

EXAMINING THE FACTORS INFLUENCING ORGANIZATIONAL  
CREATIVITY IN PROFESSIONAL SPORT ORGANIZATIONS

BY

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DISSERTATION

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## ABSTRACT OF THE DISSERTATION

### Examining the Factors Influencing Organizational Creativity in Professional Sport Organizations

Increasingly, globalization and the adoption of a market economy have made innovation fundamental for the success of organizations (Eklinder-Frick, Eriksson, & Hallén, 2014). Beyond market share, an innovative organization improves employee job satisfaction, employee self-efficacy and decreases turnover (Elskildsen & Dahlgaard, 2000; Valentine, Godkin, Fleischman, & Kidwell, 2011). However, professional sport organizations enhance or hinder creativity for many reasons. For example, teams operate essentially in an oligarchy (Wolfe, Wright & Smart, 2006). Additionally, professional sport industry tend to be isomorphic (O'Brien & Slack, 2004), hyper-traditional (Wolfe et al., 2006), or a hierarchical-type organization (Hartnell et al., 2011).

Therefore, the purpose of this research is to determine the antecedents of organizational creativity in professional sport organizations. Perception of organizational creativity is theorized to be influenced by individual employee creativity, work environment, and the social interactions of employees. Amabile's (1983) theory of individual creativity, West's (1990) four factor theory of team climate, and social network analysis theory was used to build a model for organizational creativity. The results based on a survey for three professional sport organization's front offices, indicated higher engagement in information searching and encoding processes was associated with higher levels of employee creativity. Perceptions of a work environment with a clear vision, supportive of innovation, task orientation, and participative safety, were associated with greater perceptions of organizational creativity. The lack of relationships between many of the factors theorized influencing employee creativity, as well as employee creativity and an individual's social network, could indicate the sport industry is unique in creativity research. This study is the beginning in understanding the first step of innovation, and the processes that influence

employees' perceptions regarding the ways in which their work environment relate to organizational creativity.

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#LiveitTeachit

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# **CHAPTER ONE**

## **INTRODUCTION**

Innovation is fundamental to the success and growth of organizations, including sport organizations. Increasingly, globalization and the adoption of a market economy around the world have motivated organizations to seek out competitive advantage (Eklinder-Frick, Eriksson, & Hallén, 2014). Even those who aren't participating in the market economy per se have seen more pressure to innovate, due to stakeholder pressure (Hoeber, Doherty, Hoeber, & Wolfe, 2015; Hoeber & Hoeber, 2012; Winand, Vos, Zintz, & Scheerder, 2013;). When organizations innovate, they gain a competitive advantage through increased efficiencies and/or new product development (Evangelista & Vezzani, 2010; Mol & Birkinshaw, 2009; Sappasert & Clausen, 2012; Walker, Damanpour, & Devece, 2011; Zhou & Shalley, 2003). Based on Schumpeter's (1950) theory of profit extraction, innovative organizations can "attenuate the natural forces of competition or changes in consumption patterns that tend to dissipate superior returns over time." (Rubera & Kirca, 2012, p. 131). This results in an improvement in financial and market performance for the innovative organization. Through engaging in the innovation process, organizations can gain advantage in the market over organizations that are not improving efficiencies or product offerings. Increased competitive environment has been the justification for previous innovation research in community and non-profit sport organizations (Hoeber et al., 2015; Hoeber & Hoeber, 2012; Swan & Newell, 1995; Winand et al., 2013) and the service industry as a whole (Slatten & Mehmetoglu, 2015).



Competitive advantage for a firm comes in different forms. Treacy and Wiersema (1995) suggested there are three types of competitive advantage for firms: 1) operational excellence, 2) customer intimacy, and 3) product leadership. First, operational excellence refers to leading the industry in price and convenience based on operative competence. The second type focuses on tailoring products and services for a specific customer base and securing customer loyalty. The final type, product leadership, focuses on product differentiation or innovation and the commercialization of these ideas (Miozzo, Lehrer, DeFillippi, Grimshaw, & Ordanini (2012). The desire for competitive advantage can be seen in the professional sport industry through innovations such as sabermetrics in analyzing player trades and drafts in Major League Baseball. These tend to focus on product leadership to gain on-field competitive advantage.

Competitive advantage remains the primary justification for organizational innovation. However, innovation within an organization has other benefits as well. According to a meta-analysis of organizational innovativeness, innovativeness of an organization has direct impact on the organization's value, as well as indirectly through market and financial position. The relationship is even stronger for smaller organizations (Rubera & Kirca, 2012). This is important for professional sport organizations, because for the most part, they are small-to-medium organizations. Although there is debate, for the most part small-to-medium sized organizations have between 10 and 250 employees (Moore & Levermore, 2012). In terms of revenue, for example, Major League Baseball teams average \$262 million in revenue in 2014 (Ozanian, 2014). This is much smaller or similar to the medium-sized companies identified by *Forbes* (Tkaczyk, 2013). Although previous innovation research has indicated firm size may be an important factor, this may not be the case in sport. Winand et al. (2013) found in their analysis of regional sport federations in Belgium that size was not a deciding factor in the organization's

innovative behavior. They measured size as number of members, however. This is different than what management literature considers when measuring size, therefore number of employees may still be a significant factor. Beyond firm value and competitive advantage, there are benefits to employees as well.

Organizational value is also increased in an innovative organization through its benefits to employees. For employees, working for an innovative organization can increase self-efficacy, allow for engagement with intrinsic motivation, improve job satisfaction, and indirectly decrease turnover rates (Elskildsen & Dahlgaard, 2000; Valentine, Godkin, Fleischman, & Kidwell, 2011). These are valuable outcomes for organizations, including professional sport organizations. Intrinsic motivation helps employees persevere through difficult problems and leads to great personal satisfaction at work (Elsbach & Hargadon, 2006). Job satisfaction has been shown to increase firm value by 2.3% to 3.8% (Edmans, 2012). Employee turnover costs, because of recruiting and training costs, the employer from 90% to 200% annual pay (Horn, Mitchell, Lee, and Griffeth, 2012). Professional sport, however may not be receiving these benefits. The professional sport industry is often characterized as a very tradition bound, conservative industry (Wolfe, Wright, & Smart, 2006). Conservative organizations are not typically known for their innovativeness.

