leadership capacities of the team. Specifically, he selected two types of athlete leaders that would either support or reject normative behavior. Taken together, the results suggest that athletes and coaches seem to prioritize different dimensions of what constitutes athlete leadership effectiveness.

In general, our results suggest that change-oriented leadership represents an important extension of the previous conceptualization of athlete leadership as a function of three leadership dimensions. The inclusion of change-oriented leadership raises several questions that need to be addressed in future research. We see five key issues that require further attention: first, the investigation of change orientation as a critical

dimension of athlete leadership. The present study has shown that change-oriented leadership plays an important role for the behavioral skillset of athlete leaders. For instance, future studies could examine athlete leadership as an important resource for creating and communicating visions for team development as well as for the general process of change management. This could be particularly important for transition periods, such as changes within the coaching staff, as well as transitions between seasons.

Second, the investigation of differences between coaches' and players' expectations toward athlete leadership appears to be a fruitful area of research. Previous research has demonstrated that athletes and coaches provide different types of leadership (Loughead and Hardy, 2005). These differences possibly imply that coaches also have different expectations toward athlete leaders to engage primarily in support of task- and social-oriented leadership, while athletes, in contrast, seem to be particularly responsive to change-oriented leadership behavior from other team members. For instance, coaches might view athlete leadership as a means to coordinate team efforts toward the attainment of season goals, while athlete leaders might see a need for change and work toward a different future. In that light, qualitative research could provide more insight into the dynamics between coaches' and athletes' perspectives on athlete leadership.

Third, future research should examine the four-dimensional taxonomy on a sub-dimensional level. In line with previous athlete leadership research (Eys et al., 2007; Duguay et al., 2019a; Fransen et al., 2019), we decided to first examine change orientation at the dimensional level. While this level of analysis is similar to previous research, applied research should benefit from further differentiation between the gross leadership dimensions. For instance, athlete leadership development research has used specific behavioral dimensions in the training of athlete leadership (Duguay et al., 2016). An expansion of the existing vocabulary of leadership functions could enable future research to cover a wide range of behaviors as well as to address more specific research questions.

Fourth, we would like to emphasize that a focus on behavior constitutes only one part of understanding athlete leadership as a group phenomenon. The assessment of leadership behavior singles out the individual and disregards the social context. This is particularly relevant for athlete leadership from a shared leadership perspective, which defines the construct as "an emergent team phenomenon" (Carson et al., 2007). Put differently, at the team level, athlete leadership can be seen as the product of "dynamic interactions among lower-level elements" (Kozlowski and Klein, 2000, 15). Thus, the results of the present study should be considered within the lower levels of a multi-level phenomenon. In that light, future research should address antecedents and processes for the emergence of all dimensions, including change-oriented leadership at the team level.

The fifth area of research concerns the reconciliation of motivational leadership with the four-dimensional athlete leadership taxonomy. A primary goal of this study was to provide a structure for future athlete leadership research. Just

like task-, social-, and external-oriented leadership, change-oriented leadership originated from social and organizational psychology. By considering the same four meta-categories, future athlete leadership research should be able to reconnect findings to interdisciplinary leadership research. While every discipline has to attend to context-specific characteristics, there is much common ground (e.g., Mullen and Copper, 1994). Therefore, on a fundamental level, athlete leadership research should be able to relate to empirical findings in organizational and social psychology. As mentioned earlier, the construct of motivational leadership bares commonalities with the meta-category of change orientation. At its core, motivational leadership serves the "encouragement of teammates to go the extra mile" and steering of "all emotions [...] in the right direction" (Fransen et al., 2014). Similar words have been used to describe the effects of transformational and charismatic leadership. For instance, "leaders cause followers (...) to perform above and beyond the call of duty" and increase the "emotional and motivational arousal of the followers" (Shamir et al., 1993, 577). However, comparisons beyond wording are not possible since the concept did not stem from theory but from field research. Moreover, transformational leadership is a multifaceted construct that does not solely build on change-oriented dimensions (e.g., individualized consideration). Nevertheless, motivational leadership has spurred numerous studies and been shown to correlate with team functioning (Fransen et al., 2017). Hence, future research should seek to reconcile motivational leadership within the four-dimensional framework proposed in this study. An investigation of the four-dimensional taxonomy on a sub-dimensional level could be a next step in that direction.

Moreover, our results have implications for applied practice. By definition, change-oriented functions aim to successfully adapt to change in the environment. For that, leaders can act as important drivers of change by communicating a vision and advocating the necessity of change (Herold et al., 2008). So far, athlete leadership research has mostly neglected this side of athlete leadership. Therefore, teams that struggle with changes in the environment might benefit from athlete leadership development as a pillar of successful change management. Coaches could consider close cooperation with a leadership group to steer it through critical team changes. Recently, there has been a rise of interest in athlete leadership development programs (Loughead et al., 2020). Considering that coaches might understand the roles of athlete leaders differently than team members, practitioners might consider integrating the coach into the athlete leadership development process. By that, they could help the team to find a dynamic that allows athlete leaders to cover all aspects of leadership while reconciling these roles with the coaches' expectations.

The limitations of the current study are twofold. First, we chose to measure each of the four meta-categories instead of the 20 sub-dimensions. With regards to external orientation, which was not found to be a significant predictor of athlete leadership effectiveness for coaches, the use of composite items could have been marginalizing. The sub-dimension of *representing team*, for instance, refers to leadership behavior

that mediates between the team and its immediate environment (i.e., coaching staff, management). Whereas the sub-dimension of *networking* could be seen as a form of mediation, which goes beyond the team's immediate environment (e.g., team consultants). In this case, the use of single-item composites might have led to a loss of information that did not differentiate between more and less influential sub-dimensions of external orientation. Hence, the fact that external-oriented leadership did not significantly predict leadership effectiveness for coaches has to be interpreted cautiously. However, an analysis on the level of meta-categories has been utilized in previous athlete leadership research (e.g., Eys et al., 2007; Duguay et al., 2019a; Fransen et al., 2019). Moreover, it was necessary to first investigate the significance of change orientation with the realm of athlete leadership. This is why we chose this level of analysis as an important first step in the current study. Another limitation in using single-item composites is that we could not provide a measure of reliability. However, a similar progression has been shown in organizational leadership, where Yukl's (2012) taxonomy established a framework that spawned several research studies, such as a shared leadership questionnaire (Grille and Kauffeld, 2015). A next step could likewise be the development of a psychometrically sound questionnaire for shared athlete leadership. Second, since we did not target any interactive team sport in particular, our sample was rather heterogeneous. This limited us in terms of exploratory analysis, such as the nuances of one sport on the relationship between behavior and perceived leader effectiveness. However, the use of different sports, leagues, and age groups added to the level of generalizability of our results.

In conclusion, we view change-oriented leadership as an important and relevant dimension for the study of athlete leadership. In organizational leadership research, change-oriented leadership has long been recognized as a fundamental aspect of this construct (Avolio and Yammarino, 2013). Our findings support its significance within athlete leadership research. For that, the existence of an athlete leadership taxonomy helps to structure future research endeavors, highlight research gaps, and provide an overview in the complex and diverse field of athlete leadership research.

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DATA AVAILABILITY STATEMENT

The datasets generated for this study can be found in the Open Science Framework (OSF) repository: https://osf.io/kn42w/?view_only=386908061ef94997aae5bc3800cdc4cb.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee at the Technical University of Munich. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

The original research is part of the Ph.D. thesis of CM, supervised by JB and TL. CM and TL are responsible for the conceptualization of the study as well as the development of the four-dimensional model of athlete leadership. Data collection and data analysis were conducted by CM. All the authors contributed to the writing of the manuscript and approved its final version.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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4.2 Article 2

Authors: Christopher Maechel, Todd Loughhead, Vanessa Wergin, Tom Kossak, Jürgen Beckmann

Title: A Solution-Focused Approach to Shared Athlete Leadership Development Using Mixed Methods

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Summary: Shared leadership has shown to play an important role for effective team functioning. Commonly, it is understood as an emergent phenomenon that develops as a team property over time. However, previous interventions have not attended to the emergent nature of shared leadership. Accordingly, we developed, implemented, and evaluated an intervention that accounts for its emergent nature. We utilized a solution-focused brief therapy (SFBT) approach that was developed in family therapy. As a systemic social-constructionist approach, it aims to promote change in social systems by focusing the therapeutic dialogue on resources and the creation of solutions. The intervention consisted of four workshops, each designed to cover one of the four dimensions of athlete leadership (i.e., task, social, external and change leadership orientation). The coaches participated only in the last segment of the fourth workshop (i.e., external leadership orientation). The first three workshops consisted of a presentation of the leadership dimension, as well as elements of individual reflection and group discussion. The last workshop comprised elements of individual reflection, group discussion and a discussion with the coach. Every single workshop was guided by SFBT principles and methodology. The evaluation comprised a mixed methods approach consisting of parallel quantitative and qualitative data collection and a combined interpretation of these data. For our quantitative data, we collected responses to a shared leadership questionnaire from 60 athletes from six competitive sport teams. Three of the teams participated in the intervention group and three in the control group. The data were collected over the course of a season at two points in time. Our quantitative analysis showed a significant difference of shared leadership development between the intervention and control group (i.e., a higher increase for relational and mi-

cropolitical leadership orientation, and a decrease in task leadership orientation). Our qualitative assessment comprised of focus groups for each team and individual interviews for each coach of the intervention group. These interviews were analyzed using thematic analysis. The analysis generated four themes that represent outcomes described by the participants: Enhanced levels of communication, decrease of relational distance, enhanced coach-team interactions, and processes of shared leadership. Combining the quantitative and qualitative results, the findings suggest that the intervention affected communication among team members, equalization of the social structure, the development of a supportive team environment, an increase in shared responsibility, acceptance of athlete leadership and a decrease of (task) coordination. Therefore, the results largely support the effectiveness of our intervention. However, due to a small sample size, the study's generalizability is limited. In summary, by utilizing SFBT for the promotion of shared leadership, we introduced a new path for research and practice.

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Contribution: As part of the dissertation by Christopher Maechel (CM), the original research has been supervised by Jürgen Beckmann (JB) and Todd Loughhead (TL). CM and TL are responsible for the conceptualization of the study. CM developed the first version of the intervention, which was improved in cooperation with Vanessa Wergin (WV) and Tom Kossak (TK). CM led the pilot testing in cooperation with TK. CM, TK and VW conducted the intervention. CM conducted the data collection and data analysis. All the authors contributed to the writing of the manuscript and approved its final version.

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APPLIED RESEARCH 

A Solution-Focused Approach to Shared Athlete Leadership Development Using Mixed Methods

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Shared leadership is an emergent team phenomenon, emphasizing that it originates from the interaction of all team members. However, previous athlete leadership studies have focused on the individual level, omitting the role of team member interaction. In order to develop shared athlete leadership as an emergent team phenomenon, we utilized a solution-focused brief therapy paradigm, which uses coconstruction to engender change for social systems (e.g., sport teams). Sixty athletes from six sport teams (three in the experimental condition and three in the control condition) participated in a mixed-methods experimental design consisting of parallel quantitative and qualitative data collection along with a combined interpretation of these data. The quantitative results support a difference in development of shared leadership between groups, while the qualitative analysis resulted in four themes that indicate changes in interactional patterns and relational structures within the teams.

Keywords: shared leadership, solution-focused brief therapy, leadership intervention

Leadership is a core element of group dynamics and has been shown to play a crucial role in team effectiveness (Eys et al., 2020). While there are many forms of leadership, there has been a surge of interest in the notion that athletes contribute to the leadership of the team (for an overview, see Loughead, 2017). In sport, this phenomenon is referred to as athlete leadership and is defined as players “occupying a formal or informal leadership role within the team and influencing team members to achieve a common goal” (Loughead et al., 2006, p. 144). This definition highlights that multiple athletes provide leadership to their team, inferring that athlete leadership is shared among teammates. Empirical research has shown that athlete leadership is shared among teammates. For instance, using social network analysis to examine athlete leadership in a sample of four high-performance sport teams, researchers showed that every team member provided leadership to at least one other teammate (Duguay et al., 2019). Similarly, Fransen et al. (2014) found that the role of athlete leadership was fulfilled by more than just the team captain (i.e., formal leader) including a number of informal athlete leaders.

Given that researchers have demonstrated athlete leadership to be a shared phenomenon, it is important to define what constitutes shared leadership and its linkage to athlete leadership. Shared leadership is defined as “an emergent team property that results from the distribution of leadership influence across multiple team members” (Carson et al., 2007, p. 1218). As such, shared leadership constitutes a form of group interaction that involves collaboration, negotiation, and decision making among group members (Pearce & Conger, 2003). In fact, Zhu et al. (2018) noted that shared leadership has three fundamental group interaction

components: (a) peer lateral influence, (b) the dispersion of leadership roles and influence across several team members, and (c) the emergence of shared leadership at the team level. In team sports, two of these three fundamental group interaction components have also been identified in the athlete leadership literature. First, the aspect of peer lateral influence is captured in the definition of athlete leadership, which highlights that athletes can acquire a leadership role through either official selection (formal leadership) or social interaction with teammates (informal leadership) (Loughead et al., 2006). Second, researchers have shown that athlete leadership can be broadly distributed within teams. For instance, in a study with elite-level sport teams, it has been shown that in all four teams leadership roles were distributed over numerous players on a team rather than centralized to a few individuals (Duguay et al., 2019). Similarly, in a study investigating leadership behavior in teams, athlete leaders demonstrated a wide variety of leadership behaviors (Maechel et al., 2020). These findings would tend to indicate that it is virtually impossible for one athlete to provide all the leadership necessary for their teams. This leads into the third component of shared leadership concerning its emergent nature. A phenomenon is considered emergent “when it originates in the cognition, affect, behavior, or other characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon” (Kozlowski & Klein, 2000, p. 55). That is, shared leadership is not about one individual athlete (e.g., team captain) but rather is distributed among several team members at the group level.

Athlete and Shared Leadership Development in Team Sports

To date, this third fundamental group interaction of shared leadership has been overlooked in previous athlete leadership research.

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More specifically, previous athlete leadership development studies have largely omitted the role of team member interaction for the development of shared athlete leadership as an emergent phenomenon. Among the published studies, most athlete leadership development efforts have fostered athlete leadership at the individual-level, focusing on the development of individual skills, abilities, and knowledge (Loughead et al., 2020). That is, athlete leadership development has been predominately leader-centered by adopting an individualistic approach. For instance, one of the earliest studies on athlete leadership development only aimed to improve leadership capacities for team leaders (i.e., captains) (Gould & Voelker, 2010). Following this, studies began to incorporate the influence of informal leadership in leadership programs. In a case study, working with two elite-level teams, Voight (2012) sought to improve athlete leadership by implementing a 15-step program. The intervention included informal leaders in helping to establish the leadership priorities for the season. However, the focus still rested on the development of team captains.

Moving beyond the development of team captains, another line of research has incorporated both formal and informal forms of leadership. However, some of this research disregarded leadership as an emergent team phenomenon that originates from team member interaction. For instance, Cotterill (2016) provided an extensive leadership education program to formal and informal leaders. Despite the fact that the intervention acknowledged informal leadership and integrated players in leadership exercises, the program still had a focus on players as individuals. Likewise, Pierce et al. (2018) developed an online athlete leadership development program that concentrated on building leadership capacities on an individual level, devoid of the team. In contrast, Duguay et al. (2016) developed an athlete leadership development program that incorporated key aspects of shared leadership. Specifically, the program focused on all team members and the leadership training that occurred within the context of the team. However, participants were divided into smaller groups based on tenure, disregarding interaction within the group as a whole.

While these leader-centered approaches to athlete leadership development have shown positive effects, they have failed to capture the third fundamental component of emergence that is shaped by the interactions of teammates and is dependent on the group context. The importance of the group context has been highlighted by the social identity approach to athlete leadership (Fransen et al., 2020a). The social identity approach to leadership builds on the idea that group membership is an essential psychological aspect for leaders and followers (Hogg, 2001). More specifically, researchers have developed and tested a range of social identity leadership development programs in organizations (Haslam et al., 2017) and sports (e.g., Fransen et al., 2020a; Mertens et al., 2020) that aims to support leaders to work with and cultivate social identities. While these programs are embedded in the team context, they still differentiate between formal and informal leadership. For instance, the 5R Shared Leadership Program by Fransen et al. (2020a) uses social network analysis at the beginning of the intervention program to identify athletes who are seen as high-quality leaders within the team. These leaders are then given special roles within the intervention, potentially diminishing the effect of the intervention by supporting team structures that developed before the intervention. Accordingly, the current study addresses these critical issues by moving beyond traditional individualistic approaches and adopting a relatively new approach to leadership development that views athlete leadership as a shared phenomenon. Such an approach needs to be developed in its respective group context where all team members participate. Such an

approach allows for distribution of influence and the emergence of shared leadership structures in teams (Carson et al., 2007).