In some ways, professional sport organizations (at least in the major sports) do not face the same external pressures as other businesses. Teams operate essentially within an oligarchy (Wolfe et al., 2006). Professional sport organizations would not seek competitive advantage in traditional ways because they are the only firms selling their particular product in their specific market (Chadwick, 2009; Neale, 1964). Although revenue-sharing systems vary by league, they encourage behavior contrary to those of a firm in manufacturing or technology, where most

creativity and innovation research has been conducted. For example, whereas a technology firm may want to be first in adopting an innovation to gain that competitive advantage, a sport firm may choose to wait until another team adopts the innovation, knowing any increase in firm value or income for that team will increase all teams' values and income. The perception of these constraints can influence the ways that organizations and individuals within those organizations act creatively (Damanpour & Schneider, 2006). How employees and organizations react to their constraints and structures, will determine how often and earnestly they pursue innovation. If they perceive little need for competitive advantage or no cultural encouragement to be innovative, they will be unlikely to pursue or value organizational creativity.

Indeed, many innovations in professional sport relate to on the field activities, where competitive advantage is paramount. A sport team that gains competitive advantage through product innovation/differentiation will appease its consumers, who strongly desire a winning team. The now famous story of the Oakland A's embracing sabermetrics in their baseball operations, the basis for the book and movie *Moneyball*, highlights the most common kind of innovation in professional sports (Wolfe et al., 2006). Sabermetrics is baseball-focused data analytics that uses past performance in different statistics such as on-base percentage plus slugging percentage rather than perceived future potential and statistics such as batting average. In contrast, Goff, McCormick, and Tollison (2002) treated racial integration as an innovation and found successful managers integrated earlier. While constraint was deemed the motivation for the Oakland A's, Goff et al., (2002) found managers already winning sought out competitive advantage by increasing their potential talent through racial integration. Even actions such as doping or equipment development such as a new bat technology, can be seen as innovative activities seeking competitive advantage on the field of play. As mentioned previously, this is a

logical result of the oligarchy business structure where competitive advantage is focused on winning games (Wolfe et al., 2006).

There is some evidence there are innovations outside of the playing field. The development of dynamic pricing, electronic signboards, and fan loyalty programs provide evidence professional sport organizations are innovative (Yoshida, James, & Cronin, 2013). Lackowetz, McDonald, Sutton, and Clark (2007) even argue a large portion of revenue for major sport organizations come from innovative developments regarding luxury suites and premium seats. Kellison and Hong (2015) found projects requiring inter-organizational contact, such as stadium construction or hosting the Super Bowl, provide environmental incentive to innovate. They also theorize the influx of diverse stakeholders in these large scale projects provide additional opportunities for idea generation. These research studies in sport business innovations tend to study innovations as outcomes. The question remains of how and when these organizations innovate, as professional sport organizations appear to be both conservative and innovative at the same time.

Indeed, beyond their economic structure as a lack of impetus for innovation, evidence suggests professional sport organizations tend to be isomorphic (O'Brien & Slack, 2004), hyper-traditional (Wolfe et al., 2006), or bound by a strict hierarchical structure (Hartnell, Ou, & Kinicki, 2011). Each of these work environment factors interferes with organizational creativity (West & Farr, 1990; Winand et al., 2013). Professional sport organizations have historically maintained a hierarchical-style of structure and culture (Hartnell et al., 2011). By focusing on a stringent chain of command and failing to seek out diverse perspectives, opportunities to generate ideas may be limited (Dokko, Kane, & Tortoriello, 2014). Researchers have argued an innovation-supportive culture originates with the organizational values that reinforce daily

practice and inform beliefs (Frohman, 1998; Khazanchi, Lewis & Boyer, 2007). Sport organizations, however, value tradition, which can limit organizational creativity (Wolfe et al., 2006). That is not to say that sport organizations cannot or do not innovate. Clearly, innovation happens in the sport industry as outlined above. However, the tradition-focused and hierarchical work environments of most professional sport organizations make it more difficult to sustain a culture of innovation and creativity (Wolfe et al., 2006).

As innovation grows increasingly important for all organizations (Damanpour & Schneider, 2006; Hoeber & Hoeber, 2010), the understanding of innovative processes and practices will increase in importance as well. Innovation is both a process and an outcome (Anderson, Potocnik, & Zhou, 2014; Crossan & Apaydin, 2010). To achieve an innovative outcome, an organization must engage in the process of innovation. The process of innovation is complicated and controversial, but researchers generally agree the process of innovation within an organization, or organizational innovation, is a multi-level, multi-stage process (for reviews see Anderson et al., 2014; Crossan & Apaydin, 2010). As a complicated and complex process, organizational innovation is influenced by individual, group, organization and environment-level factors (Damanpour & Schneider, 2006). For example, highly creative persons can exist within an organization, yet the organization will not be innovative due to group-level and organizational-level factors (Sosa, 2011). These multiple levels impact organizational innovation throughout the multi-stage process.

Theorized as a three-stage process, organizational innovation consists of idea initiation, idea adoption decision, and idea implementation (Damanpour & Schneider, 2006). Idea initiation, the beginning stage, has been characterized “organizational creativity” (Tierney, 2015; Zhou & Shalley, 2003). Understanding organizational creativity is key to becoming an

innovative organization. Researchers and practitioners have examined the factors that enhance or inhibit creativity in organizations, this includes individual characteristics, motivations, team work environment, knowledge-sharing networks, organizational-level work environment, and environmental factors (for reviews, see Agars, Kaufman, Deane, & Smith, 2012; Shalley, Zhou & Oldham, 2004). Creativity in an organization is not, however, the summation of the individual creativity within an organization.

Similar to the rest of the organizational innovation process, organizational creativity is influenced by individual, group, organizational and environmental factors (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Damanpour & Schneider, 2006; Perry-Smith & Shalley, 2014; Sosa, 2011; Woodman, Sawyer, & Griffith, 1993). An important definitional point, organizational creativity is defined as the creation of an idea new and useful relative to the organization (Damanpour & Schneider, 2006; West & Farr, 1990). This is vital to understanding organizational creativity, as it differentiates organizational creativity from societal-level or individual-level conceptualizations of creativity or innovation. Individual-level conception of creativity is defined as new and useful to the individual and societal-level conceptualization of creativity is something entirely new to society (Damanpour & Schneider, 2006). Organizational creativity is the starting point for organizational innovation.

Organizational creativity is the starting point of organizational innovation, therefore it is necessary but insufficient for an organization to produce or adopt innovations. It is through organizational innovation that organizations create competitive advantage or improve efficiencies (Anderson et al., 2014; Crossan & Apaydin, 2010). However, organizations with greater potential for creative ideas are much more likely to innovate (Baer, 2010). Creativity is also an overlooked area of research regarding sport organizations. Those who do study creativity

and innovation in sport tend to focus on adoption and implementation of innovations (e.g. Hoeber & Hoeber, 2012; Jensen, Walsh, Cobbs & Turner, 2015; Kellison & Hong, 2015; Seifried & Katz, 2015; Wolfe et al., 2006). This perhaps reflects an overall tendency toward isomorphism within the sport industry, which is more focused on the adoption of outside ideas (O'Brien & Slack, 2004). This dissertation examines the first stage of the innovation process within organizations – organizational creativity. Understanding the factors that facilitate organizational creativity is the first step toward understanding the organizational innovation process within the sport industry.

Based on the model of Woodman et al. (1993), the interaction between the individual, organization and environment results in organizational innovation. Indeed, it is a common thread among many of the models of organizational creativity and innovation to consider the mutual influence of individuals, groups and the organization (Amabile et al., 1996; Damanpour & Schneider, 2006; Van de Ven, 1986). On one hand, individuals' open mindedness is stifled when there are no opportunities at work to generate ideas or brainstorm. On the other hand, a person who lacks the necessary skills may hinder an organization's ability to be creative. Originally, creativity researchers focused on the individual. It was the assumption that if organizations hire more creative people, the organization will be more creative, but this research lacked the interactive element of those individuals within the work environment (West & Sacramento, 2012). The interaction between the individual and the group or organization is a dynamic process that significantly hinders or enhances the creativity of individuals and the organization (Hirst, van Knippenberg, & Zhou, 2009; Richter, Hirst, van Knippenberg, & Baer, 2012). Therefore both individual employee creativity and organizational environment contribute to overall organizational creativity (Shalley et al., 2004).

Employees' perceptions of the work environment in an organization play an important role in organizational creativity (Amabile et al., 1996; Anderson et al., 2014, Anderson & West, 1998; West, 1990). Employees' perceptions of their work environment have been defined as the organizational climate of their organization. Climate in an organization "represents signals individuals receive concerning organizational expectations for behavior and potential outcomes of behavior." (Scott & Bruce, 1994, p. 582). Organizational climate differs from organizational culture in that the emphasis is placed upon how the social environment is experienced by the actors, i.e. their perceptions of the work environment (Denison, 1996). Climate has been found to interact with creativity, not merely by increasing the creativity of a team or organization but by strengthening the relationship between team creativity and innovation implementation (Somech & Drach-Zahavy, 2013). Clearly, both individual creativity and a climate supportive of creativity and innovation are necessary for organizational creativity to occur. However, the relationship between the two is less clear. However even in terms of employee experience and perceptions regarding their work context within the sport industry has little empirical evidence (Swanson & Kent, 2014). Swanson and Kent (2014) found distinct sport-related credibility attitudes of sport managers, and call for more examination of the work environment perceptions in the sport context.

Creativity research, as a reflection of the overall management literature, has focused recently on the influence of leadership on an employee's creativity. This is a result of the assumption that the leader of a group or organization dictates the climate an individual experiences in the workplace, provides resources to individuals to develop their creativity if they choose, or brings those employee ideas to the larger organization, making the organization more creative (Gong et al., 2009; Tierney & Farmer, 2004; Wang & Chen, 2010). In sport-related



innovation research, the leader also tends to be the focus, providing evidence for a “change champion” or a top-down directive for innovation (Hoeber & Hoeber, 2012; Seifried & Katz, 2015; Wolfe et al., 2006). However, these interactions with a “change champion” are only one facet of the factors that influence knowledge transfer, idea exchange, climate development, and encouragement of creativity (Perry-Smith, 2006). A focus on all interactions of importance to an individual provides a deeper analysis of how those interactions influence an individual’s creativity and perceptions of his or her workplace and organization’s creativity (Baer, 2010; Dokko et al., 2014; Perry-Smith, 2006).

Recent research in organizational creativity makes a case for viewing the creativity of an organization through individuals embedded in clusters and networks (Rigolizzo & Amabile, 2015). Clusters and networks are visual and statistical ways to represent the interactions of individuals within workplaces or other social situation (Burt, Kilduff & Tasselli, 2013). The daily interactions of employees are part of organizational climate; they seek to reinforce norms and encourage behavior (Mathisen, Einarsen, Jorstad, & Bronnick, 2004). This combination of structural analysis and individual psychosocial factors has utility for a multi-level examination of organizational creativity (Anderson et al., 2014; Crossan & Apaydin, 2010). Typically, creativity is considered an individual-level process, however research has indicated it is influenced by social interaction (Baer, 2010; Dokko et al., 2014; Perry-Smith, 2006). Not surprisingly then, social network analysis regarding creativity and innovative behavior has focused on the joint effects of structural properties and individual attributes (Baer, 2010; Obstfeld, 2005; Perry-Smith, 2006; Perry-Smith & Shalley, 2003; Zhou, Shin, Brass, Choi, & Zhang, 2009). The very nature of creating novel ideas often involves connecting individuals, their ideas and expertise, to produce novel combinations (Obstfeld, 2005). The very nature of network analysis considers

individuals influenced by and influencing the structure around them, allowing for examination of the interactions among individuals and groups of individuals (Shalley et al., 2004). It also approaches individual and organizational factors simultaneously from a multi-level approach, an important next step for innovation research (Anderson et al., 2014). Social network analysis then is an appropriate perspective to take when examining multiple factors influencing organizational creativity. It can capture the social nature of creativity within an organization beyond the nebulous perceptions of an individual's work environment. Also, it extends the sport management literature, as there is a paucity of within-organization network analysis research (Warner, Bowers, & Dixon, 2012).

Thus, to understand organizational creativity in the professional sport industry, three elements must be considered: (1) individual employees' creativity, (2) the degree to which the organizational environment values and supports creativity, and (3) the interactions of employees within the environment. The purpose of this study is to determine the interrelationships among individual creativity, work environment, social networks within the work environment, and their influence on perceptions of organizational creativity. Two main theories drive this work. Amabile et al.'s (1996) theory of employee creativity provides a framework for understanding individual creativity in the workplace. West's (1990) four factor theory of team climate for innovation provides the framework from which to examine the work environment. Social network theory provides the framework for understanding how the relationships among individuals within a work environment influence individuals.

## **Research Questions**

Drawing upon the theoretical frameworks of individual creativity, four factor theory of team climate for innovation and social network theory, the following overarching research questions direct this research:

RQ1: What influences do domain relevant skills, intrinsic motivation, and creativity-related processes engagement have on perceptions of employee creativity?

RQ2: What influence does employee creativity have on perceptions of organizational creativity?

RQ3: What influence does the work environment have on perceptions of organizational creativity?

RQ4: How do the relationships among individuals within the work environment influence perceptions of organizational creativity?