Utilizing Solution-Focused Brief Therapy for Shared Athlete Leadership Development

As noted earlier, emergence is a fundamental concept of shared leadership that is a result of social interactions (Kozlowski & Klein, 2000; Marrone et al., 2007). Accordingly, for shared athlete leadership to emerge at the team level, it requires team members to communicate, exchange ideas, values, affect, and information. Hence, any sport psychology intervention that targets athlete leadership as an emergent phenomenon should involve the whole team and promote different ways of interaction among team members. According to Zimmerman and Protinsky (1993), sport psychology has traditionally used linear and individualistic interventions to assist athletes. However, these authors noted that missing from sport psychology are interventions that focus on the team as a collective including the interactions of team members. In this regard, family therapy approaches offer sport teams an alternative approach to traditional sports psychology interventions.

Among these, Solution-Focused Brief Therapy (SFBT) provides an evidence-based practice to promote change within a social environment (e.g., sport teams). SFBT was developed by a group of family therapists led by Steve de Shazer and Insoo Kim Berg (for an overview, see Franklin et al., 2011). SFBT is a systemic approach characterized by focusing on solutions rather than problems and resources rather than deficits. Moreover, SFBT is based on social constructionism (Berg & De Jong, 1996) that posits that our understanding of the world stems from social processes, especially language (e.g., Gergen, 1985). By taking this perspective, SFBT utilizes dialogue between individuals as the primary means for change: "People develop their sense of what is real through conversation with and observation of others, and, as people interact with and observe one another, their perceptions and definitions of what is real frequently shifts, sometimes dramatically" (Berg & De Jong, 1996, p. 377). Therefore, all procedures and techniques used in SFBT are geared toward enabling the co-construction of new meanings or views of reality within the therapeutic dialogue. This is characterized by individuals (e.g., athletes) speaking about their situation in different and novel ways. The SFBT therapist takes an active part in this, by focusing the conversation on what the individual wants different, while identifying the strengths, resources, and steps necessary to foster that change. The interaction with the individual is characterized by a stance of "not knowing" that treats the person as the expert regarding themselves. As well as being collegial and positive, SFBT assumes that people are generally able and possess the resources to effect change (Trepper et al., 2011). In order to lead a therapeutic dialogue in line with these principles, an SFBT therapist typically explores potential solutions (also called preferred future), solutions that have already worked in the past, and exceptions. The latter refers to those situations in which the problem should have occurred, but did not. Solutions in the future are commonly explored by using the *miracle question* that invites individuals to imagine a future without their concerns. Another common method used in the SFBT approach is the scaling question. Scaling questions serve as a tool to evaluate the individuals' progress and identify changes. Specifically, SFBT utilizes the following components when working with individuals and their systems (e.g., teams): (a) cooperative alliance, (b) focus on

solutions, (c) measurable attainable goals, (d) focus on the future, (e) scaling of ongoing attainment, and (f) focusing on exceptions (Trepper et al., 2011).

Originally, SFBT was developed for social work and therapeutic settings where it was shown to be an effective treatment for a range of applications, including behavioral and interpersonal issues (e.g., Gingerich & Peterson, 2013; Kim et al., 2019). SFBT has also been used in nonclinical contexts, such as life coaching, management, education (Franklin et al., 2011), and sport (Beckmann & Elbe, 2015; Høigaard & Johansen, 2004). Moreover, it has also been effectively used in group work contexts (for an overview, see Sharry, 2007), organizational teams, and leadership development (for an overview, see McKergow, 2011). However, there are only a few studies, which have utilized SFBT as a framework for leadership development. For instance, McKergow (2009) suggested a conceptualization of leadership based on SFBT principles emphasizing the importance of the leader as host. That is, a key function of leadership is the creation of space for meaningful conversations to unfold. Furthermore, SFBT has also been used within the sport team context. Using a case study approach, McCormick (2014) worked with a soccer team to improve performance over the course of a season. The solution-focused intervention included five team sessions guided by SFBT where the intervention focused on the promotion of constructive dialogue within the team environment. The results were mixed (e.g., social validity scores supported the usefulness of the intervention, while the team's performance remained below the division's average). The author noted that the equivocal findings could be primarily attributed to irregular attendance of the athletes, thereby highlighting the importance of team member interaction.

In summary, SFBT offers an empirically tested approach to facilitate change within groups of people. The essential component of co-construction in SFBT answers to the need of social interaction and exchange of information for shared leadership as an emergent phenomenon.

Hence, the purpose of this mixed-methods study was to develop, implement, and evaluate a solution-focused intervention that viewed shared leadership as an emergent phenomenon. For this, we followed a pragmatic approach to inquiry, which aimed to use a diverse set of methods in order to answer the research questions at hand (Creswell & Plano Clark, 2017). Furthermore, Creswell and Plano Clark (2017) suggest formulating an individual hypothesis or research question for the quantitative, qualitative, and integrated part of a mixed-methods study. Accordingly, for the quantitative part, we hypothesized that the leadership development intervention would enhance shared leadership more than the control condition over the course of a season. For the qualitative part, we explored the outcomes of the leadership development intervention in greater detail by investigating the following research question: What are the perceived outcomes of the present intervention on team development using shared leadership from the perspective of the team members and coaches? Integrating the quantitative and qualitative data, we examined the overall impact of the present solution-focused intervention on the development of shared leadership in the intervention group.

Method

Design

Mixed-methods studies combine the collection, analysis, and interpretation of quantitative and qualitative data within a single study (Creswell & Plano Clark, 2017). To this end, researchers need to clarify how both types of data are merged during the

research process. Accordingly, we used a convergent mixed-methods experimental (intervention) design that consists of parallel quantitative and qualitative data collection, a separate data analysis, and combined interpretation (Creswell, 2014). The rationale for using mixed methods is that neither quantitative nor qualitative data alone could sufficiently capture the complexities, multilevel nature, and socially constructed processes of a leadership development program (Stentz et al., 2012). Moreover, utilizing both quantitative and qualitative data analyses can complement each other and contribute to a more comprehensive understanding of the research problem (Tashakkori & Teddlie, 2010). Specifically, our quantitative data were used to compare intervention effects over the course of a season in relation to a control group. The qualitative data explored the outcomes of the intervention as perceived by team members and coaches. The use of both quantitative and qualitative data is based on the authors' ontological position of critical realism and a constructivist epistemology (Maxwell & Mittapalli, 2010). Critical realism assumes that there is an objective real world but that there might be multiple ways in which it can be (scientifically) conceptualized. A constructivist epistemology assumes that our conception of the world is a function of our own perspectives and experiences. Generally, these positions can be seen as compatible with one another and a fitting philosophical worldview for mixed-methods research (Maxwell & Mittapalli, 2010).

Shared Athlete Leadership Development Intervention

The intervention was delivered in four separate 90-min¹ workshops.² The workshops were staggered with at least 2 weeks in between to allow for athletes and teams to implement what they had learned. Coaches attended only the last part of the final workshop. Three of the authors, who are certified sport psychologists, delivered the workshops. In order to ensure consistency within each workshop, the first author trained the other two authors in the theoretical underpinnings of the intervention and how to deliver each of the workshops. Each workshop was designed following the four meta-categories of an athlete leadership taxonomy (i.e., social, task, change, and external leadership; Maechel et al., 2020). We based our intervention on this taxonomy since it is an empirically validated conceptualization of athlete leadership functions (see Maechel et al., 2020). This conceptualization aligns with the same dimensions that are measured by the Shared Professional Leadership Inventory for Teams (SPLIT; Grille & Kauffeld, 2015) used in our quantitative analysis. The first three workshops concerning social, task, and change leadership differed from the fourth workshop on external leadership in which the coach was present to work collaboratively with the team. All workshops were developed on the principles and methods of SFBT, which included presentations of the shared leadership dimensions. Thus, after a brief opening to establish rapport and provide an overview of the workshop structure, the first three workshops consisted of the following: (a) presentation of the shared leadership dimension, (b) individual reflection, (c) facilitated group discussion, and (d) moderated group goal setting. Each workshop session focused on a single meta-category (e.g., social leadership). Subsequently, individual reflection consisted of three parts. First, individual team members were physically asked to position themselves on a scale from one to 10 in the workshop room. Once they physically positioned themselves in the room, the team members were asked to reflect on "what works" (i.e., what is currently working well

within the team in relation to the respective leadership dimension) and take personal notes. The second part (“This is where we want to go”) was geared toward exploring preferred futures. All athletes were asked to find a position on the scale guided by the second scaling question: “Assuming our intervention is successful, where on this scale would be a suitable result for you at the end of the intervention?” This was followed by another question prompting individual reflection: “How would you notice that your team has achieved this suitable result?” After the athletes were given some time for reflection and to take personal notes, the last part of the workshop session (“first steps”) aimed at identifying attainable subgoals. The interventionists asked the athletes to reflect on the team’s path to their preferred future and suggest possible solutions moving forward: “What could be the possible first steps for the team to move forward?” Again, they were given time to reflect and take personal notes. Next, the interventionists facilitated a group discussion concerning these three main parts (i.e., “What works,” “This is where we want to go,” “First steps”) based on each athlete’s individual reflections. During the group discussion, prominent topics were recorded on sticky notes and organized visually in front of the team. The group discussion was guided by SFBT interviewing techniques (De Jong & Berg, 2013), such as getting details (e.g., “What do you mean by good communication?”), complimenting (e.g., “I am impressed by your team’s ability to support each other”), and amplifying solution talk (e.g., Interventionist: “How would you recognize that you have reached this goal?” Team member: “We would stop shouting at each other.” Interventionist: “What would you do instead of shouting?” Team member: “We would stay focused and talk about the game”). After collecting all prominent topics, the athletes were then asked to vote on which “first steps” the team should take. Subsequently, all sticky notes were ordered according to the votes they received. The interventionist closed the workshop session with a brief discussion (“In today’s workshop, what has been an important result for the team?”). Finally, the results were recorded using photographs and sent to the team in order to allow ownership of the results.

For the second and third workshop, we included a brief session for individual reflection and group discussion on the team’s progress about the previous workshop’s focus. Both were based on two questions aiming to identify progress (“Since the last workshop, what has worked well?”) and encourage further steps (“What might be further indications that your team is moving in the right direction?”).

The fourth workshop served to reflect on the previous three workshops as well as to align the results with the team’s coach. In this workshop session, we did not include a description of the meta-category of external leadership as the aim of external leadership is to mediate the relationship between the team and its environment. Thus, facilitating a discussion between the team and the coach appeared to be the most effective means to that end. Therefore, the workshop followed a slightly different outline: (a) individual reflection based on the scaling method, (b) facilitated group discussion, (c) preparation of the discussion with the coach, and (d) facilitated group discussion with the coach. The individual reflection used three sets of scaling questions. The first one aimed to initiate a reflection of the team’s development from workshop one to workshop four by asking the team members to position themselves on a scale from one to ten in the workshop room. This was followed by the second question, which explored improvements in the team (“When you think back to our different workshops and try to summarize them: What has improved?”). The athletes were given time to reflect and make personal notes. The

third question targeted the preferred future after the intervention (“Assuming you want to maintain or further the team’s progress, what would you like to keep for the future?”). Again, the athletes were given time to reflect and make personal notes. Afterwards, a facilitated group discussion served to discuss and identify key talking points for the scaling questions. They were visually structured using sticky notes. The preparation of the discussion with the coach was guided by two relationship questions that make up another key component of SFBT (De Jong & Berg, 2013): “For your preferred future, what do you need from the coach?” and “For your preferred future, what does the coach need from you?” Before engaging in another facilitated group discussion, the athletes were asked to reflect and take notes. All the important talking points were again visualized and organized accordingly. Finally, the coach was invited to join the group discussion. To conclude the fourth workshop, the interventionist provided positive feedback and encouragement (De Jong & Berg, 2013) to both sides and thanked them for their participation in the workshops.

Quantitative Data

Sample

The sample for this study was comprised of 86 athletes from six teams and two different team sports³ (volleyball, $n = 4$; ice hockey, $n = 2$). Three of the teams were allocated to the intervention group, based on the team’s willingness to complete the intervention over the course of the season. The remaining three teams served as the control group. However, due to false reproductions of the participants’ survey code that ensured anonymity or players not being present either for the pre- or posttest assessment, we had to eliminate the data from 26 athletes. Thus, our final sample of usable data was comprised of 60 athletes (56.7% female) with a mean age of 20.27 years ($SD = 4.12$). Within this sample, 33 athletes from three teams were in the intervention group and 27 athletes from three teams in the control group. The intervention group consisted of two female volleyball teams and one male ice hockey team with a mean age of 19.06 years ($SD = 3.50$). To ensure a parallelized sample, the control group matched the team characteristics of the intervention group with two female volleyball and one male ice hockey teams and a mean age of 21.74 ($SD = 4.50$). All volleyball teams competed at local to state levels, while all ice hockey teams competed at the national level. The pretest commenced after the season had started in order to allow the team members to get to know each other and establish social structures. The intervention workshops followed within 2 weeks after the pretest. None of the teams had other external support (i.e., sport psychologists).

Measures

We assessed shared leadership using the SPLIT (Grille & Kauffeld, 2015). This 20-item inventory measures shared leadership along four dimensions. *Task leadership orientation* refers to the activities that structure and organize the team’s work (five items; e.g., “As a team we clearly assign tasks”). *Relation leadership orientation* refers to activities that attend to other team members needs and connect with them emotionally (five items; e.g., “As a team we take sufficient time to address each other’s concern”). *Change leadership orientation* refers to activities that encourage innovation and provide a vision that inspires others (five items; e.g., “As a team we support each other with the implementation of ideas”). *Micropolitical leadership orientation* refers to activities that use personal network connections

with external others to provide resources that enhance teamwork (five items; e.g., “We ensure that our team is supported with necessary resources to fulfill the task”). Items are scored on a 6-point Likert-type scale ranging from 0% (*does not apply at all*) to 100% (*fully applies*). The SPLIT was originally developed to measure shared leadership within organizational settings. As a result, items were adapted to fit sports context by replacing the terms “work” with “task,” and “organization” with “club, league, or sport.” Grille and Kauffeld (2015) demonstrated that the SPLIT possessed discriminant, convergent, criterion, and factorial validity along with acceptable internal consistency values.

Design and Procedure

The quantitative portion of the study used a quasi-experimental pre-/posttest control group design with a convenient sample of three teams in each condition. The teams were recruited by contacting coaches, team managers, and sport associations. After receiving permission to sample the teams, the first, third, and fourth authors presented an overview of the shared athlete leadership development program to the athletes. At that time, informed written consent was obtained from each athlete in accordance with approval from the Ethics Commission of the Technical University of Munich. Preintervention data from the SPLIT (Grille & Kauffeld, 2015) concerning shared athlete leadership was collected weeks before the intervention. In light of our quantitative hypothesis stating that the leadership development intervention would enhance shared leadership more than the control condition over the course of a season, we conducted our data analysis.

Data Analysis and Results

As the hypothesis targets change between pre- and posttest measures of shared athlete leadership, we used difference scores as the primary outcome (i.e., dependent) measure. This reduces some of the dependency accounted for by team membership (Gollwitzer et al., 2014). Therefore, we calculated these difference scores by subtracting the preintervention scores from the postintervention scores (Table 1 for our descriptive statistics). Thus, a positive difference score represents an increase in shared leadership while a negative value represents a decrease in shared leadership. As seen in Table 1, the majority of the difference scores for the intervention condition increased from pre- to postintervention indicating that the workshops had a positive effect on shared leadership. Similarly, the control condition also saw an increase in shared leadership but to a lesser extent than the intervention condition. In order to determine whether these difference scores were statistically significant, a multivariate analysis of variance (MANOVA) was conducted.

The MANOVA was selected for our analysis since it has several advantages in comparison to multiple univariate analyses (Field et al., 2012). First, multiple univariate tests would inflate the familywise error rate, which increases the chance of falsely assuming a significant effect. Second, individual testing would ignore the relationship between dependent variables (i.e., the four dimensions of shared leadership). Specifically, a MANOVA is able to distinguish groups along a combination of several dependent variables. This is particularly relevant for complex constructs that constitute a range of factors (e.g., shared leadership). Finally, a MANOVA has greater power to detect differences between groups by taking these combinations of dependent variables into account.