The remaining chapters will address these research questions. Chapter 2 reviews the literature to organizational creativity, employee creativity, creativity-supportive work environments, and interactions among individuals within the workplace. Sport-related research is highlighted as well as critiques of the theoretical frameworks. Chapter 3 discusses the method for answering these three research questions, and Chapter 4 provides the results of the analysis based on the method from Chapter 3. Finally, Chapter 5 discusses the findings, limitations, and conclusions of the analysis, relating the analysis back to the literature.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

Much has been written about innovation in organizations (for overviews see, Anderson et al., 2014; Crossan & Apaydin, 2010). Although the motivation for innovation varies, innovation is inextricably linked to creativity. Yet, creativity is a function of both individuals and their environment. Individual creativity has been extensively studied across a variety of contexts, including the arts (e.g., Stevens & Leach, 2015), education (e.g. Craft, Cremin, Hay, & Clack, 2014), manufacturing (e.g., Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999), technology (e.g., Zhang & Bartol, 2010a), business (e.g., Amabile, 1983; Grant & Berry, 2011), and even sport (e.g., Bowers, Green, Hemme, & Chalip, 2014; Memmert, 2006). Others have studied the effect of the environment on creativity (e.g., Amabile et al., 1996; Anderson & West, 1998).

This section will first present the building block of employee creativity, Amabile's (1983) theory of individual creativity, followed by a critical analysis of the empirical research examining individual creativity in the workplace. The next section will then present the main framework for understanding the role of work climate on creativity in the workplace, followed by a critical analysis of the empirical research in that area. Limitations of each theoretical framework will be discussed. The final section will highlight the importance of the interrelationships between individual creativity and workplace environment. Research questions will be derived throughout.

## **Theory of Individual Creativity**

As Felin and Foss argue, “to fully explicate organizational anything – whether identity, learning, knowledge, or capabilities – one must fundamentally begin with and understand the individuals that compose the whole” (2005, p. 441).” Amabile’s work in creativity and innovation in organizations remains a popular starting point for creativity research (cf. Anderson et al., 2014). Amabile characterizes creativity in the workplace as ideas that are new and useful to the organization. Useful is defined as those ideas that solve organizational concerns. New refers to ideas that are novel to the organization. This is a somewhat controversial aspect of innovation and creativity research. There is still heated debate among creativity and innovation researchers regarding these delineations and even definitions (Anderson et al., 2014)

First, the concept of the creativeness of an idea is an important one to the study of creativity. To break down the definition of creativity, the concept of new or novel has in particular been a sticking point (Anderson et al., 2014). Although there is what researchers have defined as creativity with a big-C, something new and novel to society (Simonton, 2010), many researchers would again argue that little is entirely new or novel, but always linked to previous ideas (Hansen & Wakonen, 1997). These are interesting distinctions and conceptual discourses, but for organizational researchers, draws focus away from their primary interest of the firm (Anderson et al., 2014).

Influential researcher as part of the longitudinal Minnesota Innovation Research Project, Van de Ven argued that “as long as the idea is perceived as new to the people involved, it is an ‘innovation’ even though it may appear to others to be an ‘imitation’ of something that exists elsewhere” (1986, p. 592). The appearance of imitation may sound a similar to isomorphism, a simple copy-and-paste of something outside of the organization, and a prominent criticism of

sport organizations (O'Brien & Slack, 2004). However, referring back to the original definition of innovation, the idea must not only be new or novel to the unit of reference, whether that be an individual, team, league, nation-state, or global society, but also useful to it. Therefore the innovation diffusion of sabermetrics, for example, can be seen as an innovation because the additional way to evaluate players brought utility to organizations. The point of highlighting the concept of a unit of reference to determine the creativity of an idea is creativity is misconceived in this way in popular discourse and explicit definition of the unit of reference for research purposes is important. In utilizing Amabile (1983), Perry-Smith & Shalley (2014), and West and Farr (1990), frameworks regarding the various factors that influence organizational creativity, creativity will be defined as new and useful to the organization.

Regarding individual creativity in an organization, Amabile (1983) first theorized individual creativity in the workplace as the result of three essential components within the individual. The three components to achieving creativity as an employee are domain-relevant skills, creativity-related processes, and task motivation. These three components were posited to account for the “fairly well-established creativity phenomena: the importance of talents, education, cognitive skills, innate interests, and personality dispositions, all functioning interactively to influence creative behavior” (Amabile, 1983, p. 362). Subsequent research has indicated support for Amabile’s initial model, although researchers have developed some adjustments and variations (Amabile, 2013; Grant & Berry, 2011; Zhang & Bartol, 2010a). Those will be discussed below.

Domain-relevant skills are critical to the generation of ideas. Essentially, more familiarity with the context, factual knowledge, previous experience, technical skills, and knowledge of paradigms related to the problem will result in greater number of possible ideas. For example, it

would be difficult for event managers to be creative about volunteer recruitment if they knew little about volunteers' motives. Creativity-related skills provide individuals with the ability to use their domain-specific skills in new ways. For example, one of these skills would be re-framing concerns and issues in novel ways. Re-framing can take many forms. What is important is that the individual develops skills that challenge the traditional mindset. Skills alone are not enough. Individuals must also be motivated to engage with the task and persist in these new thought patterns. This is Amabile's third component. Intrinsic task motivation positively influences creative behavior through a freedom from external pressures and control. In this theory, an individual who is intrinsically motivated in a particular task will be motivated to engage more deeply and persistently with the task and finding alternative solutions (Tagger, 2002). As such, Amabile's intrinsic motivation hypothesis indicates intrinsic motivation is conducive to creativity whereas extrinsic motivation is detrimental.

All three of these components need to be present for individual creativity to occur in the workplace. As this theory has evolved, the labels have changed slightly, and so this study will use the current nomenclature. Creativity-relevant skills evolved into "creativity-related processes" (Amabile & Pillemer, 2012). Task motivation evolved into intrinsic task motivation. Although many researchers refer to the construct as intrinsic motivation, it is commonly operationalized as intrinsic task motivation (Grant & Berry, 2011). In summary, employee creativity is a function of having the skills needed in the work place, having the skills to think outside the traditional thought patterns, and being motivated to apply both these skill sets to the task.

**Domain-relevant skills.** In a review of work related to the theory, Amabile (1996) found support for domain-relevant skills as an important component of employee creativity in the

subsequent empirical testing. Domain-relevant skills have been found to be positively related to employee creativity (Howell & Boies, 2004). When Taggar (2002) analyzed the three components, the empirical evidence showed domain-relevant skills were required to produce employee creativity. However, Taggar measured actual use of the skills. Most researchers conceptualize domain-relevant skills in terms of their potential for use (e.g., Perry-Smith & Shalley, 2014; Zhang & Bartol, 2010a). This maintains the distinctiveness of the component, and does not confound the domain-relevant skills and the motivation to use them. Additional empirical evidence found individuals improve their creativity through increasing the range of their domain-relevant skills. The increased range allows for a greater number of possible idea combinations (e.g. Amabile, 1988, Amabile & Gryskiewicz, 1989; Amabile et al., 1996; Gong, Huang, & Farh, 2009). Therefore, it is expected that greater work experience will be associated with higher levels of employee creativity (H1).

**Intrinsic task motivation.** The most studied and controversial component, intrinsic task motivation, has been found to improve employee creativity (Anderson et al., 2014). Intrinsic motivation is essentially the “desire to expend effort based on interest in and enjoyment of the work that is being performed” (Grant & Berry, 2011, p. 74). Employees with higher levels of intrinsic task motivation are more eager to learn more about problems and to seek out potentially relevant knowledge. They are also more motivated to expend energy and time to produce more novel ideas (Tierney et al., 1999). They also have a desire to push past mental barriers to seek out multiple iterations of potential ideas (Rigolizzo & Amabile, 2015). The empirical evidence has been mixed (Shalley et al., 2004). Some have found intrinsic motivation has a strong effect on creativity (e.g. Amabile, 1987; Shin & Zhou, 2003), whereas other researchers found a weak or minimal relationship (e.g. Dewett, 2007; Perry-Smith, 2006; Shalley & Perry-Smith, 2001).



Although Amabile initially theorized intrinsic task motivation as a component of employee creativity, it has subsequently morphed into intrinsic motivation regarding work tasks generally, which may explain some of the mixed results.

Since Amabile (1988) published the componential theory of individual creativity, modifications and additions have been made. Amabile hypothesized intrinsic motivation would enhance creativity and extrinsic motivation would diminish it. However, researchers found the relationship between intrinsic task motivation and creativity to be more complicated. Grant and Berry (2011) found that the relationship was moderated by pro-social motivation. They found the relationship between intrinsic motivation and creativity was higher when pro-social motivation was also present. They believed when employees interacted, they would take those interactions into consideration when exploring novel ideas. Simply, in a social setting, individuals are motivated to consider the usefulness of an idea just as much as their novelty. Although there is a great deal of empirical support for intrinsic motivation and creativity (Zhou et al., 2009), it remains a difficult mechanism to influence for employers beyond mediators such as rewards and feedback (Shalley et al., 2004). For example, when Mauzy and Harriman (2003) studied employees at 3M, they found an increase in creative behavior because 3M allowed employees 15% of their time be allocated to projects of their choosing. They indicated the employee's increase in creative behavior was a result of their intrinsic motivation in their self-selected projects.

The relationship between extrinsic motivation and employee creativity is also more complex than originally hypothesized. Extrinsic motivation can hinder employee creativity. If employees perceive extrinsic motivators as controlling, creativity is suppressed. However if they perceive these motivators to reward competence or enable individuals to become more involved

in tasks they are already intrinsically motivated by, employee creativity is enhanced (Amabile, 2013). It is expected that higher levels of intrinsic task motivation will be associated with higher levels of employee creativity.

**Creativity-related processes engagement.** There have been calls for a better understanding of the creativity-related processes that result in employee creativity (e.g., Shalley & Gilson, 2004). Indeed, engagement in creativity-related processes is positively related to employee creativity (Zhang & Bartol, 2010a). Researchers define these processes as problem identification (e.g. framing and reframing of problem), information searching and encoding (e.g. consulting and combining information from different sources) and finally, idea and alternative generation (e.g. producing better alternative solutions to problems) (Rigolizzo & Amabile, 2015; To, Herman, & Ashkanasy, 2015). Recent research has found engagement in these processes fluctuate within an individual across time. However when engaged with creativity-related processes, employees produce more creative ideas (To et al., 2015). Jiang and Yang (2015) also found a link between engagement in creativity-related processes and employee creativity. Interestingly, they note the importance of leader-member exchange in the engagement of creativity-related processes. This suggests that engagement may be socially influenced. It is expected that higher levels of engagement in creativity-related processes will be associated with higher levels of employee creativity.

One critique of their research is their lack of consideration for heterogeneity. Using self-report data, it can be assumed that the error term of perceived employee creativity is correlated with self-report data of creativity-related processes engagement. Additionally, creativity-related processes engagement is often combined into one construct when analyzed. Amabile (1988) theorized these are separate parts of a process, but most subsequent researchers have combined

the three stages of engagement into one construct for analysis (Harrison & Wagner, 2015; Jiang & Yang, 2015; Zhang & Bartol, 2010b). Although statistically valid, the lack of understanding surrounding creative process engagement is exacerbated by lumping engagement in the three stages together and treating them as one process.

Although employee creativity has not been studied in a sport management context, individual-level creativity has been examined. Bowers et al. (2014) found hours spent in structured youth sport experiences were negatively associated with creativity as an adult, whereas unstructured hours were positively associated. Interestingly, those who spent half their sporting experience in structured and half in unstructured experiences were the most creative. They measured creativity using the Torrance Test, a general test of creative ability. Memmert, Baker and Bertsch (2010) focused on sport-specific creativity and also found their experiences with unstructured sport positively influenced their creativity in the sport setting. Neither of these studies focuses on work-related creativity specifically, but individuals who are engaged with unstructured sport experiences are motivated intrinsically for that activity. This supports the evidence intrinsic task motivation is positively associated with individual creativity.

These are potentially interesting models, however they appear not to be as malleable for managers as Amabile's componential theory (Amabile et al., 1996). It has been shown that although hiring an individual with a creative personality would increase creative outcomes, this is not the case (Perry-Smith & Shalley, 2003). However, intrinsic motivation can be increased by managers through increased employee autonomy (Fay, West & Patterson, 2015), domain-relevant skills can be increased through HR programming (Chang, Jia, Takeuchi, & Cai, 2014), and there is also opportunity for managers to increase opportunity for creativity-related processes engagement (Zhang & Bartol, 2010a). Therefore, while also being validated in subsequent years

(Taggar, 2002), Amabile's (1983) theory of individual creativity has more utility with practitioners in mind. However, recently Amabile (2012) acknowledged the missing component was the social environment of an employee.

Clearly, the creativity of individual employees is critical for organizational creativity. Organizational creativity is not simply the summation of employee creativity (Woodman et al., 1993). Organizations are groups of individuals who interact with and influence each other on a daily basis. It makes sense that others in the organization will impact the creativity of the work group. Further, the setting and environment can enhance or suppress creativity in the workplace. In fact, empirical evidence indicates individual creativity interacts with the environment to affect organizational creativity (Taggar, 2002). Although intrinsic motivation has been widely tested regarding the influence of contextual factors, other elements of employee creativity, such as creativity-related processes and domain-relevant skills have not (Perry-Smith, 2006). These interactions of individuals and their surrounding environment influence the production of creative ideas within an organization (Perry-Smith, 2006). Therefore, the work environment will be examined.