Prior to the MANOVA, we tested the assumptions that showed violations of multivariate normality⁴ and homogeneity of variance. Therefore, we conducted a nonparametric MANOVA using the R package nrmv, (R Core Team, 2020) which transforms the data based on separate ranks for each dependent variable (Bathke et al., 2008; Burchett et al., 2017). Using Wilks' lambda, the nonparametric MANOVA revealed a significant overall effect, $F(4, 55) = 3.0; p < .05$, indicating there was an overall significant difference between the intervention and control groups. The R package nrmv also runs a follow-up analysis identifying which variables contributed to the significant difference between our intervention and control conditions. This analysis showed that the intervention and control groups were significantly different when considering the combined effects of task, relation, and micropolitical leadership orientation, but not for change leadership orientation. In particular, the analysis provides further insight into group differences by offering effect sizes for individual variables using relative treatment effects. Relative treatment effects are a common measure for nonparametric longitudinal studies and are based on the rankings of the data (Acion et al., 2006). Specifically, relative treatment effects quantify the probability that a subject chosen at random from one group (e.g., the intervention group) displays a higher score than a subject chosen at random from any other group (i.e., both groups). For instance, if there was no difference between the intervention and control conditions, there would be a 50% chance that a random person from the intervention group would show a higher score (i.e., rank) on a given variable than another random subject from both groups combined. Relative treatment effects can be related to values of Cohen's d as a common measure for effect size. For instance, using ranked data, Acion et al. (2006) calculated that for the separation of two populations, a probability score of 56% can be considered a small effect ($d = 0.2$), a probability score of 64% a medium effect ($d = 0.5$), and a probability score of 70% a large effect ($d = 0.8$). In the current study, scores of change for task leadership orientation were 43% more likely to be higher in the intervention group, 61% for relation

Table 1 Descriptive Statistics for Shared Leadership

Shared leadership dimension	Preintervention		Postintervention		Difference scores	
	Intervention	Control	Intervention	Control	Intervention	Control
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	Δ <i>M</i> (<i>SD</i>)	Δ <i>M</i> (<i>SD</i>)
Task	4.28 (0.74)	4.29 (0.79)	4.25 (0.53)	4.41 (0.82)	-0.03 (0.73)	0.13 (0.94)
Relational	4.67 (0.87)	4.76 (0.7)	4.84 (0.63)	4.64 (0.68)	0.164 (0.56)	-0.13 (0.83)
Micropolitical	3.9 (0.79)	4.24 (0.63)	4.38 (0.6)	4.26 (0.78)	0.473 (0.74)	0.02 (0.61)
Change	4.39 (0.83)	4.47 (0.71)	4.55 (0.55)	4.52 (0.68)	0.164 (0.63)	0.05 (0.74)

Note. Scores for shared leadership from the Shared Professional Leadership Inventory for Teams questionnaire can range from 1 to 6. Δ *M* (*SD*) shows the means and *SD*s of the difference scores between pre- and posttest measurements.

(Ahead of Print)

leadership orientation, 52% for change leadership orientation, and 68% for micropolitical leadership orientation.

Qualitative Data

Sample

Parallel to our posttest quantitative assessment, we conducted three focus groups with four athletes from each team in the intervention condition. Each focus group consisted of a diverse composition of athletes. That is, we secured volunteer team members with different levels of team tenure as well as athletes with formal leadership status (i.e., captains) and those without formal leadership status. From a systems theory standpoint, it is recommended to capture various perspectives from key actors (Patton, 2014). Accordingly, we also invited the coach from each team to participate in an individual interview.

Design and Procedure

Focus groups with the athletes and interviews with the coaches were semistructured using an interview guide conducted by the first author. The interview guide comprised of four sections. The first section served to start the conversation and build rapport with the participants (i.e., “What are your general impressions of the [athlete leadership development] program?”). The second section followed the structure of a social validity assessment and covered interventions goals (i.e., “How relevant were the topics of the [athlete leadership development] workshop for you?”), procedures (e.g., “In general, how satisfied were you with the process of the program?”), and outcomes (e.g., “In general, what were the outcomes of the program?”). The assessment of social validity provides a systematic procedure to evaluate the goals, procedures, and outcomes of the intervention (Foster & Mash, 1999). The inclusion of all three components of social validity were aimed at the development of the overall data corpus (Braun & Clarke, 2006). The third section gave participants the chance to offer suggestions for future improvements (i.e., “Do you have any recommendations about how we can improve the [athlete leadership development] program?”). Finally, the fourth section invited participants to provide any additional information (i.e., “Is there anything else you would like to say before we conclude?”). In line with pragmatism, the interview questions were targeted toward understanding the perceived outcomes and the participants’ experiences and processes throughout the intervention. All interviews lasted between 30 min and an hour and 45 min⁵ with an average length of 51.2 min ($SD = 29.95$). The interviews were audiotaped and transcribed verbatim.

Data Analysis

In line with our qualitative research question, which assessed the perceived outcomes of the present intervention on team development toward shared athlete leadership, we analyzed all instances in the data corpus where the topic was mentioned (Braun & Clarke, 2006). The transcripts were analyzed following the six flexible stages outlined by Braun and Clarke (2006, 2019). In the first stage, the first author familiarized himself with the data by reading the transcripts and listening to the interviews repeatedly. In the second stage, codes were generated across the data. In the third stage, the first author sorted these codes into potential themes. This stage ended with a list of candidate themes and subthemes. In the fourth stage, the first author reviewed the themes in relation to the coded extracts and the overall data set using a thematic map. (A thematic

map is a visual representation of the data that helps to sort codes into themes, in the form of drawings or mind maps.) During this phase of data analysis, the first and third authors engaged in critical discussions in order to review the themes. In the fifth stage, the themes were initially named, defined, and discussed with the second author until a refined thematic map, including names and definitions, was produced. This version of the map was also reviewed and discussed with the third author. In the sixth stage, the first author produced a written report, which was verified by the second and third authors as an additional analytic “auditor” (Elliott et al., 1999).

Results

The results of the interviews generated four themes (i.e., *enhanced levels of communication*, *decrease of relational distance*, *enhanced coach–team interactions*, and *processes of shared leadership*; Figure 1). Each theme will be highlighted using quotations from the athletes, who have been given pseudonyms (e.g., Lina, Daniel) to ensure confidentiality. All quotes below indicate the participant’s team (e.g., T1—team 1) and role (e.g., athlete, captain, coach).

Enhanced Levels of Communication. The first theme, *enhanced levels of communication* is comprised of outcomes which indicate a change in the quantity or quality of internal team communication. More specifically, the theme is composed of two subthemes related to general changes in communication patterns (i.e., *more communication*, *more open communication*) and one related to changes in the way the team handled conflicts (i.e., *positive conflict*). As the intervention targeted intrateam communication, one of the most pervasive outcomes reported by all teams were the change in the frequency (*more communication*) and depth (*more open communication*) of communication, as well as an experience of conflict (*positive conflict*) during and outside of the workshop sessions. These changes in the team’s communication were described as an important means for further team development. As Kim stated:

A big outcome [of the workshops] was that we started to talk and communicate more. As a consequence—and we talked about this today [during a team meeting]—a few stones started rolling, that is, it stirred up a lot of things, I think, it triggered a lot [...] and that needs time to settle. (T2, captain)

The increase in communication also carried over to team situations beyond the workshops. Players reported that the discussions they had during the workshops also influenced the discussions they had in their free time. For instance, Lina expressed: “Because we talked about so many things in the workshops, we even talked more about these things in the free time we spent together. That is, we dealt with it [team issues] more intensively” (T3, captain).

The participants reported that the intervention helped to include more players and more issues in the teams’ conversations. As such, the players reported that they experienced it as a positive outcome that players opened up and shared personal viewpoints with others. As Kim described:

Everyone had the space to speak up, everyone was able to say something. At times, some people are drowned out in our team. Because they take longer to open up, or to say something. They don’t dare to [speak up]. And I think that, in this discussion, it might not have been evenly distributed, but everyone said

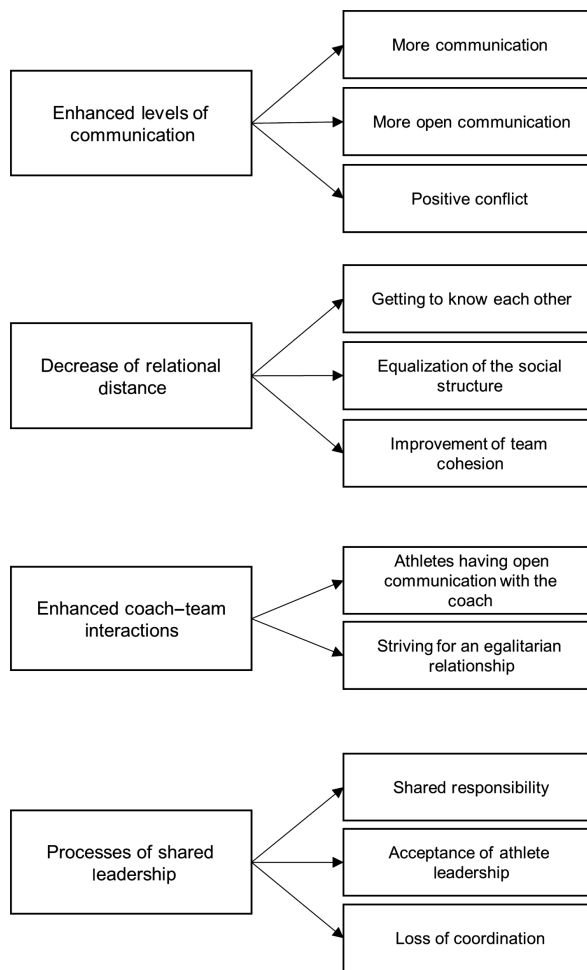


Figure 1 — Resulting themes of the thematic analysis.

something or revealed something about themselves. [...] And before [the intervention] it was not like this [...] it was always the same three, four people, who talked. (T2, captain)

And it appeared that this type of open communication during the workshops also carried over to regular team interactions, as Susan noted: “I think, in general, people dare to be more open now and even talk openly about little things.” (T2, athlete). One immediate effect of these changes in communication was an experience in positive conflict. That is, players reported that the level of open communication led to more exchanges of viewpoints, which led to friction among team members. They generally viewed these exchanges of viewpoints as a constructive process to find new and better solutions. For instance, Peter commented: “[There] were more conflicts, not real quarreling, but there were very different opinions and through that you could find a new goal for both sides” (T1, athlete). One of the positive changes with this improved pattern of communication was that participants were able to manage conflict on their own that occurred outside of the workshop sessions. For instance, Mark described:

They [athletes] got together again at some point, because one or two players addressed something [...] and in fact, they managed to fix that as a team. And then, apparently, this led to even more of an open climate. And there was this time before Christmas, where you noticed: “Woah, something just happened. Now it is alive, the team is noticeable.” Even for a person from the outside, like myself. (T2, coach)

Decrease of Relational Distance. The second theme, *decrease of relational distance*, pertains to outcomes related to a reduction of distance within dyadic relationships (i.e., *getting to know each other*) and changes to the team’s overall social structure (i.e., *equalization of the social structure, improvement of team cohesion*). The changes in communication within the team appeared to affect relationships. In particular, the athletes reported that they got to know their teammates better. This, in turn, affected the way the athletes were emotionally invested by showing support for their teammates, as described by Susan:

In the beginning of the season, we would meet for practices. Afterwards, everybody went home. Through the workshops, we have gotten to know each other better. Now, we are all more emotionally invested. You practice and you feel each teammate’s mistakes as well as their sense of satisfaction when they do well. And of course [this is] the same when it does not go well. You are just as emotionally involved. You look [for opportunities]: What can you do? What can you not do? How can you help this person? (T2, athlete)

At the team level, the participants reported that the intervention reduced status differences among team members by fostering the integration of newer or younger players. This change was perceived as a positive outcome. As Lukas noted: “What I liked is that the younger players are being integrated both on and off the ice. When I was in my rookie year, this did not happen, that I did something with the older players” (T1, athlete). Moreover, the intervention affected the team structure by strengthening social ties and reducing the emergence of smaller subgroups based on dyadic relationships. Kim described how this was related to the specific type of interaction, which was encouraged during the workshops:

In every team you have one or two teammates, with whom you do more things with and others with whom you do less. And before [the intervention] there were, maybe, more subgroups, I mean [we] were not fighting against one another, but you have one or two people who you are closer with, to whom you eventually voice your criticism, which you did not address in front of the whole group. And this is a big issue that was triggered through [the intervention], I think, that you say these things now in front of everyone. (T2, captain)

One of the consequences of reducing the relational distance between team members was the enhancement of team cohesion. For instance, Lina described that their team “developed as a team during the workshops” (T3, athlete). This was also supported by Mark, who noted that improvements in cohesion also made his own job as coach easier:

You noticed that they were laughing more. That the interpersonal relationships were vibrant within the team. Not just, we play next to each other [...] but it was almost visible. Yes, that they were really having fun [...] and this made it easier for me. (T2, coach)

Interestingly, the coach related the high level of cohesion in the team to a networked team structure without the prevalence of subgroups: “[The team] is a bunch that is alive, everyone can talk to everyone. There are not just groups or pairs of people, but they communicate among each other, connected with each other.” (T3, coach).

Enhancing Coach–Team Interactions. The third theme, *enhancing coach–team interactions*, describes outcomes from the intervention related to open coach–team communication (i.e., *athletes having open communication with the coach*) as well as a stronger coach–team relationship based on trust, personal interaction, and consideration (i.e., *striving for an egalitarian relationship*). Similar to the changes described earlier (i.e., enhanced levels of communication), participants stressed the importance of *open communication with the coach* as a precursor for changes in the coach–team relationship. The athletes agreed that the last workshop (i.e., the discussion with the coach) was particularly important for that. The athletes cherished it as an opportunity to establish new ways of communication with the coach. All athletes expressed a desire for interactions that were more egalitarian with the coach, which in turn, would foster better constructive interactions and allow for the discussion of team needs. For instance, after a particularly successful discussion, the athletes described how they strived for an egalitarian relationship based on trust, personal interaction, and consideration. This is well represented in Alexander’s comment:

[The coach] has to respond to players. [And] this is what we have done in the workshop, where we listed these criteria, that he [the coach] greets us with a handshake. Nowadays, you have to solve everything on a human level. Because no one is a robot. Everyone has feelings. Even ice hockey players have feelings and you have to respond to these. [...] It was important, especially for the last weeks, to address these issues. For example, we had this criticism that he always uses the same drills. [...] And it was most important to have this trust [...] the personal handshake was just important. [...] That you are on one level, not just in the team, but also with the coach. Not that we are below and the coach is on top, but that we are all [makes hand gesture for equal].” (T1, captain)

Likewise, the coaches perceived the open discussion between them and the players as helpful. One coach explained how the trust that was built during the intervention also made subsequent interactions more relaxed. More importantly, the open discussion provided the athletes with an opportunity to achieve desired outcomes that they discussed in previous workshop sessions. The process from internal team discussions to the exchange with the coach and the establishment of change is well represented by the following quote, as Daniel noted:

The outcomes? That the guys started to think things through. And that they have opened up. First in front of [the interventionist]. And then they had the courage to tell me, which probably was not very easy. And among these issues that we elaborated, there were a few things, where I said: “I do not agree with them.” But there were also suggestions by the team, where I said: “Good, let’s try to put this into action.” Even though I was not 100% behind them. But I thought to myself: “Yes, I have to do my part, I need to change too.” (T1, coach)

Processes of Shared Leadership. The participants described a range of outcomes that were representative of individual or collective efforts to contribute to the leadership functions of the team. The subthemes included processes at different phases of shared leadership development. These vary from higher levels of engagement (i.e., *shared responsibility*) to better athlete leadership functioning (i.e., *acceptance of athlete leadership*) to perceived challenges (i.e., *loss of coordination*). Specifically, in relation to shared responsibility, the players and coaches reported an increase in individual ownership. In particular, this included organizational activities that need to be fulfilled by team members. Moreover, the participants reported that they witnessed a transition from only a few members contributing to the whole team displaying these actions. For instance, Susan explained how more team members contributed to organizational tasks within the team:

[It is] more about these little things: like not having to think about who is preparing a cake,⁶ it is more that people come: “Hey, I prepare the cake.” And then you have to stop them and say: “We have enough already, it is ok.” Or, who washes the jerseys. That is not being asked anymore, but you come in and someone says: “Hey, I wash the jerseys today.” Or, the carpooling is organized, or people volunteer as referees. There has not been a season, which I recall, where we did not have these problems, where we had to fight about cake, cars, referees and I think this is an enormous development, because we did not do this in the beginning. (T2, athlete)

Other changes pertained more directly to the leadership structure among team members. The participants reported that leadership exhibited by team members was more accepted within the team. Interestingly, the discussion and general relationship with the coach was also relevant for the improvement of the existing athlete leadership structure as highlighted by Alexander:

There is room still for improvement, but it has gotten better. They listen to you, the younger ones who are not captains. [...] Everybody is pulling in the same direction now. Not just through the discussions, but also through our feedback to the coach. That we have gotten this level of trust. And, if the younger ones get the coach’s trust, then they trust us as well. Because we have the connection to the coach, because we are the captains. And then they trust us. (T1, captain)

However, the development of shared leadership also brought challenges to the athletes. The increase in ownership and changes of the social dynamic during practice led to a *loss of coordination*, as Kim reported:

We talked about this earlier [in a team meeting]. For example, when we have a practice without the coach, [we asked ourselves] who is responsible for planning drills? Is it only the captain who leads? Or is everyone now allowed to contribute? And what was being said, was that this might be disruptive, if everyone tries to meddle, instead of one person saying: “This is how we are going to do it!” And, I believe that it is important, and it is a little messy right now, that we find a way to integrate this well. That all contribute, though there are one or two people who show the way, and makes decisions. Because otherwise, if everyone wants to contribute, this cannot work. And, it is difficult to accommodate that. (T2, athlete)

Notably, the players regarded this as a step forward. As they said, they did not use to talk about this at all, or it was just

individual players talking to the coach. For them, the challenge was more about integrating this new development and managing it as a team.

Discussion

The purpose of this study was the development, implementation, and evaluation of a shared athlete leadership intervention. To this end, we developed and implemented a solution-focused intervention that was evaluated using mixed-methods approaches. In line with our quantitative hypothesis, the intervention group showed a significant difference in the development of shared leadership in comparison to the control group over the course of the season. This significant difference was comprised of a combined effect⁷ including a decrease for task leadership orientation, a higher increase for relational leadership orientation, and a higher increase for micro-political leadership orientation compared with the control group. Therefore, it is important to note that the intervention's effect in our quantitative data analysis was comprised of the combination of all three leadership orientations. While there was a slight trend of a higher increase for change leadership orientation in the intervention group, this leadership dimension did not significantly contribute to the combined effect. In line with our second research question, which explored the perceived outcomes of the intervention on team development using shared leadership from the perspective of the team members and coaches, we identified a series of four interconnected themes: *Enhanced levels of communication, decrease of relational distance, enhanced coach–team interactions, and processes of shared leadership*. In accordance with a mixed-methods research design, the discussion will consist of three parts: an integrated assessment of both types of data, theoretical and practical implications, and limitations. The integrated assessment sought to examine the overall impact of the present solution-focused intervention on the development of shared leadership in the intervention group. In order to structure this assessment, it will be organized based on the four themes of the thematic analysis and interwoven with our quantitative findings.

As described by the participants, the *enhanced levels of communication* (i.e., more communication, more open communication, positive conflict) served a key role in driving further team development. This resonates well with the multilevel approach, which considers collectives as systems of interaction (Morgeson & Hofmann, 1999). Specifically, its proponents describe the process of emergence as a function of individuals who engage in interpersonal interactions. Thus, changes at the team level ought to emerge based on changes in interaction among team members. In relation to the shared leadership literature, the presence of *enhanced levels of communication* speaks to the manifestation of a core element of shared leadership. That is, the concept of “voice.” Specifically, Carson et al. (2007) identified three components that characterize an internal team environment conducive to shared leadership: shared purpose, social support, and voice. Voice can be characterized by the degree to which team members have “input into how the team carries out its purpose” (Carson et al., 2007, p. 1222). To date, few researchers have explicitly examined the role of voice in regard to athlete leadership and its impact on the team environment. This is surprising since many of the leadership behaviors used by athletes share common features to voice. For instance, researchers have found that democratic behavior from Chelladurai and Saleh's (1980) Leadership Scale for Sports inventory is related to the team environment construct of cohesion (Paradis & Loughhead, 2012; Vincer & Loughhead, 2010). Similar to voice, democratic behavior

is viewed as athletes having participation in decisions pertaining to team elements such as team goals. Consequently, a team environment with high levels of voice encourages team members to engage in mutual leadership, constructively challenge one another, and be proactively involved in the attainment of team goals. In summary, the qualitative findings highlight that enhanced levels of communication were an important driver of group processes in general and a driver of shared leadership development. That is, shared leadership thrived within an environment that promoted active participation by team members.

As the athletes reported, the intervention also affected the social structure, which was labeled as *decreases in relational distance*. At the core of this theme, we identified a series of outcomes that represented changes in dyadic ties (e.g., getting to know each other) and the overall team structure (i.e., equalization of the social structure, improvement of team cohesion). Overall, this qualitative theme corroborates our quantitative results, which showed a positive trend for relational leadership (i.e., players in the intervention group were 61% more likely to report higher levels of change for relational leadership compared with the control group). This is an important outcome for the development of shared leadership. Specifically, these outcomes supported the presence of another core element of a shared leadership team environment. That is, the presence of social support. In the context of shared leadership, *social support* is defined as “team members' efforts to provide emotional and psychological strength to one another” (Carson et al., 2007, p. 1222). This definition aligned with the participants' descriptions of the perceived outcomes from this intervention. Moreover, social support is related to “a strong internal social network” (Carson et al., 2007, p. 1222), which was also highlighted in the interviews. Consequently, these results support previous findings showing that athlete leadership is a shared process in dense social networks (Duguay et al., 2019). Furthermore, social support, operationalized in the Leadership Scale for Sports as showing a concern for teammates and developing positive interpersonal relations with them, has also been found to be related to fostering positive perceptions of cohesion (Paradis & Loughhead, 2012; Vincer & Loughhead, 2010). The importance of social support, coupled with previous results, indicate that a team environment characterized by psychological safety might be conducive for shared leadership development. Psychological safety can be understood as a team climate of trust, mutual respect, and interpersonal risk taking (Edmondson, 1999). In general, psychological safety has been connected to an increase of interpersonal communication and voice behavior (for an overview, see Newman et al., 2017) and has been shown to be associated with athlete leadership and sport team functioning (Fransen et al., 2020b).

In relation to the qualitative theme of *enhanced coach–team interactions*, there are two aspects to consider. First, the theme mirrors both of the previous themes in that communication and the relationship were enhanced between the team and the coach. That is, the changes that occurred from the intervention helped for new ways of communication with the coach (i.e., *open communication with coach*). This was followed by changes in the coach–team relationship (i.e., striving for an egalitarian relationship). Again, this is reflective of the emergent nature of changes at the overall team level. Second, the teams' efforts for an egalitarian relationship demonstrated the importance of vertical leadership for the development and maintenance of shared leadership. As Pearce (2004) noted “without ongoing support and maintenance from the vertical leaders, shared leadership is likely to fail” (p. 54). This interconnectedness appears to be relevant in the sports context as well. For instance, in a study using social network analysis in order to map

and quantify leadership structures, Fransén et al. (2020c) showed that teams who had higher degrees of athlete leadership also perceived their coaches to be better leaders. Specifically, shared leadership research has identified a range of leadership styles which support shared leadership: supportive coaching, empowering leadership (Carson et al., 2007; Vecchio et al., 2010), and servant leadership (Wang et al., 2017). These leadership styles share a focus on self-direction and the distribution of responsibility, and include a strong component of person-orientation (Ceri-Booms et al., 2016; Russell & Stone, 2002). Ideally, vertical leadership supports shared leadership with a “gap-filling balance” between control and autonomy (Pearce, 2004, p. 54). Furthermore, Pearce emphasized the need for trust and confidence in the team and the integration of the team in the decision-making process. Moreover, our results supported previous research on athlete leadership that showed that coaches need to actively empower athletes (Bucci et al., 2012); empowerment needs to build on coach–athlete interactions characterized by authenticity, truthfulness, and transparency (Duguay et al., 2020). Accordingly, we consider the athletes’ *striving for an egalitarian relationship* as efforts to establish a style of vertical leadership that is supportive of a team environment characterized by consideration, trust, self-direction, and shared responsibility. Notably, micropolitical-oriented leadership, which addresses the use of personal network connections with external others to provide resources that enhance teamwork, contributed the most to the combined effect over the course of a season (i.e., athletes in the intervention group were 68% more likely to report higher levels of change for shared micropolitical-oriented leadership compared with the control group). This effect might be explained by the participants’ positive perception of the intervention and the provision of a safe space for open discussion with the coach. This was supported by our interviews that highlighted participants’ attribution of much of the intervention’s effectiveness to external support which opened a space for exchange within the team and between the team and the coach. In turn, this offers a possible explanation that *change leadership orientation* did not contribute to the significant combined effect (i.e., players in the intervention group were 52% more likely to report higher levels of change for shared change leadership compared with the control group). Specifically, this result suggested that athletes did not perceive themselves as sources of change, but they did attribute the result to the presence of external support from the interventionists.

The *processes of shared leadership* theme was comprised of three subthemes, which indicated different team developments towards shared leadership. On the one hand, *shared responsibility* captured the team’s observation that the willingness and frequency of team members’ contributions to group tasks had increased. In light of a systems view on shared leadership, changes in the team–coach relationship toward more autonomy and self-organization needs to be balanced by increases in team member responsibility (Avolio et al., 1996). Accordingly, such a development is a necessary step toward more autonomous team functioning. In that light, the increase of *acceptance of athlete leadership* represented another aspect of shared leadership in which team members needed to believe that offering and accepting influence to and from other team members was welcomed (Carson et al., 2007). However, both our quantitative and qualitative results indicated that this development bore further challenges. Specifically, our quantitative results showed that levels of change toward shared task leadership were lower in the intervention group compared with the control group (i.e., players in the intervention group were only 43% more likely to report higher levels of change for shared task leadership compared with the control group). Considering our qualitative

results, it appeared that the increase of individual contributions also caused a *loss of coordination* for group activities. In particular, athletes indicated that they needed to adapt to the increased number of athletes willing to participate in decision-making processes. The concurrent developments on the social dimension and lack of development on the task dimension have been addressed in models of group development. According to the repeating cycle model by Bales (1950), groups tend to swing between phases of task orientation and socioemotional matters. Possibly, in the present case, the intervention might have triggered socioemotional development first followed by a renewal of task negotiations.

Implications

In terms of theory and practice, there are several implications. First, the present study represents the first application of a systemic intervention to the development of shared leadership for high-performance sport teams. Therefore, the present work extends the previous scope of application for SFBT to team development in sports and general shared leadership development. In particular, the implications of the present findings suggest that the systems perspective used by SFBT is well suited to describe and promote processes of group developments:

First, the present study highlighted the key role of patterns of interaction for shared leadership development. That is, our results reinforced the importance of the group context for the emergence of shared leadership. Consequently, the present results support the use of SFBT since it targets social interaction as a primary mechanism of change. For instance, de Shazer et al. (1986) pointed out that “[s]olutions lie in changing interactions” (p. 2). Second, our results support the basic assumption of SFBT that people possess the experience and resources necessary to engender change successfully. This implies that solutions need to come from the clients themselves (i.e., teams), which can lead to highly idiosyncratic solutions (e.g., the player’s reports of agreeing on a “personal handshake” with the coach, which changed the level of trust between them). This underscores the need for team interventions to allow for a high degree of autonomy in contrast to a one-size-fits-all approach. Correspondingly, the present intervention provides a process for shared leadership development that answers to individual teams’ needs and enables them to find idiosyncratic solutions for their own development. Third, building on a core assumption of SFBT that “[s]mall steps can lead to big changes” (de Shazer et al., 2007, p. 2), the present study emphasizes the effectiveness of working in small steps. Specifically, for the majority of our workshops, we sought to identify “next steps.” This goes against a common practice in applied sport psychology to set realistic but challenging goals (e.g., Weinberg & Gould, 2020).

For athlete leadership as a construct, the quantitative and qualitative results support the promotion and analysis of shared leadership as a complex phenomenon that is comprised of a range of interconnected dimensions. On the one hand, development toward shared athlete leadership has been shown as a function of increased social support and an egalitarian social structure. On the other hand, the teams needed to find an answer to increasing participation and experienced a loss of coordination. This lends further support to shared athlete leadership as a complex construct that needs to be considered from a holistic perspective (e.g., by considering multiple facets of shared leadership simultaneously) with appropriate measurement tools (e.g., multivariate analyses, mixed methods). The complexity of shared athlete leadership is also illuminated by the interdependent relationship between

vertical and shared leadership. For instance, our results suggest that changing interactions among team members promoted change in coach–team interactions. This reinforces a key assumption within the systems perspective which states that “[c]hange in one part of a system leads to changes in the system-as-a-whole” (de Shazer et al., 1986, p. 3). Accordingly, SFBT in general and the present intervention in particular, provide practitioners with an evidence-based framework to support leadership development ranging from large- to small-scale interventions. For instance, practitioners could use SFBT methodology, such as identifying *next steps*, *getting details*, *amplifying solution talk*, or *scaling questions*, to support teams to change interactional patterns. It is noteworthy, however, that every intervention needs to stem from the SFBT stance, which serves as an overarching principle for interventionist–team interaction (Trepper et al., 2011).

Finally, as systemic approaches are interdisciplinary in nature and can be found in numerous disciplines, including organizational psychology (Katz & Kahn, 1978) and general group dynamics (Arrow et al., 2000), the present approach could be transferred to shared leadership development outside of sport. Therefore, future research should replicate the present findings in other settings, such as organizational teams.

Limitations

The main limitation of the current study pertains to our limited sample size and the sampling method (i.e., convenience sampling), which may have affected the level of generalizability concerning the results. Since the intervention required high levels of commitment (i.e., an entire season) from the participating teams to a new intervention program, recruitment was difficult. Therefore, we had to refrain from other sampling methods. Moreover, the use of the SPLIT questionnaire poses another source of limitation in the present study. Commonly, shared leadership questionnaires use a referent-shift consensus model (Chan, 1998), which means that the ratings of different individuals from the same team are accumulated to the team level. However, this was not feasible in the present study. Thus, for the purpose of comparing effects over the course of a season, and between a control and intervention group, we chose to measure shared leadership at the individual level. This approach has also been used in the validation of the original questionnaire (Grille & Kauffeld, 2015).

Specific to the intervention, the interviews were conducted late in the athlete’s season. Hence, future research and applied practice should aim to commence in the off-season. This might have shown in the effects for our outcome measures. Particularly, the task dimensions (e.g., shared task leadership) seem to have been affected by this. Moreover, with the effect of the intervention to stimulate negotiations and conflict, teams need to be able and willing to afford time and energy. This was also reflected in some of the athletes’ comments, which described the process as fast in the beginning and more difficult over time. Thus, the intervention’s effect might stretch the limits of the team’s life cycle, especially if initiated during the season. In relation to these limitations and the innovative nature of the current study, future research should employ other research designs that allow for randomization and the control of confounding variables. One way to achieve this might be a reduction of overall length. From our experience, this reduction should target the frequency and total number of workshops rather than individual workshop length. In particular, the last session that includes the coach requires more time than the originally planned 90 min when only the athletes are involved in the workshops.

Conclusions

The present study developed, implemented, and evaluated a solution-focused intervention for the development of shared leadership using a mixed-methods approach. The integrated findings support its effectiveness by demonstrating that it affected processes of shared leadership over the course of a season in comparison to a control group. Specifically, the qualitative data enhanced the understanding of the quantitative data by indicating that the intervention facilitated a series of outcomes allowing for the development of shared leadership. Most importantly, the intervention affected communication among team members as well as between the team and the coach. This was accompanied by an equalization within the team’s overall social structure. Ultimately, this led to a team environment characterized by voice and social support, as well as an increase in shared responsibility, athlete leadership acceptance, and loss of coordination. While the study is limited in its generalizability due to a small sample and convenience sampling, the current results support the use of SFBT as a systemic approach to shared leadership development in sports. Moreover, as the first systemic intervention related to shared leadership development, the present intervention provides a promising new approach for the interdisciplinary study of shared leadership development.