### **Creative Work Environment**

A work environment conducive to creativity encourages employees to engage with creativity-related processes (Zhang & Bartol, 2010a), allows time for intrinsically motivated activities (Fay et al., 2015), and increases exchange of diverse knowledge (Perry-Smith, 2006). It also provides employees with clear problems to solve and new information to bring together. A work environment can be observed as a culture or a climate, although the two can blend toward each other in terms of paradigmatic perspectives (Denison, 1996). Organizational or work group culture originally focused on qualitative observations, interviews and ethnographies whereas

climate focused on survey-based quantitative measures.

Work environment is often studied through the lens of organizational culture in sport management. In a systematic review of organizational culture in sport management literature, Maitland, Hills and Rhind indicated some sport management researchers understand culture paradigmatically “through measurement, such as quantitative questionnaires and the results used to manipulate the relationship between organisational culture and outcomes, in order to impact how the organization operates,” (2015, p. 502). This is very similar to the organizational climate paradigmatic perspective.

In the organizational climate perspective, a few assumptions are made and acknowledged here. Organizational climate supposes that the climate is objectively real and that with careful study, those realities can be measured, deduced and understood (Guba & Lincoln, 2005; Maitland et al., 2015). Secondly, this perspective assumes the researcher can objectively measure this reality without interference of her or his own values. Finally, the researcher assumes by measuring these variables, the organizational climate can be manipulated and improved for increased organizational performance. This type of organizational culture/climate sport management research generally uses the competing values framework of Cameron and Quinn (2005). Most likely, this is due to the focus on a general assessment of organizational culture (e.g. Choi et al., 2010), rather than a specific focus such as innovation or creativity.

Maitland et al. (2015) subsequently argue that the propensity toward positivist organizational culture research in sport management is an issue because it simplifies the construct into an unproblematic variable. However, others would argue if researchers are explicit about their paradigmatic assumptions and research interests for a particular research study, then research is appropriate rather than flawed (Guba & Lincoln, 2005). Much of the research in

organizational creativity and innovation uses climate to examine work environment (e.g. Amabile et al., 1996; West, 1990). Amabile et al. (1996) argued the study of climate is appropriate for research in creativity due to the focus on perceptions of one's environment. Climate refers the patterns of behavior that emerge daily in an organization. Individuals in an organization experience, understand, and interpret those patterns of behavior (Sundgren, Dimenäs, Gustafsson, & Selart, 2005). Theories of work group climate for innovation or creativity focus on that psychological interpretation because creativity as an output is a result of the psychological creativity process (Amabile et al., 1996). Also, the underlying assumption of an organization seeking out competitive advantage through innovation, is the variables of an organization can be manipulated to increase competitive advantage through innovation. Therefore considering work environment from a positivist perspective, utilizing organizational climate as a lens of understanding the influence of work environment on organizational creativity is appropriate. As a result, this research will focus on climate as the work environment.

Researchers have found empirically that there is a relationship between perceived creative climate and innovation (Bommer & Jalajas, 2002; Ekvall, 1987, 1996; Sundgren et al., 2005). Initial theorizing regarding environmental influence on organizational creativity included factors such as employee autonomy, incentive programs, and problem formulation (Ekvall, 1987; Ford & Ogilvie, 1996; Woodman et al., 1993). Amabile et al. (1996) KEYS framework theorizes encouragement from the organization, supervisor, and work group influence an individual's creativity at work, as well as availability of resources and autonomy. They have subsequently found empirical support for the framework (Rigolizzo & Amabile, 2015), however the proprietary nature of the framework makes it hard to replicate. Axtell et al. (2000) found idea generation of an employee interacted with management support, team leader support, support for

innovation and participation. As Hülshager, Anderson and Salgado (2009) pointed out in their meta-analysis of team-level predictors of innovation, the relationship between various predictors and innovation was an inconsistent, sometimes contradictory, group of results. However, West's (1990) four factor theory of team climate for innovation has been replicated across several studies since it was first proposed (Anderson & West, 1998; Brodbeck, & Maier, 2001; Mathisen et al., 2004; Ragazzoni, Baiardi, Zotti, Anderson & West, 2002), which was Hülshager et al.'s (2009) reasoning for using it as the core team process dimensions in their meta-analysis. Their results indicated input variables such as task and goal interdependence, team size, team longevity were not significant, whereas the four factors of West's (1990) were significantly correlated to innovation. Its broad international appeal may be useful for replication of this study in international sport industry replications.

In the four-factor theory of team climate for innovation, West (1990) theorizes four facets of a work environment are key to an innovative climate. Specifically, West claims that employee innovativeness can be facilitated via vision, participative safety, group task orientation, and support for innovation. These four factors address the overall climate based on the values and norms emphasizing innovation (Anderson & West, 1998).

**Vision.** West (1990) theorized *vision*, as one of the four factors of team climate, has four essential elements: clarity in goals and objectives, valuation of vision, attainability, and level of sharedness among employees. Clarity of goals and objectives is important element of the vision factor. Clarity allows employees to engage in the creativity process by focusing on new and useful ideas for specific problems or contexts. This is similar to goal-setting theory (Lock & Latham, 1990), which posits clear objectives help employees focus. Another element of this factor is the visionary aspect. Employees who value the shared vision also have a greater

commitment to the group goals. This is theorized to increase motivation toward achieving those goals and taking on the cognitive work required in creative thought. Another element is attainability (Anderson & West, 1998). When the vision is unattainable for employees, they are demotivated to engage with the problem-solving process. Finally, West (1990) identified sharedness as another element of the vision factor. The more widely accepted the shared vision is within the group, the more likely employees will engage with the problem-solving process.

**Participative safety.** *Participative safety* addresses employees' perceptions of the degree to which the work environment encourages or discourages new ideas (Somech & Drach-Zahavy, 2013). Two elements make up participative safety: participation in decision-making and intra-team safety. Intra-team safety refers to the interpersonal atmosphere as being one of non-threatening trust and support (Anderson & West, 1998). When employees feel safe to contribute their ideas without fear of judgment or ridicule, they will be more likely to do so. Beyond the four-factor theory, other research has theorized and empirically tested the feeling of safety within an organization for employee creativity. Axtell et al. (2000) and Clegg et al., (2002) found employees who perceive the work environment to be supportive and accommodating, they will engage in creative activities, such as idea generation. However, Hülshager et al., (2009) found a weaker relationships between innovation and participative safety than with task orientation, vision, or support for innovation. They posited this may be because a strong intra-group supportive environment may lead to conformity and groupthink through a lack of conflict and constructive critique.

**Task orientation.** Similar to intrinsic motivation, *task orientation* focuses on motivation to execute a task (Amabile, 1983). Task orientation in West's (1990) theory, however, refers to the shared concern for achieving the goals and objectives set out before them. The factor is



“evidenced by emphasis on individual and team accountability; control systems for evaluating and modifying performance; reflecting upon work methods and team performance; intra-team advice; feedback and cooperation; mutual monitoring; appraisal of performance and ideas; clear outcome criteria; exploration of opposing opinions; constructive controversy; and concern for maximizing quality of task performance” (Anderson & West, 1998, p. 240). Task orientation does not focus specifically on innovation, but on an overall concern with excellence (Somech & Drach-Zahavy, 2013).