Notes

1. The fourth workshop that included the participation of the coach took an additional 30 min than the first three workshops.
2. The intervention manual for this study can be found in the Open Science Framework repository: https://osf.io/td8yr/?view_only=a7e8921a316547dbbfe788d1cebf3366.
3. Originally, eight teams (four in the intervention and four in the control) agreed to participate in the study. However, a basketball team from the intervention group voluntarily dropped out. As we aimed to match our intervention and control teams, we subsequently eliminated the accompanying control basketball team as well.
4. Using Mardia’s test for multivariate normality, the intervention group showed significant positive values for both measures (skewness = 9.49, $p < .001$; kurtosis = 30.0, $p < .05$) (Cain et al., 2017; Mardia, 1970). The control group showed nonsignificant positive values for both measures (skewness = 3.35, $p = .77$ and kurtosis = 23.82, $p = .95$). In the intervention group, median values for the difference scores were -0.2 for task leadership orientation, 0.2 for relation leadership orientation, 0.4 for micropolitical leadership orientation, and 0 for change leadership orientation. In the control group, median values for the average difference scores were 0.2 for task leadership orientation, 0 for relation leadership orientation, 0 for micropolitical leadership orientation, and 0.2 for change leadership orientation.
5. Two teams had the same coach. Therefore, we conducted a longer interview and distinguished between both teams.
6. In the club, it is a custom to prepare food for home games.
7. Our analysis identified a difference between the two groups by considering multiple dependent variables at the same time. We see this as a fitting method for a complex phenomenon such as shared leadership. For instance, we assume that changes on the task dimension (e.g., more team members contributing) are likely to go together with changes in the social dimension (e.g., more team members feeling accepted by others). The complexity of shared leadership and the interconnectedness between the different leadership dimensions are well represented in our qualitative findings.

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5. General Discussion

The studies presented in this dissertation investigated two aspects of the athlete leadership literature that were not previously considered. Based on recent findings in organizational psychology, we proposed a revised model of athlete leadership. The model accounts for change-oriented leadership as an additional dimension along with task, social and external leadership. Based on empirical data from two sources (i.e., athlete and coaches), our study provided initial support for the relevance of this dimension. In our second study, we were able to build on study one by developing a solution-focused intervention that accounts for all four dimensions of athlete leadership and promoted shared athlete leadership as an emergent team property. Our mixed methods results (i.e., quantitative, qualitative, and their combined interpretation) supported the effectiveness of our intervention. Specifically, the quantitative data showed a significant difference between the intervention and control groups, while the qualitative data highlighted the role of interactional patterns (e.g., more open communication) and relations within the team and with the coach (e.g., egalitarian relationships) for shared athlete leadership development. In sum, both studies support the analysis and development of athlete leadership as a complex social process. In the following sections, I will discuss these findings and their broader implications along three major themes: the role of leadership and hierarchy for group coordination, change in the light of models of group development, and change within teams as social systems.

5.1 Shared Leadership and the Role of Hierarchy for Group Functioning

The present dissertation introduced the function of leadership as an evolutionary mechanism for group coordination. After sketching the development of leadership research over time (i.e., from individual to collective forms of leadership), I described the notion of leadership as a shared process as both studies of this thesis investigated leadership from this perspective. Shared leadership differs substantially from traditional hierarchical perspective on leaders as all team members are considered as potential sources for leadership. In contrast, the majority of traditional theories of leadership solely consider leadership based on formal positions. The surge of shared leadership research questions the role of hierarchy for group functioning. Is a pronounced hierarchy with a clear distinction between a single leader and multiple followers detrimental to group function? Commonly, social hierarchy is defined as an “implicit or explicit rank order of individuals or groups with respect to a valued social dimension” (Magee & Galinsky, 2008, p. 354). Both forms of leadership, vertical and shared leadership, represent different types of social hierarchies. Vertical leadership is characterized by a single source of leadership, while shared leadership is characterized by multiple sources of leadership (Contractor et al., 2012). Thus, these two leadership forms pose different ends of a spectrum. Regarding the present dissertation, both studies investigated shared forms of leadership (i.e., flat hierarchies). For instance, study one identified team members as (potential) sources of leadership within the team across all dimensions of leadership. Additionally, study two aimed to promote the distribution of influence across the team. Therefore, as an overarching theme, both studies built on the notion that flat hierarchies (i.e., the distribution of influence) are effective for group functioning. For instance, study one demonstrated a relationship between athlete leadership and adaptive change (i.e., change-orientation), even though change-oriented leadership has been more commonly attributed to formal sources of leadership (e.g., Yukl, 2012). Likewise, our findings from study two indicate that the SFBT intervention promoted shared leadership by fostering more egalitarian relationships within the team. Specifically, team members pushed for more egalitarian interactions with formal leaders (i.e., the

coaches), actively integrated new and young players, and welcomed the intervention as a space of exchange at eye level. This supports previous findings, which showed that aspects of team group functioning are affected negatively by steep hierarchies (Anderson & Brown, 2010). However, theoretical accounts argue that hierarchies fulfill a supportive role for group functioning. Specifically, functionalist theories of hierarchy suggest that hierarchies fulfill several purposes to meet common group challenges (for an overview, see Anderson & Brown, 2010): First, they enable groups to make decisions by giving more control to a smaller group of people. Second, the potential to rise in the social hierarchy motivates group members to contribute to collective goals (e.g., the respect of other group members). Third, hierarchies support group coordination by diminishing conflict and facilitating an efficient flow of information, that can be easily integrated by group leaders. The first (i.e., decision making) and third (i.e., group coordination) functions of hierarchy are well represented in the second study. Athletes reported that the newly developed levels of contribution by additional team members posed a challenge for the teams, as they struggled to coordinate group activities (e.g., Who is going to run the practice session when the coach is not present?).

However, empirical findings question these theoretical considerations and suggest a more multifaceted picture. That is, based on previous research (e.g., Hill, 1982), Anderson and Brown (2010) argue that groups benefit from flat hierarchies, when the group task requires diverse perspectives. For instance, study two indicates that team members welcomed the intervention because it allowed them to voice their opinion and offer new perspectives to the coach (e.g., selection of training exercises). In part, this rejects the argument of better decision-making through steep hierarchies (i.e., giving more control to a smaller, more competent, group of people). Another benefit of flat hierarchies for sport teams stems from the need for coordinated actions. Interactive team sports requires high levels of coordination (Eccles, 2010). Previous findings demonstrated that inequities within the social structure can impede group functioning if the task requires coordinated action (e.g., Pfeffer & Langton, 1993). Accordingly, flat hierarchies might be more beneficial for group functioning in team sports. Lastly, Anderson and Brown's (2010) review supports the influence of a range of context factors (e.g., type of task, member motivation)

on the relationship between hierarchy and group functioning. This highlights that a specific hierarchy does not necessarily represent a beneficial condition for group functioning for all teams, or one team in different situations. Arguably, this highlights one of the strengths of the SFBT intervention in study two. While it is set to promote shared forms of leadership, it leaves room for individual processes and solutions that are developed by the teams themselves.

In summary, the present findings yield a mixed image of advantages and disadvantages due to shared forms of leadership. Study one showed that team members can serve as sources for change-oriented leadership. In study two, flat hierarchies helped the team to tap into resources provided by team members (e.g., new perspectives on training methods). However, the same study indicated that flat hierarchies might lead to loss of group coordination. On a more general level, specific characteristics of interactive team sports (i.e., interdependence) suggest that the development of flat hierarchies might be conducive to team effectiveness. Ultimately, the present findings indicate support for the use of interventions that allow idiosyncratic social structures to emerge from within the teams.

5.2 Change and Models of Group Development

A core theme of the present dissertation is the promotion, experience, and analysis of change. In particular, study one introduced and tested a model of athlete leadership that includes change-oriented leadership. Study two developed and evaluated an intervention designed to promote a change within the social structure (i.e., shared athlete leadership). Shortly, I am going to discuss the role of change in group development, and the findings of the present dissertation from the perspective of the group development literature.

Change is a core theme within the group dynamics literature (e.g., Arrow et al., 2004; Tuckman, 1965; Wheelan, 2009). Commonly, it is understood as “an alteration in the nature of group interaction or performance, in the state of the group as a whole, or a second-order change in the patterning of group process” (Arrow et al., 2004, p. 8). The presence of change processes implies the presence of phases characterized by stability and instability, which are also core themes within the group dynamics literature (Arrow, 1997). Consequently, there is vast empirical research and theoretical advances addressing the interplay of all three of these concepts (Arrow et al., 2004). However, there are numerous theories that seek to describe, explain, and predict group development processes very differently. This raises the question, whether one or multiple theories might offer an explanatory framework for the present empirical results and the role of change within both studies. Generally, models of group development can be separated into five different categories: *robust equilibrium models*, *punctuated equilibrium models*, *adaptive response models*, *sequential stage models* and *repeating cycle models* (Arrow et al., 2004). For the present results, punctuated equilibrium models are well suited as an explanatory framework as they address change originating from a group’s need to adapt to its environment as well as group change induced by an intervention.

Punctuated equilibrium models posit that groups find a stable equilibrium, interrupted by phases of rapid change (for an overview, see Arrow, 1997). The state of equilibrium is characterized by stability through active self-regulation, and pertains to the structure of roles and the hierarchy of influence. The phases of sudden, rapid

change happen during revolutionary periods. This revolutionary change can occur due to internal change or forces within the group or due to external change or forces (Arrow, 1997; Gersick & Hackman, 1990; Gersick, 1991; Smith & Gemmill, 1991). Among others, internal sources of disruption may comprise reaching milestones, the experience of failure, changes in group composition (Gersick & Hackman, 1990), or social dynamics (Smith & Gemmill, 1991). External sources of change pertain to changes in the environment that require the group to adapt (e.g., change in the parent organization) (Smith & Gemmill, 1991). Such an impetus for change also includes the effect of an intervention provided by a person of authority or a consultant (Gersick & Hackman, 1990). According to theoretical accounts seeking to explain phases of stability and instability, change in a group can be located within the so-called *deep structure*, also referred to as *framework* in the group context (Gersick, 1988, 1991). A framework is “[a] set of givens about the group’s situation and how it will behave that form a stable platform from which the group operates. Frameworks may be partly explicit but are primarily implicit. They are integrated webs of performance strategies, interaction patterns, assumptions about and approaches toward a group’s task and outside context” (Gersick, 1991, p. 15). Therefore, an intervention would need to generate a review of the group’s habitual routines and help the group to re-examine their group norms (Gersick & Hackman, 1990).

For the present dissertation, punctuated equilibrium models offer a viable explanatory framework for both studies. They provide further arguments for the relevance of change-oriented leadership within a taxonomy of athlete leadership behavior. Considering that change is a fundamental element of group life, characterized by varying degrees of stability or instability, leadership functions should be able to respond to them accordingly. A core premise of functional leadership theory posits that leaders take care or make others take care of group needs (McGrath, 1962). Consequently, a model of athlete leadership that seeks to cover all relevant functions of formal and informal leadership needs to include change-orientation. Regarding the second study, punctuated equilibrium models support the use of interventions as a means for group change. Viewed through these models, the intervention allowed the teams to review their respective deep structures. Furthermore, it has been argued that process-oriented consultation is particularly

suited to have this effect (Gersick & Hackman, 1990). In light of this, the use of the present intervention might have promoted revolutionary change, which also affects the interactional patterns within a group. Effects on interactional patterns were well represented in the qualitative data. For instance, the teams reported changes regarding communication and relationships. This in turn, changed the way they managed themselves during practice or competition.

In summary, punctuated equilibrium models offer a theoretical framework for both studies. The inclusion of change-orientation is representative of the prominent role of change as a fundamental aspect of group life, while mechanisms of group change proposed within robust equilibrium models provide further theoretical considerations in relation to the present intervention's effects.

5.3 Change within Teams as Social Systems

Many of the theoretical frameworks and constructs in the present dissertation are based on a (social) systems perspective. Specifically, solution-focused brief therapy (Cottrell & Boston, 2002), the concept of emergence and multilevel theory (Kozlowski & Klein, 2000), and punctuated equilibrium models (Arrow, 1997) build on the notion of groups as social systems. Shortly, I am going to discuss the development of shared leadership from a systems perspective with a focus on SFBT as a means to promote system change.

One of the earliest applications of a systems approach to group change was within family therapy. Brief Therapy (BT) understood difficult behavior as embedded within the client's social system (e.g., Weakland et al., 1974). Traditionally, BT focused on problems causing certain symptoms to promote change in the social systems in which they occur. Similarly, SFBT was built on the notion of families as systems. However, it offered a very different approach to promoting change. Instead of identifying problematic interactions between system elements, SFBT focuses on solution-building and the co-creation of preferred futures (Berg, 1994; de Shazer, 1985, 1994; de Shazer et al., 2007). De Jong and Berg (2013) described the "Concerns about the Problem-Solving Paradigm" (p. 8) by emphasizing that, unlike puzzles that are constituted of a limited amount of pieces, there are no single solutions to clients' complex problems. Therefore, practitioners are required to think divergently, survey different perspectives, and empower client's by making them realize their strengths and resources, enabling them to find solutions. Consequently, proponents of SFBT stress the importance of a "positive, collegial, solution-focused stance" (Trepper et al., 2011, p. 11). Additionally, practitioners treat the client as experts (e.g., what clients want to be different), which also allows for a reduction of resistance (De Jong & Berg, 2013; de Shazer, 1984). For instance, study two demonstrated that the conversations that unfolded during the intervention allowed the teams to develop highly idiosyncratic solutions (e.g., the handshake with the coach as a means to change in the relationship).

Moreover, SFBT assumes that realities are socially-constructed, and can be

changed accordingly (i.e., through the therapeutic dialogue) (Miller, 1997). Put differently, the use of language, interactions, and altered ascriptions of meaning are central mechanisms of change (Berg & De Jong, 1996). Thus, the therapist (or interventionist) supports the client in seeing and describing issues and parts of their lives in different ways (Berg & De Jong, 1996; Miller, 1997). Notably, SFBT bares similarities with change-oriented leadership. That is, the first study demonstrated that team members (i.e., formal and informal leaders) take an active part in the shaping of the developmental course of the team (i.e. change-oriented leadership). Specifically, the first study demonstrated the relevance of change-oriented leadership behaviors. Among these, change-oriented behavior includes *inspirational motivation*, *intellectual stimulation* and *fostering collective learning*. In more detail, *inspirational motivation* relates to the promotion of “a positive vision concerning the future of the team”, *intellectual stimulation* to behavior that “[c]hallenges members to think about problems in new ways”, while *fostering collective learning* relates to behavior that “[e]ncourages learning between team members” (Maechel et al., 2020, p. 5). Consequently, SFBT as well as change-oriented leadership promote the importance of divergent thinking, future orientation and cooperation. Certainly, change-oriented leadership and the solution-focused intervention differ in that the former represents an internal source of group needs, while the latter represents an external source for group needs (Morgeson et al., 2010). However, it appears that both approaches to change make use of similar pathways in that they actively promote the creation of new ideas for possible futures. For instance, the intervention was deemed important and effective as it provided a space for new kind of conversations to take place (i.e., more open conversations). However, a key difference between an internal (i.e., an informal leader) and an external (i.e., consultant) source for change could be the embeddedness within a team’s deep structure. An external consultant should be able to question even the most fundamental assumptions that influence group life and team effectiveness. Specifically, in study two, shared leadership significantly differed between the intervention and control group, including micropolitical leadership-orientation but not change-oriented leadership orientation. In particular, the qualitative data indicated that the teams attributed much of the intervention’s effectiveness to the presence of external support. However, shared leadership (i.e., as an internal source to change) might be an important

complementary force for change, as team members are able to act as role models and spokespersons for possible futures.

5.4 Future Research and Implications

The present results suggest that future research needs to advance two major areas. First, change-oriented athlete leadership research is at a very early stage. Before the introduction of the present revised model of athlete leadership, previous research had not considered the function of change-oriented leadership within teams. The only research in this area had been transformational leadership, which covers a few of the sub-dimensions of change leadership. However, the present results, as well as models of group development suggest that teams have to manage change in order to adapt to internal and external challenges. Second, over time the study of athlete leadership has incorporated the shared leadership perspective. The strength of this approach is that it considers a continuum of influence distribution. That is, leadership in teams can be shared in many ways. This is a very broad conceptualization and allows for differences from team to team. However, theories of shared leadership remain rather unspecific and general in nature. Thus, shared leadership might be able to build on existing models of group functioning. Accordingly, future research should seek to prioritize more theory-driven approaches, which allow more systematic investigations of shared leadership.

The most important implications for practice lie in the application of SFBT principles and methods. For interventionists, who aim to enhance group functioning by promoting shared leadership, the present results support the use of SFBT to team development as highlighted in the intervention manual. Similarly, formal leaders should be able to apply general solution-focused principles in order to lead with the aim of team empowerment. For instance, they could utilize a collegial, positive, solution-focused stance, along with solution-focused moderation skills in order to lead with an emphasis on strengths over deficits, solutions over problems and cooperation over authority. The present results suggest that these represent promising mechanisms to promote voice, ownership and shared leadership throughout the team.

6. Conclusion

In summary, the present dissertation has investigated functions of athlete leadership and the development of shared (athlete) leadership. This resulted in the introduction of a revised athlete leadership model and a solution-focused approach to shared leadership development. Both outcomes present new starting points for research and practice. Most importantly, study one demonstrated the need for systematic research investigating antecedents, processes and outcomes of change-oriented athlete leadership. Further, study two demonstrated that SFBT provides an effective framework for shared leadership development. Combined, the studies highlight the holistic nature of leadership research and support the perspective of shared leadership as an emergent group phenomenon.

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A. Appendices

A Study 2 - Intervention Manual

A Solution-Focused Approach
to Shared Athlete Leadership Development
Intervention Manual

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1. Introduction

1.1 What is the goal of the intervention?

The primary goal is the *development of shared leadership*.

1.2 What is shared leadership?

Theories of shared leadership acknowledge that leadership can be exhibited by all members of a team (Pearce & Conger, 2003). They do not need to be formal leaders (e.g., captains, coaches) (Loughead et al., 2006). Furthermore, shared leadership theories suggest that leadership functions do not have to be fulfilled by a single person (McGrath, 1962; Morgeson et al., 2010). Moreover, it helps the team if those functions are carried out by multiple team members (Wang et al., 2014). In that regard, leadership is seen as an outcome of team processes, not an input to team processes (Day et al., 2004).

1.3 What is our approach to shared leadership development?

The intervention builds on Solution-Focused Brief Therapy (SFBT) (e.g., de Shazer, 1985, 1994; de Shazer et al., 2007; Wilson & Berg, 1994). By using SFBT methods within four team workshops, we aim to facilitate a constructive team process on the basis of individual reflection and team communication. The result of these team processes should help the team to take on more responsibility for all leadership functions. This, in turn, should eventually help the teams to improve their effectiveness. In order to facilitate processes of shared leadership development, we base our workshops on the four dimensions of athlete leadership (Maechel et al., 2020). The model builds on the behavioral approach to leadership. It consists of a taxonomy of athlete leadership behaviors, which serve as the basis for leadership functions that need to be shared within a team. Generally, these behaviors are categorized into four dimensions: task-oriented, social-oriented, change-oriented and external leadership.

1.4 What are the four dimensions of athlete leadership?

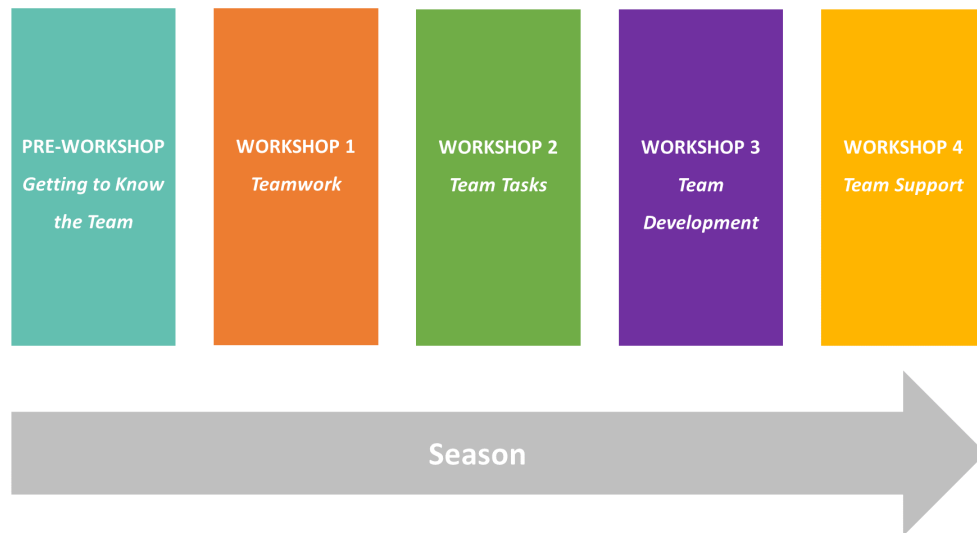
Social-Oriented Leadership: This dimension covers all functions that take care of the people within a team or an organization: consideration, respect, praise and the promotion of personal development. The two dimensions of task- and social-oriented leadership are the basis for many leadership theories. Commonly, good leadership appreciates both sides of the coin: ensuring that the task at hand is being accomplished, as well as taking care of the people.

Task-Oriented Leadership: This dimension describes all types of behavior that aim to accomplish the team's primary mission. That entails all tasks, processes, roles and goals that serve this mission. Accordingly, this dimension is all about securing the team's task fulfillment. What makes the team move forward towards their goal? How does the team coordinate all necessary steps towards goal attainment?

Change-Oriented Leadership: In order for teams to become or remain successful, they have to be able to adjust to change. This might be changes in the teams' composition or external conditions. Accordingly, all functions in the category attend to the promotion of team development in order to cope with an ever-changing situation.

External Leadership: Every team is embedded in a specific environment. For a sports team, this might be the club, the league, or even society. On the one hand, this environment might hold opportunities for the team, like sport psychological or medical support. On the other hand, there might be threats, like negative reports in the media or rival teams. Behaviors that constitute external leadership mediate between the team and its environment to secure its effectiveness.

1.5 Intervention Design



1.6 Schedule

There should be at least 14 days between individual workshops. With this, the teams should be given the opportunity to put newly developed goals into practice.

1.7 Facilitation Guidelines

The following guidelines build to a large degree on the work by Steve de Shazer, Insoo Kim-Berg and their collaborators, who developed SFBT. Specifically, the work by De Jong and Berg (1998) provided an informative resource on the specifics of guiding SFBT dialogue as described in the current section.

Solution-Focus

SFBT assumes that a problem and its solution are not necessarily connected. Accordingly, the interventionist focuses primarily on developing a vision of a preferred future, in which the problem is solved. Thus, we encourage participants to develop and formulate parts of the solution.

”Being not knowing” (De Jong & Berg, 1998, p.20)

The SFBT approach posits that clients are the experts in their own lives. This is an important therapeutical posture that guides the interventionists’ behavior. This might even go so far as to accept that the client does not want a current situation to change. As interventionists, we guide the process of reflection that enables the clients to devise their own solutions .

Focus on Solution Talk

Solution talk encompasses dialogue that focuses on the client's preferred future and the possibilities to realize it. Some clients tend to go back to problem talk, that encompasses dialogue about what they do not want to have in their lives. It is the interventionist's task to invite and amplify solution talk.

Example

Team member: "We should stop shouting at each other"

Moderator: "Assuming you would stop shouting, what would you do instead?"

Team member: "We would remain focused and talk about the game."

Solution-Focused Goals

Solution-focused goals are framed positively as the focus on the presence of a solution. Accordingly, we aim to paraphrase the team members statements.

Example

Participant: "We want the coach not to yell at us!"

Moderator: "You would like the coach to treat you nicer."

Complimenting / Focusing on Successes and Strengths

We help the teams to identify qualities and past experiences that might help them in overcoming their challenges. One way to do that is by complimenting on observed strengths and successes. Moreover, it is part of the general stance of the interventionist and is a common thread in the intervention's design. This can even manifest as (genuine) verbal reactions to the participants' statements (e.g., "I am impressed").

Someone Else is Supposed to Change

When talking about current challenges, team members might talk about others and voice that they wish for them to change their behavior. It is important to listen and acknowledge these statements as part of the team members' perceptions. However, the focus should return back to the client and how they can contribute to a possible solution. For instance, a player might say: "The coach should be nicer to us". A possible follow up could be: "Now, unfortunately, the coach is not present. What can you do in order to make things even a little better?"

Exploring for Exceptions

When team members report that a problem was not happening or that it was better than usual, we explore it by using questions such as: What was different? What did you contribute to it being different?

Active Listening

Active listening aims to provide a feedback loop for the sender of a message. It consists of a factual and emotional component. Depending on the message, either side can be dominant and, therefore, change the content that is paraphrased. Furthermore, active listening aims to a) encourage the speaker to elaborate and b)

CHAPTER 1. INTRODUCTION

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help the listener to make sure that he or she has understood correctly.

Notes for Visualization (e.g., sticky notes)

We use this method to write down and visualize important information. Accordingly, the facilitators write down information that is relevant to the team. These notes should be informative, positive and understandable for the team members. In order to achieve this, the facilitators are advised to make use of active listening in order to get feedback on whether their notes are good representations of the team's input.

Visual Clustering

We use clustering in order to structure information. We sort by similarity. Individual posts, and the overall structure can be modified at any time. We make use of both dimensions of space. That is, we use the horizontal and vertical axes to denote similarity (proximity) and hierarchy (headlines). This needs to be communicated to the team.

Focus on Strengths and Resources / Compliments

If team members tell us about their situation, we listen for strengths and resources. As facilitators we are attentive and give verbal feedback about resources we see. Sometimes, it also requires further questioning such as: How did you do this? How were you able to accomplish this achievement?

Getting Details and Echoing Key Words (De Jong & Berg, 1998, p.26)

Sometimes team members might give vague answers, even for key statements. Generally, it helps the team to understand what they want and how they can achieve that. Therefore, it is important to gather more details in the client-interventionist interaction. For instance, by echoing client's key words, we encourage participants to go into more detail, without too much direction from the interventionist.

Typical questions:

- What do you mean by "XY"?
- What do you understand as "XY"?
- How could you tell that you were more "XY"?

Working with scales

In the intervention, participants are often asked to position themselves on a scale within the room. Interventionists are encouraged to use instructions building on the scaling format. For instance, at some point during the intervention the participants are first asked to position themselves on a the scale at a point that represents the current state of the team. This is followed by another question, asking the participants to position themselves, where they would like to be in the future. This is then followed by the the question: "What could be the possible first steps for the team to move forward?". This last questions could be preceded with the phrase: "If you look back on the scale". This addition moves the participants' attention to the space they have just created by moving up on the scale.

Unwilling Participants

Participation is voluntary. This should be emphasized first. Hence, any team member who would like to leave, is free to do so at any point in time. For the sake of the decision making process, these team members should be asked, whether they would be willing to carry the decisions made by the team, even though they did not participate in their preceding discussion.

Relationship Questions

SFBT highlights the importance of interactional events and their social meanings. It acknowledges the fact that much of people's lives are embedded in a social context. Thus, it is important to explore the role of others as well as their interactive patterns in regards to the preferred future. This helps to achieve these solutions states, by considering them as part of a larger (social) context.

Typical questions:

- Who else would notice something different?
- What would they observe?

2. Pre-Workshop

2.1 Goals

1. Initiating a trusting relationship between the interventionist and the team.
2. Conveying an overview of the intervention goal and procedures.
3. Completing the first data assessment.

2.2 Schedule

#	Title	Duration	Time	Material
1	Preparation	10	/	/
2	Introduction of interventionist	10	00:00-00:05	/
3	Basic information about intervention	20	00:05-00:10	Flipchart 1.1, Flipchart 1.2
4	Data Assessment	20	00:20-00:40	/
5	Closing	5	00:40-00:45	/

Table 2.1: Pre-Workshop Schedule

2.3 Workshop Content

1. Preparation

- Set up flipcharts.
- Set up chairs in circle.
- Prepare tables, clipboards and pens.

2. Introduction

Provide answers to the questions:

- Who are we?
- What are we going to do?
- How are we going to do this?

3. Basic information about intervention

Interventionists introduce the idea and schedule of the intervention. Then inform about confidentiality and data protection.

Important aspects

- No information from the players will be shared with the coach.
- Results will only be shared with the coach after consulting with the team.

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- We are obliged to confidentiality.
- is important that everyone is present.

Make sure to ask the team for their permission to take pictures (e.g., "Is it ok for you, if we take a picture of each session's final product for records?")

4. Data Assessment and Informed Consent

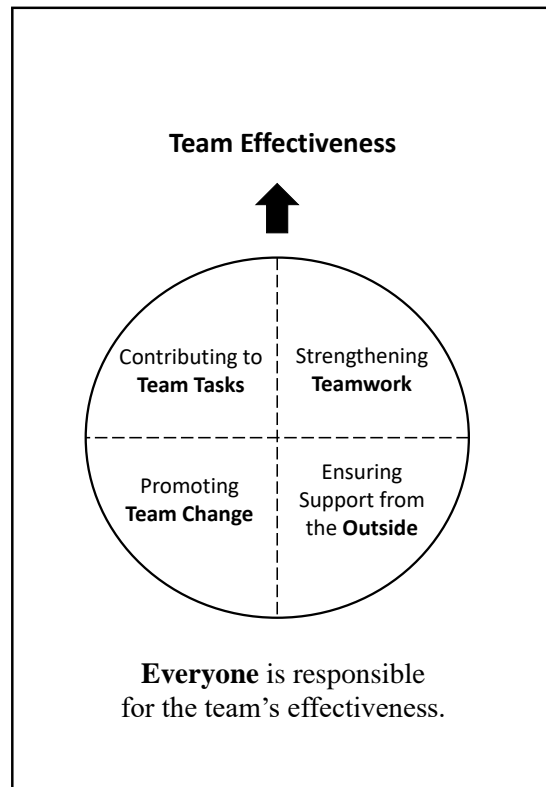
Informed consent for players and coaches. Players and coaches fill out questionnaires.

5. Closing

Thank all participants and inform them about a proper start at the next meeting. Remind the team of the importance of everyone present.

2.4 Workshop Material

Flipchart 1.1

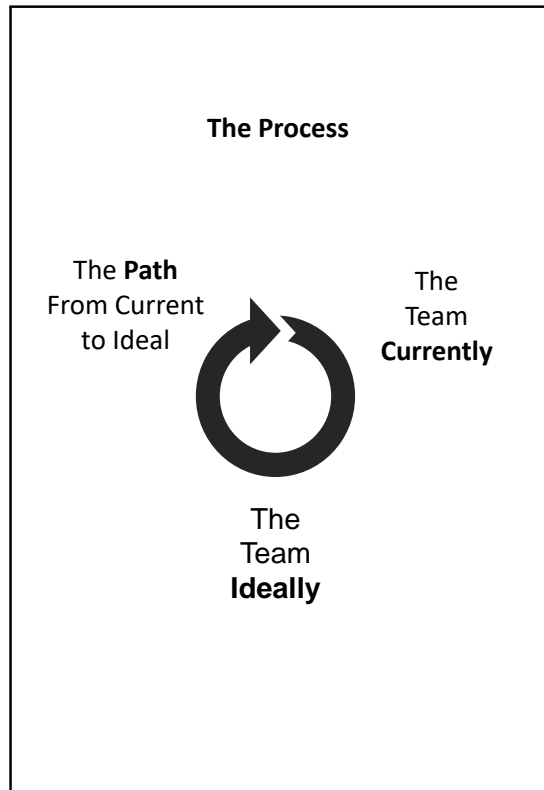


Information for the team

On this flipchart, you see the basic idea of this program. As an overarching goal, we cooperate in order to improve the effectiveness of your team. In order for a team to work well, we propose that four functions have to be fulfilled. First, the team has to effectively manage all tasks at hand. Second, team members need to stand up for one another and support each other. Third, situations change and effective teams must be able to develop and adjust over time. Lastly, effective teams need to mediate between themselves and their environment, for example, their coaches.

Together, we are going to take a look at each one of these areas. Of course, your team might already be fairly adequate in one or more of these, while others might still have potential for development. We will adjust to the needs of your team.

Flipchart 1.2



Information for the team

In order to optimize these areas, we will always proceed in the same way. We are going to look at where you currently stand as a team. Then, we will think about what a preferred future would look like. And lastly, we are going to discuss the best options available in order to achieve these goals.