**Support for innovation.** Finally, *support for innovation* addresses the overall “expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment” (West, 1990, p. 315). This can include statements made in personnel documents or policy statements. They can also include word-of-mouth as well as structural encouragement, such as allowing time for innovative behavior (Anderson & West, 1998). It is a combination of both practical elements of support for innovative behavior, and psychological support for innovative behavior.

Although West (1990) refers to a work environment for innovation, empirical manifestation of the theory incorporates both innovation and creativity (Anderson & West, 1998). It has been used to measure work climate for creativity as a result (e.g., Pirola-Merlo & Mann, 2004; Rasulzada & Dackert, 2009). In subsequent evidence regarding the four factors, a meta-analysis of team-level variables influencing innovative work behavior, Hulsheger et al. (2009) found these four factors were more powerful agents than input variables such as team size, job-relevant diversity, background diversity, and task interdependence. Although there is inconsistency regarding combining or keeping separate the four factors (Hulsheger et al. (2009); Rasulzada & Dackert, 2009), the Four Factor theory has been empirically tested over a large

cross-section of industries and countries (for examples, see Hülshager et al., 2009). Indeed, Gong, Kim, Lee and Zhu (2013) found a positive relationship between a supportive climate for innovation and team creativity. Interestingly, researchers recently examined participative safety specifically and its influence on team innovation. They found a positive relationship between participative safety and team innovation (Peltokorpi & Hasu, 2014). The relationship is stronger as the team size grows. Therefore, for organizations with blurry work group boundaries, participative safety may play an important role in innovation.

In another examination of work environment conducive for creativity, Amabile suggests the following aspects of the work environment are conducive to creativity: (1) organizational encouragement, (2) supervisor encouragement, (3) work group encouragement, (4) freedom & autonomy, and (5) resources, with a sixth, control, functioning as an impediment to creativity (Amabile, 1988; Amabile et al., 1996). She and her fellow researchers created and empirically tested the six factor framework and found initial support for these constructs. There is some disagreement as Tesluk, Farr and Klein (1997) found supervisor encouragement to cut across all dimensions. Contrastingly, Büschgens, Bausch and Balkin (2013) theorized too much organizational encouragement, even if for creative thought, would actually lead to groupthink rather than creativity. Additionally, Amabile's framework lacks widespread usage due to its proprietary nature. This would hinder future research being extended beyond a particular study.

There is a paucity of research considering team climate and organizational creativity in sport organizations. In terms of work environment and creativity, sport management researchers have historically used a single question to summarize a creative work environment: "My organization provides opportunities to be creative." (Cunningham, 2008, 2011; Fink, Pastore, Riemer, 2001, 2003). Cunningham (2011) found the combination of workplace diversity and

support for workplace diversity was positively related to perceptions of a creative work environment in intercollegiate athletic departments. Fink et al. (2001) found similar results. However, their one question survey does not take into account the working definitions of creativity (new and useful) by creativity researchers (Anderson et al., 2014) or the underlying factors that produce a creative work environment (Amabile et al., 1996; Hülsheger et al., 2009; West (1990). These researchers aggregated the scores to organizational level, missing out on the complex nature of organizational creativity. More problematic, they conflate a creative organization with the perception of a supportive work environment for creativity. (e.g. Fink et al., 2003).

In sport, the research has focused on innovation, usually in regard to innovation adoption and implementation (Hoeber et al., 2015), with an emphasis on case studies (Frankish, Beaudoin, & Callary, 2012; Hoeber & Hoeber, 2012; Trabal, 2008; Wolfe et al., 2006). These studies tend to look at existing innovations and through qualitative research, deduce the process by which they were adopted and implemented. In Hoeber et al., (2015), they interviewed 42 community sport organizations leaders in four different sports, soccer, ultimate frisbee, swimming, and curling regarding what innovations they had implemented recently. Their findings revealed most of these sport organizations adopted incremental innovations, rather than radical innovations. Radical innovations are characterized by a large or fundamental shift in the process or product within the organization (Zaltman et al., 1973). This may be due to the risk associated with radical innovations and/or the conservative nature of sporting culture in which organizations often wait for others to attempt an innovation then adopt it after it has been proven to be successful (Wolfe et al., 2006). It is no surprise based on these previous findings that many of these innovations are externally influenced as well.

For example, Hoeber et al. (2015) found all the innovations appeared to be externally influenced, either by comparison to other CSOs or member requests. This brings about questions of innovation versus isomorphism, which Hoeber et al. (2015) do not adequately address. Indeed few in sport innovation research address these questions. Were these CSOs being creative in their adoption of new innovations to build competitive advantage or improve firm value, or were they copy and pasting what other CSOs were doing? This is where an analysis of the factors leading to innovation (i.e. organizational creativity) would be of use. While the outcome, an implemented innovation, is indeed important, the results from isomorphism versus innovation would have long term impact. However, if an organization is creative, it will analyze potential innovations based on their organizational needs rather than adoption through isomorphic tendencies.

Similarly, in a survey of 144 regional sport organizations in Belgium, Winand et al., (2013) found non-profit regional sport organizations were most innovative when the organization encouraged involvement of professionals and positive attitudes toward change and innovation. The involvement of professionals in these organizations indicates an openness to new ideas, but also a potential bridging effect of combining different viewpoints into potentially innovative ideas. Interestingly, their method involved organizations checking off which innovations they had done within a certain time frame. This encouraged the scope of innovations to be within the scope of the researchers and may encourage isomorphism or narrowing of the concept of innovation within these organizations. These research projects highlight the need for better understanding innovativeness and the innovation process in sport, but also skip over the complex intra-organizational processes that influence organizational creativity, the stepping stone to organizational innovation.

In the organizational creativity and innovation literature, researchers have acknowledged a creative work environment does not equate with organizational creativity (Crossan & Apaydin, 2010; Perry-Smith & Shalley, 2014; Taggar, 2002). Individual characteristics, such as employee creativity, influence and are influenced by a creative work environment. As Woodman et al. (1993) theorized, individuals and work groups interact to influence organizational creativity. Although the multi-level models of organizational creativity (i.e. Amabile et al., 1996; Taggar, 2002; Woodman et al., 1993) take into account both individual and group level factors, they observe organizational level factors as aggregations of observations. These do not take into account the interrelationships between individuals within the work environment. In fact, specific calls for examining the embeddedness of individuals within a work environment in relation to each other (Obstfeld, 2005; Perry-Smith & Shalley, 2014; Rigolizzo & Amabile, 2015).