3. Workshop - Teamwork

3.1 Goals

1. The team reflects on the dimension "teamwork".
2. The team gets a detailed picture of what is going well within the team.
3. The team gets a detailed picture of where they want to go as a team.
4. The team gets a detailed picture of potential first steps.
5. The team agrees on one or more first steps.
6. The team agrees whether they need external support for this.

3.2 Outline

#	Title	Duration	Time	Material
1	Welcome and check-in	10	0:00-0:10	/
2	Workshop structure and today's focus	5	0:10-0:15	Flipchart 1.1, Flipchart 1.2
3	Introduction (team)	10	0:15-0:25	Flipchart 1.5, Ball
4	Scale with individual reflection	10	0:25-0:35	Flipchart 2.1, Clipboards; Pens
5	Team discussion	30	0:35-1:05	Headline Sticky Notes 4.1, Sticky Notes, Clipboards, Pens
6	Voting for first step	5	1:15-1:20	/
7	Check-Out (optional)	10	1:20-1:30	Ball

Table 3.1: Workshop Outline - Teamwork

3.2.1 Preparation Checklist

- Put Flipchart 2.1 on the wall.
- Prepare two objects for end points of scale (e.g., chairs).
- Do you have a full stack of yellow sticky notes?
- Prepare green headline sticky notes.
- Have a pen for the sticky notes.
- Prepare a ball for check-in.
- Have enough clipboards and pens for all participants.

3.3 Workshop Content

1. Welcome

Welcome and check-in question (e.g., "How do you arrive at this workshop?")

2. Workshop structure and today's focus

We explain the structure of the workshop using flipcharts 1.2 and 1.3, as well as a short introduction of today's focus.

3. Introduction (team members)

A ball is being passed around among team members. Every individual player introduces her- or himself, along these bullet points:

- Name
- How long have you been with the team and what brought you here?
("Your journey to the team")
- Expectations / Hopes

4. Scale with individual reflection

1. Build scale on the ground.
2. Explain what today's focus is, including all sub-dimensions.
3. Describe both sides of the scale (10 – "Everything is perfect". 1 - "There is a lot of room for improvement").
4. Question 1a: "On a scale from one to ten, with ten representing a team demonstrating these particular behaviors perfectly, and one representing a team showing none or close to none of the behaviors, where does your team currently stand?"
 - (a) Members position themselves in the room. (People tend to move closer to where the group positions itself, therefore: "Choose a position in your head and then move to this position on three")
5. Question 1b: "What is currently working well within the team?"
 - (a) Instruction: "Write your position (the number) down and jot the answers down on your clipboards."
6. Question 2a: "Assuming our intervention is successful, where on this scale would be a suitable result for you at the end of the intervention?"
 - (a) Members position themselves.
 - (b) Members write down the number they stand on.
7. Question 2b: "How would you notice that your team has achieved this suitable result?" (optional follow-up questions: What would be different? How could someone from the outside tell that something has changed?)

CHAPTER 3. WORKSHOP - TEAMWORK

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- (a) Team members are given time to reflect and take personal.
- 8. Question 3: "What could be the possible first steps for the team to move forward?"
 - (a) Team members are given time to reflect and take personal notes.

5. Team discussion

1. What is currently working well within the team?
 - (a) Collecting, clustering and clarifying with solution-focused facilitation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
2. How would you notice that your team has achieved this suitable result?
 - (a) Collecting, clustering, clarifying, and using solution-focused moderation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
3. What could be the possible first steps for the team to move forward?
 - (a) First check: Are there elements in the clusters that could serve as potential first steps? (If yes, copy them for "first steps")
 - (b) Collecting, clustering, clarifying, and using solution-focused moderation
 - (c) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.

6. Voting for first step

1. "Which [two] steps do you believe are the most attainable for the team?"
 - (a) Depending on team size, team members can cast between 1 and 3 votes.
2. Sort the results (the most votes go to the top).
3. Verbal summary of results. Clarification with the team.
4. Wrap-Up
 - (a) Question: Do you need support from someone for your goal?
 - (b) Question: To whom shall we send the results?
 - (c) Close the voting: "With that, it is up to you to put this into action. It is your result".

7. Check-Out

1. "In today's workshop, what has been an important result for the team?"
 - (a) Make use of ball to make facilitation easier. If time is short, collect only from a few team members.

3.4 Details and Further Comments

The team discussion is the essential part of the intervention. It is characterized by suggestions from athletes and discussions among each other. All steps should be guided by solution-focused interviewing (see facilitation guidelines). This is what the interventionist should pay attention to.

Typical Cases

Steps 1 to 3: If the team focuses on problem talk (i.e. descriptions of things that do not go well) – for a short while, it is OK to let it go in order to acknowledge and respect the problem. However, it is important to move back to a solution focus. This can be done by rephrasing the initial question or related forms of it. Other techniques are described in the "facilitation guidelines".

Step 1: - Dealing with problem talk

Answer: "But we cannot do this at the moment, because ..."

Response: "I understand, you think there is room for improvement. And we are going to talk about this shortly. Before that, I would like to know what should not change / what can remain as is / what works well."

Step 1 and 2 – Dealing with problem talk

Answer: "We would stop fooling around"

Response: "Ah ok, and what would you be doing instead?"

Answer: "I don't know, be more focused, I think."

Response: "And how would you be able to tell that you are more focused?"

Step 2 – Possible responses in order to clarify an important key word.

Answer: "Then we would show more acceptance."

Response 1: "What do you mean by 'acceptance'?"

Response 2: "Assuming this acceptance will be there, what would be different?"

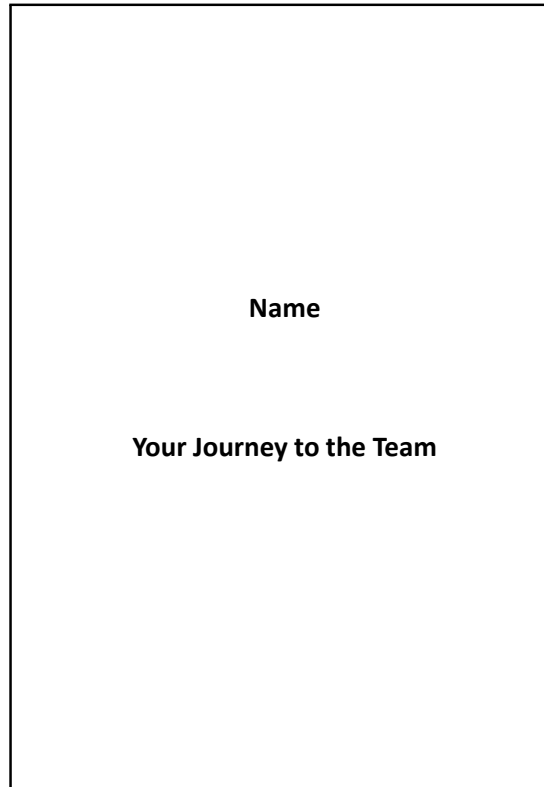
Response 3: "How could you tell that you have achieved this?"

Response 4: "How would someone from the outside notice that you have achieved this?"

It is important to identify the behavior associated with the change. This helps the team to get an idea of what they can do in order to improve the situation.

3.5 Workshop Material

3.5.1 Flipchart 2.1



Name

Your Journey to the Team

Information for the team

Short introduction (e.g., "I would like to get to know you as individuals and as a team. Could you state your name and what brought you to this team?")

3.5.2 Flipchart 2.2



Information for the team

- We provide feedback, advice and/or mentoring in order to help individual team members develop.
- We foster a constructive way of dealing with conflicts that may arise to maximize the team's effectiveness.
- We promote teamwork and engagement among team members.
- We recognize and praise team members for good performance.
- We show concern for individual members, and provide trust and support.
- We set an example for teammates to follow that is consistent with the values of the team.
- We consider the suggestions of teammates and involve them in important decisions.

3.5.3 Subdimensions - Social-Oriented Leadership

Subdimension	Description
Recognizing	Recognizes and praises team members for good performance.
Promoting Teamwork	Promotes teamwork and engagement among team members.
Empowering	Considers the suggestions of teammates and involves them in important decisions.
Managing Conflict	Fosters a constructive way of dealing with conflicts that may arise to maximize the team's effectiveness.
Individual Support	Shows concern for individual members, and provides trust and support.
Personal Development	Provides feedback, advice and/or mentoring in order to help individual team members develop.
Role Modelling	Sets an example for teammates to follow that is consistent with the values of the team.

Table 3.2: Subdimensions -Social-Oriented Leadership

3.5.4 Cluster Structure - Team Discussion

Teamwork		
Works Well Already	This Is Where We Want to Go	First Steps
Sticky Notes	Sticky Notes	Sticky Notes
...
...

Table 3.3: Cluster Structure - Team Discussions

4. Workshop - Team Tasks

4.1 Goals

1. The team reflects on the dimension "team tasks".
2. The team gets a detailed picture of what is going well within the team.
3. The team gets a detailed picture of where they want to go as a team.
4. The team gets a detailed picture of potential first steps.
5. The team agrees on one or more first steps.
6. The team agrees whether they need external support for this.

4.2 Outline

#	Title	Duration	Time	Material
1	Welcome and check-in	5	0:00-0:05	Ball
2	Reflection on last workshop	10	0:05-0:15	Clipboards, pens, yellow sticky notes, purple sticky note
3	Workshop structure and today's topic	5	0:15-0:20	Flipcharts 1.1, 1.2, 3.1
4	Scale with individual reflection	15	0:20-0:35	Flipchart 3.1, clipboards, pens
5	Team discussion	40	0:35-1:15	Green sticky notes 4.1, Yellow sticky notes
6	Voting for first step	10	1:15-1:25	/
7	Check-Out (optional)	5	1:20-1:30	Ball

Table 4.1: Workshop Outline - Team Tasks

4.2.1 Preparation Checklist

- Put Flipchart 3.1 on the wall.
- Prepare two objects for end points of scale (e.g., chairs).
- Do you have a full stack of yellow sticky notes?
- Prepare green headline sticky notes.
- Prepare purple sticky note for headline "Steps We Have Made".
- Have a pen for the sticky notes.
- Prepare a ball for check-in.
- Have enough clipboards and pens for all participants.

4.3 Workshop Content

1. Welcome

Welcome and check-in question (e.g., "How do you arrive at this workshop?")

2. Reflection of last workshop - Individual

This reflection happens on the individual level. The participants should use their clipboards to make notes.

1. Question 1: "Since the last workshop ("topic"), what has worked well since then?"
 - (a) Follow-up questions:
 - Which smaller and larger steps could you observe?
 - What has improved since then?
 - How did you achieve this?
 - What did you contribute?
2. Question 2: "What might be further indications that your team is moving in the right direction?"

3. Reflection of last workshop - Team Discussion

Team discussion

1. Collecting, clustering and clarifying for question 1: Since the last workshop ("teamwork") what has worked well since then?
2. I would like to put your answers to question 2 on hold. We will come back to this at the end of the session.

4. Workshop structure and today's focus

We explain the structure of the workshop using flipcharts 1.2 and 1.3, as well as a short introduction of today's focus.

5. Scale with individual reflection

1. Build scale on the ground.
2. Explain what today's focus is, including all sub-dimensions.
3. Describe both sides of the scale (10 – "Everything is perfect". 1 - "There is a lot of room for improvement").
4. Question 1a: "On a scale from one to ten, with ten representing a team demonstrating these particular behaviors perfectly, and one representing a team showing none or close to none of the behaviors, where does your team currently stand?"

CHAPTER 4. WORKSHOP - TEAM TASKS

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- (a) Members position themselves in the room. (People tend to move closer to where the group positions itself, therefore: "Choose a position in your head and then move to this position on three")
- 5. Question 1b: "What is currently working well within the team?"
 - (a) Instruction: "Write your position (the number) down and jot the answers down on your clipboards."
- 6. Question 2a: "Assuming our intervention is successful, where on this scale would be a suitable result for you at the end of the intervention?"
 - (a) Members position themselves.
 - (b) Members write down the number they stand on.
- 7. Question 2b: "How would you notice that your team has achieved this suitable result?" (optional follow-up questions: What would be different? How could someone from the outside tell that something has changed?)
 - (a) Members write down answers to this question.
- 8. Question 3: "What could be the possible first steps for the team to move forward?"
 - (a) Members write down answers to this question.

6. Team discussion

- 1. What is currently working well within the team?
 - (a) Collecting, clustering and clarifying with solution-focused facilitation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
- 2. How would you notice that your team has achieved this suitable result?
 - (a) Collecting, clustering, clarifying, and using solution-focused moderation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
- 3. What could be the possible first steps for the team to move forward?
 - (a) First check: Are there elements in the clusters that could serve as potential first steps? (If yes, copy them for "first steps")
 - (b) Collecting, clustering, clarifying, and using solution-focused moderation
 - (c) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.

7. Voting for first step

- 1. "Which [two] steps do you believe are the most attainable for the team?"
 - (a) Depending on team size, team members can cast between 1 and 3 votes.

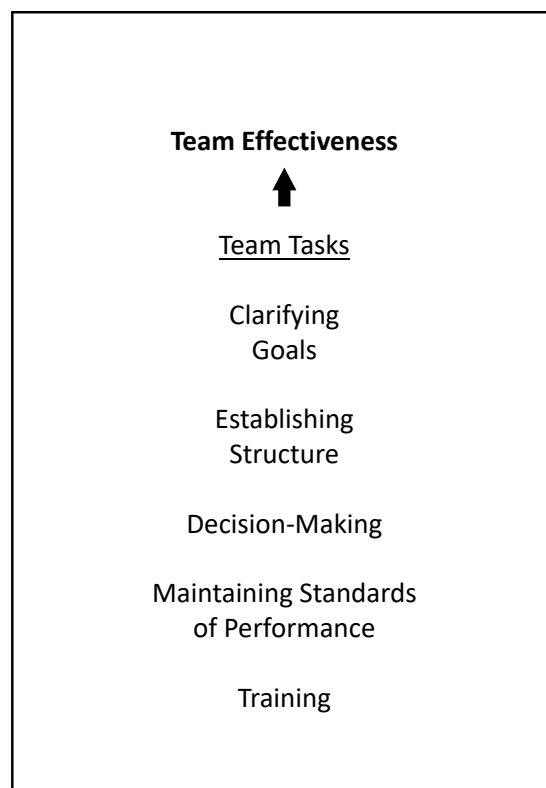
2. Sort the results (the most votes go to the top).
3. Verbal summary of results. Clarification with the team.
4. Which steps or future developments would you like to keep an eye on with regards to the last workshop?
5. Wrap-Up
 - (a) Question: Do you need support from someone for your goal?
 - (b) Question: To whom shall we send the results?
 - (c) Close the voting: "With that, it is up to you to put this into action. It is your result".

8. Check-Out

1. "In today's workshop, what has been an important result for the team?"
 - (a) Make use of ball to make facilitation easier. If time is short, collect only from a few team members.

4.4 Workshop Material

4.4.1 Flipchart 3.1



Information for the team

- We help the team focus on its goals.
- We clarify and coordinate team activities, determine the steps and resources necessary to accomplish these activities.
- We identify team-related problems and facilitate decisions to resolve these.
- We make sure the team's and/or team members' performance is meeting or exceeding expectations.
- We help team members develop their skills and tactics.

4.4.2 Subdimensions - Task-Oriented Leadership

Subdimension	Description
Clarifying Goal	Helps the team focus on its goals.
Establishing Structure	Clarifies and coordinates team activities, determines the steps and resources necessary to accomplish these activities.
Decision Making	Identifies team-related problems and facilitates decisions to resolve these.
Maintaining Standards of Performance	Makes sure the team's and/or team members' performance is meeting or exceeding expectations.
Training	Helps team members develop their skills and tactics.

Table 4.2: Subdimensions - Task-Oriented Leadership

4.4.3 Cluster Structure - Team Discussion

Teamwork		Team Tasks	
Steps we have made	Works Well Already	This Is Where We Want to Go	First Steps
Sticky notes	Sticky notes	Sticky notes	Sticky notes
...
...

Table 4.3: Cluster Structure - Team Discussions

5. Workshop - Team Development

5.1 Goals

1. The team reflects on the dimension "team development".
2. The team gets a detailed picture of what is going well within the team.
3. The team gets a detailed picture of where they want to go as a team.
4. The team gets a detailed picture of potential first steps.
5. The team agrees on one or more first steps.
6. The team agrees whether they need external support for this.

5.2 Outline

#	Title	Duration	Time	Material
1	Welcome and check-in	5	0:00–0:05	Ball
2	Reflection on last workshop	10	0:05-0:15	Clipboards, pens, yellow sticky notes, purple sticky note
3	Workshop structure and today's topic	5	0:15-0:20	Flipcharts 1.1, 1.2, 4.1
4	Scale with individual reflection	15	0:20–0:35	Flipchart 4.1, clipboards, pens
5	Team discussion	40	0:35-1:15	Green sticky notes 4.1, Yellow sticky notes
6	Voting for first step	10	1:15-1:25	/
7	Check-Out (optional)	5	1:20–1:30	Ball

Table 5.1: Workshop Outline - Team Development

5.2.1 Preparation Checklist

- Put Flipchart 4.1 on the wall.
- Prepare two objects for end points of scale (e.g., chairs).
- Do you have a full stack of yellow sticky notes?
- Prepare green headline sticky notes.
- Prepare purple sticky note for headline "Steps We Have Made".
- Have a pen for the sticky notes.
- Prepare a ball for check-in.
- Have enough clipboards and pens for all participants.

5.3 Workshop Content

1. Welcome

Welcome and check-in question (e.g., "How do you arrive at this workshop?")

2. Reflection of last workshop - Individual

This reflection happens on the individual level. The participants should use their clipboards to make notes.

1. Question 1: "Since the last workshop ("topic"), what has worked well since then?"

(a) Follow-up questions:

- Which smaller and larger steps could you observe?
- What has improved since then?
- How did you achieve this?
- What did you contribute?

2. Question 2: "What might be further indications that your team is moving in the right direction?"

3. Reflection of last workshop - Team Discussion

Team discussion

1. Collecting, clustering and clarifying for question 1: Since the last workshop ("team tasks") what has worked well since then?

2. I would like to put your answers to question 2 on hold. We will come back to this at the end of the session.

4. Workshop structure and today's focus

We explain the structure of the workshop using flipcharts 1.2 and 1.3, as well as a short introduction of today's focus.

5. Scale with individual reflection

1. Build scale on the ground.

2. Explain what today's focus is, including all sub-dimensions.

3. Describe both sides of the scale (10 – "Everything is perfect". 1 - "There is a lot of room for improvement").

4. Question 1a: "On a scale from one to ten, with ten representing a team demonstrating these particular behaviors perfectly, and one representing a team showing none or close to none of the behaviors, where does your team currently stand?"

- (a) Members position themselves in the room. (People tend to move closer to where the group positions itself, therefore: "Choose a position in your head and then move to this position on three")
5. Question 1b: "What is currently working well within the team?"
 - (a) Instruction: "Write your position (the number) down and jot the answers down on your clipboards."
 6. Question 2a: "Assuming our intervention is successful, where on this scale would be a suitable result for you at the end of the intervention?"
 - (a) Members position themselves.
 - (b) Members jot down the number they stand on.
 7. Question 2b: "How would you notice that your team has achieved this suitable result?" (optional follow-up questions: What would be different? How could someone from the outside tell that something has changed?)
 - (a) Team members are given time to reflect and take personal notes.
 8. Question 3: "What could be the possible first steps for the team to move forward?"
 - (a) Members write down answers to this question.

6. Team discussion

1. What is currently working well within the team?
 - (a) Collecting, clustering and clarifying with solution-focused facilitation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
2. How would you notice that your team has achieved this suitable result?
 - (a) Collecting, clustering, clarifying, and using solution-focused moderation.
 - (b) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.
 - (c) Find headlines and/or dividing clusters, if appropriate.
3. What could be the possible first steps for the team to move forward?
 - (a) First check: Are there elements in the clusters that could serve as potential first steps? (If yes, copy them for "first steps")
 - (b) Collecting, clustering, clarifying, and using solution-focused moderation
 - (c) Paraphrase and summarize the content (cluster); check with the team for satisfaction with the content.

7. Voting for first step

1. "Which [two] steps do you believe are the most attainable for the team?"
 - (a) Depending on team size, team members can cast between 1 and 3 votes.

CHAPTER 5. WORKSHOP - TEAM DEVELOPMENT

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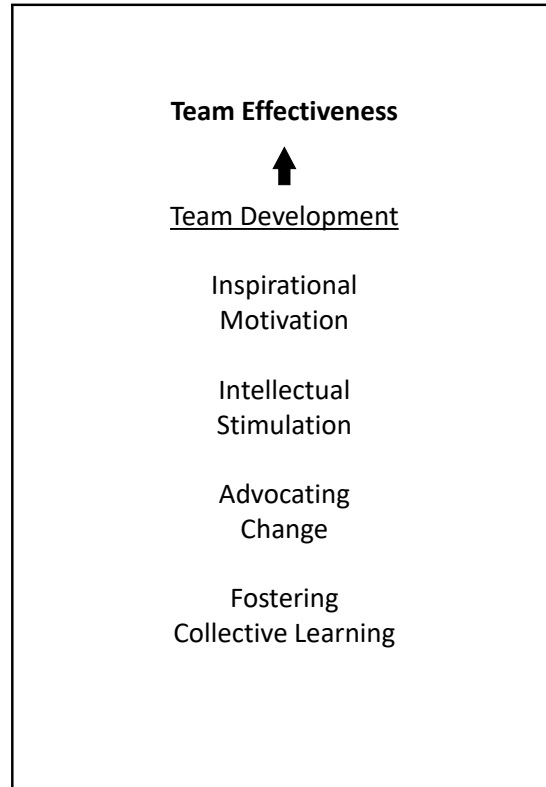
2. Sort the results (the most votes go to the top).
3. Verbal summary of results. Clarification with the team.
4. Which steps or future developments would you like to keep an eye on with regards to the last workshop?
5. Wrap-Up
 - (a) Question: Do you need support from someone for your goal?
 - (b) Question: To whom shall we send the results?
 - (c) Close the voting: "With that, it is up to you to put this into action. It is your result".

8. Check-Out

1. "In today's workshop, what has been an important result for the team?"
 - (a) Make use of ball to make facilitation easier. If time is short, collect only from a few team members.

5.4 Workshop Material

5.4.1 Flipchart 4.1



Information for the team

- We promote a positive vision concerning the future of the team.
- We challenge team members to think about problems in new ways.
- We explain why change is desirable for the team.
- We encourage learning between team members to help the team develop.

5.4.2 Subdimensions - Change-Oriented Leadership

Subdimension	Description
Inspirational Motivation	Promotes a positive vision concerning the future of the team.
Intellectual Stimulation	Challenges team members to think about problems in new ways.
Advocating Change	Explains why change is desirable for the team.
Fostering Collective Learning	Encourages learning between team members to help the team develop

Table 5.2: Subdimensions - Task-Oriented Leadership

5.4.3 Cluster Structure - Team Discussion

Team Tasks		Team Development	
Steps we have made	Works Well Already	This Is Where We Want to Go	First Steps
Sticky notes	Sticky notes	Sticky notes	Sticky notes
...
...

Table 5.3: Cluster Structure - Team Discussions

6. Workshop - Team Support

6.1 Goals

1. The team reflects on the progress during the intervention.
2. The team identifies what has improved over the course of the intervention.
3. The team identifies what they would like to maintain for the future.
4. The team identifies ways for the coach to support them.
5. The team identifies ways to support the coach.
6. The team and coach find an agreement how the proceed after the intervention.

6.2 Outline

#	Title	Duration	Time	Material
1	Welcome and check-in	5	0:00-0:05	Ball
2	Summary reflection - individual	10	0:05-0:15	Clipboards, pens, yellow sticky notes, scale (wall)
3	Summary reflection - team	15	0:15-0:30	Flipcharts 5.1, 5.2
4	Preparation for discussion with coach	25	0:30-0:55	Flipcharts 5.3, 5.4
5	Team discussion with coach	30	0:55-1:25	Green sticky notes 4.1, Yellow sticky notes
6	Closing	5	1:25-1:30	/

Table 6.1: Workshop Outline - Team Support

6.2.1 Preparation Checklist

- Hang four flipcharts.
- Prepare four titles (either on flipcharts or sticky notes).
- Prepare scale on the wall (or flipchart).
- Prepare two objects for scale on the floor.
- Have enough sticky notes in yellow.
- Have have a pen for the sticky notes.
- Have the ball ready for check-in and (optional) check-out.
- Hand out clipboards and pens from the beginning.

6.3 Workshop Content

1. Welcome

1. Welcome and check-in question (e.g., "How do you arrive at this workshop?").
2. Inform team that they will get the chance to discuss how to approach the discussion with the coach. This means that they decide about the content.
3. At this point you can highlight the purpose of the flipcharts ("For preparing the discussion with the coach").
4. And frame the purpose of today's workshop (e.g., "Today is about coming to a conclusion for our intervention. In the first part, we will proceed as we have done before. In the second part, we will prepare the discussion with the coach. And in the last part, we are going to invite the coach and have a dialogue. It is today's goal to get the coach back on board. We have had a couple of discussions, where the coach was not present. But overall, you and the coach are the team.").

2. Summary Reflection - Individual

1. Build scale on the ground and a second one on the wall with sticky notes.
2. First question: "On a scale from one to ten, where one stands for the state of the team at the beginning of our workshops and ten stands for the state of the team that you wanted to reach at the end of our workshops, where would you position yourself today?".
 - (a) Participants move to position.
3. Second question: "When you think back to our different workshops and try to summarize them: What has improved?".
 - (a) Give participants time to take notes on their clipboards
4. Third question: "Assuming you want to maintain or further the team's progress, what would you like to keep for the future?".
 - (a) Give participants time to take notes on their clipboards

3. Summary Reflection - Team

1. Team discussion - Collecting, Clustering and Clarifying (sticky notes on flipchart)
 - (a) On flipchart 5.1: What has improved?
 - (b) On flipchart 5.2: What would you like to keep for the future?

3. Preparation for Team Discussion with Coach

1. Setting the stage and providing a frame (e.g., "The team consists of you all as team members, as well as your coach. Today we would like to integrate the coach in the process that you have gone through. For that, the coach most likely needs some information. In the end, you are both on the same side, and he should be a very important supporter for your common goals. In order to prepare this discussion, we are going to work on two questions. I am going to give you the first one in a second. Please think about it and make notes of what is important to you.>").
2. First Question
 - (a) Individual reflection: "For your preferred future, what do you need from the coach?"
 - (b) Team discussion with facilitation (Flipchart 5.3: What do you need from the coach).
3. Second question
 - (a) Individual reflection: "For your preferred future, what does the coach need from you?"
 - (b) Team discussion with facilitation (Flipchart 5.4: What does the coach need from us?).
4. If necessary, sort by voting for one or multiple of the flipcharts.
5. Organizational information for the team: "We will assume a moderating role. Your responsibility will be the presentation of the results. Is that OK with you?"

4. Team Discussion with Coach

1. Invite coach to participate.
2. Setting the stage and providing a frame (e.g., "Great to have you all here. Up to this point we have only talked to each other separately. But, ultimately, it is all about you as a whole team. And this is the idea behind the present dialogue. First, to inform you as the coach, we will discuss what the team has worked on. And it is not me, but the team, who is going to do that. This is because it is this workshop's goal for you to function autonomously without external support. This is why, we are going to step back and take charge only of the time and the moderation. And this is why I am giving it over to the team, who would like to bring you up to speed.>").
3. Presentation of the results by the team to the coach.
4. Question to the coach and the team: Is there anything you would like to say before we bring this program to an end?

5. Closing

1. Complimenting of the coach, the team, and the two of them together.
2. Thanking them for the process, as well as their openness and participation.

6.4 Details and Further Comments

1. Summary Reflection - Individual

This part runs very similarly to the previous workshops.

2. Summary Reflection - Individual

- Part 1: What has improved?
 - This part runs also very similarly. Although usually the teams are now used to the procedure, and therefore, it can be sped up a little, it is still a very important part of the overall session. It is sufficient to jot down key words. Of course, some details have to be specified.
- Part 2: What would you like to keep for the future?
 - This part is crucial and needs more clarification. It is very important to identify concrete behaviors and goals for the future.

3. Preparation for Discussion with Coach

It is important to tell the team that it is primarily about collecting information. Later they will be given the chance to decide what to present and how.

4. Team Discussion with Coach

Ideally, this discussion runs without major interference from the moderator. The most important part is the right framing in the beginning.

5. Closing

Just be open and honest what kind of strengths and resources you have observed. Seize the opportunity to thank the whole team.

6.5 Workshop Material

6.5.1 Flipcharts 5.1 to 5.4

(5.1) What has improved?

(5.2) What would you like to keep
for the future?

(5.3) What do you need from the
coach?

(5.4) What does the coach need
from us?

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Shared Leadership in High Performance Teams
Interview Guide

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1. Interview Guide - Focus Groups

1.1 Information for Participants

1. Welcome the participants.
2. Provide background information about this focus group: *The interview is geared towards evaluating the whole program as well as what happened in and outside of the workshops.*
3. Provide the participants with the rules for the focus group: *We do this in the form of a focus group, which is more of a discussion among the four of you, then between me and every one of you individually. So feel free to comment on each other or discuss topics among you. Also the goal is not about reaching consensus, but if the case, to bring forth different viewpoints. There are no false answers.*
4. Assess basic information
 - (a) Individual names
 - (b) Roles
 - (c) Team tenure
5. State what the focus group is going to be about: *For all that we have done, I am going to refer to as "the program".*

1.2 Interview Questions

1. Entry

- (a) What are your general impressions of the program?

2. Social Validity

(a) Treatment goals

- i. How relevant were the topics of the workshops for you, that is team tasks, teamwork, team development and the discussion with the coach?

(b) Treatment procedures

- i. In general, how satisfied were you with the process of the programs?

A. Probe: ... *with the individual workshops*

B. Probe: ... *with the methods of the workshops*

(c) Treatment outcomes

- i. In general, what were the outcomes of the program?

A. Probe: *What were the outcomes on the team?*

B. Probe: *How did the program procure this?*

- ii. How did the season and the program influence each other?

- iii. In general, how useful has the program been for you?

- iv. How has the program influenced the team's ability to contribute to the team's leadership?

(d) Improvements

- i. Do you have any recommendations, how we can further improve the program?

(e) Closing

- i. Is there anything else, you would like to say before we conclude this focus group?

2. Interview Guide - Individual Interviews

2.1 Information for Participants

1. Welcome participant.
2. Provide background information about this interview: *The interview is geared towards evaluating the whole program as well as what happened in and outside of the workshops.*
3. Provide the participants with the rules for the focus group: *We do this in the form of a interview. I have prepared a series of questions. However, I might also follow-up with more questions to your answers. There are no false answers.*
4. Assess basic information
 - (a) Name
 - (b) Club
 - (c) Team tenure
5. State what the interview is going to be about: *For all that we have done, I am going to refer to as "the program".*

2.2 Interview Questions

1. Entry

- (a) What are your general impressions of the program?

2. Social Validity

(a) Treatment goals

- i. How relevant were the topics of the workshops for the team, that is team tasks, teamwork, team development and the discussion with the coach?

(b) Treatment procedures

- i. In general, how satisfied were you with the process of the programs?

A. Probe: ... *with the structure?*

B. Probe: ... *with the timing?*

C. Probe: ... *with the conjoint workshop?*

(c) Treatment outcomes

- i. In general, what were the outcomes of the program?

A. Probe: *What were the outcomes of the conjoint workshop?*

B. Probe: *What were the outcomes on the team?*

C. Probe: *How did the program procure this?*

- ii. How did the season and the program influence each other?

- iii. In general, how useful has the program been for you?

- iv. How has the program influenced the team's ability to contribute to the team's leadership?

(d) Improvements

- i. Do you have any recommendations, how we can further improve the program?

(e) Closing

- i. Is there anything else, you would like to say before we conclude this interview?

B List of Publications and Submissions

Loughead, T. M., Hirsch, K., Boisvert, M., & Maechel, C. (2020). Athlete leadership in youth sport. In M. W. Bruner, M. A. Eys, & L. J. Martin (Eds.), *The Power of Groups in Youth Sport* (pp. 73–89). Academic Press.

Maechel, C., Loughead, T., & Beckmann, J. (2020). The testing of a four-dimensional model of athlete leadership and its relation to leadership effectiveness. *Frontiers in Psychology, 11*, Article 1361. <https://doi.org/10.3389/fpsyg.2020.01361>

Maechel, C., Loughead, T. M., Wergin, V. V., Kossak, T., & Beckmann, J. (2021). A solution-focused approach to shared athlete leadership development using mixed methods. *The Sport Psychologist*. Advance online publication. <https://doi.org/10.1123/tsp.2021-0075>.

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