### **Interpersonal Relationships Within the Work Environment**

Creativity is typically considered an individual-level process, however research has indicated it is influenced by social interaction (Baer, 2010; Dokko et al., 2014; Perry-Smith, 2006). Similarly, organizational creativity has been shown to be a function of individual employees' creativity and a creative work environment (Amabile et al., 1996; Taggar, 2002). Individuals in the workplace interact with each other every day. Yet they do not interact with the same people, in the same ways, for the same amount of time. Who a person interacts with on a daily basis influences how they perceive: (1) the organization (Kilduff & Brass, 2010), (2) their work environment (Uzzi, 1996), and (3) their own expressions of creativity (Baer, 2010). Individuals in conversation with co-workers exchange information about the norms and values of the organization (Kilduff & Brass, 2010). They are also resources from which information can be accessed (Borgatti & Foster, 2003). For example, it has been shown that an individual is more

creative because their domain-relevant knowledge is increased through the information shared in these interactions (Perry-Smith & Shalley, 2003). These people, in turn, are influenced by their relationships with their co-workers (Perry-Smith, 2006).

People are embedded these networks of relationships and do not always act in rational, self-interested ways. Rather, they are constrained by ongoing social relations (Granovetter, 1985). The exchanges between individuals and resulting organizational behavior is not based entirely on logic and rational choice, but influenced by each other through social norms, trust, and communication (Borgatti & Foster, 2003). Despite the focus in management (and sport management) research on a single leader or “innovation champion” (e.g., Damanpour & Schneider, 2006; Hoeber & Hoeber, 2012), the abilities of leaders are affected by their relationships and the relationships of their immediate connections.

In terms of organizational creativity, the very nature of creating novel ideas often involves connecting individuals and their ideas and expertise, to produce novel combinations (Obstfeld, 2005). A person generates novel ideas by searching their memory and their surrounding environment (Amabile, 1983). Access to diverse surroundings can bring together seemingly disparate elements for an individual resulting in a creative new idea (Perry-Smith & Shalley, 2003). This is consistent with individual creativity discussed earlier in that content is a critical component of creativity. By connecting with others in the organization, individuals are building their individual capacity and content that can then enable a broader range of ideas.

Advice has been shown to be an influential component that stimulates idea exchange and encouragement (Perry-Smith & Shalley, 2014). The more different ideas individuals are exposed to, the more likely they are to come up with new and useful ideas for their own specific task (Granovetter, 2005). The content of the advice matters, however. Individuals may have social

relationships with others, but never discuss work or work-specific problems. However, if an employee is seeking advice about work, the individual will gain in capacity through the new ideas suggested by the other person (Smith-Perry & Shalley, 2014). This is not restricted to formal advice from a superior or direct co-worker, but can also include informal conversations outside of one's specific work group (e.g., Mehra, Dixon, Brass, & Robertson, 2006). These relationships can greatly enhance a person's individual creativity and thus overall organizational creativity. Therefore, it is expected the creativity of those an employee seeks advice from will positively influence the relationship between individual employee creativity and organizational creativity. If an individual is surrounded by co-workers who engage with creativity-related processes, that person is likely to perceive their work environment as creative. Therefore, it is expected the amount an employee's connections engage with creativity will positively influence how creative their work environment is.

It is not just individuals' immediate relationships that influence their perceptions and work environment, but also the relationships of those from whom they seek advice. These indirect connections add up to a social network of relationships within an organization (Ibarra, 1993). Where a person is located within that network influences how they perceive the organization and their experiences within it (Perry-Smith, 2006). Perry-Smith (2006) theorized the further out a person is within the relationship structure of an organization, the less likely their creativity will influence organizational creativity. This is due to the fact they are not interacting with different groups within organization, therefore not receiving the benefits of increased domain-relevant knowledge or exposure to diverse ideas for unique combinations useful to the organization. Therefore, it is expected the extent to which employees are on the periphery of an organization, in terms of relationships, will negatively influence the relationship between their

creativity and organizational creativity. It is also expected the extent to which employees are on the periphery of an organization, in terms of relationships, will negatively influence their perceptions of their work environment.

Employee creativity and a creative work environment are fundamental to organizational creativity (Amabile et al., 1996; Anderson et al., 2014; Anderson & West, 1998). Each has been shown to positively influence organizational creativity (Hülsheger et al., 2009; Sundgren et al., 2005). Yet, they have rarely been examined together. Individual employees experience the organization and their work environment in different ways. Each brings his or her own skills, knowledge, and perceptions to the environment. Thus, one would expect that individuals would interact with their environment in distinctive ways. The environment is a function of the people within it; thus, it can vary depending on the complex social relationships in an organization (Obstfeld, 2005). The more creative one's coworkers are, the more creative the work environment will be. Yet, an individual may need to possess enough individual creative capacity to be able to take advantage of this environment. The creativity of the people an individual interacts with on a daily basis influences their perceptions of organizational creativity and their work environment. Likewise, how closely connected a person is to their co-workers within the social network of relationships also influences their work environment and perceptions of organizational creativity. Consequently, research that examines employee creativity *or* workplace environment fails to provide an adequate understanding of organizational creativity. The complexity inherent in the workplace interactions among individuals of varying levels of creativity clearly call for research that accounts for the interaction between individual creativity, workplace environment, and social network.



In sport research, there has been some research done on the social interactions. However it lacks within-organization focus. Quatman and Chelladurai (2008) suggested scholars should analyze networks of informal relationships within organizations. This remains a lacking part of the analysis of relationship networks in sport management. Much of the research is regarding fans (e.g. Katz & Heere, 2014), social media (Hambrick, 2012), or interorganizational relationships (Babiak, 2007; Cousens & Slack, 1996, 2005). Related to within-organization networks of relationships in the sport industry, Warner et al. (2012) analyzed the relationships with a sports team. Sagas and Cunningham (2005) analyzed the role of an individual's network, as well as race, in their success of assistant football coaches. However, this study differs in that it is analyzing actual front office employees within a professional sport organization.

The purpose of this study is to determine how employee creativity, work environment, and the interpersonal relationships within that work environment influence perceptions of organizational creativity. Based on the research questions outlined above and as a result of this literature review, nine hypotheses were developed:

H1: Greater domain-relevant skill will be associated with higher levels of employee creativity.

H2: Higher levels of intrinsic task motivation will be associated with higher levels of employee creativity.

H3: Higher levels of engagement in creativity-related processes will be associated with higher levels of employee creativity.

H4: A creative work environment will have a positive relationship with organizational creativity

H5: An employee's creativity will have a positive relationship with organizational creativity

However, the relationships between employee creativity and work environment and organizational creativity will be influenced by:

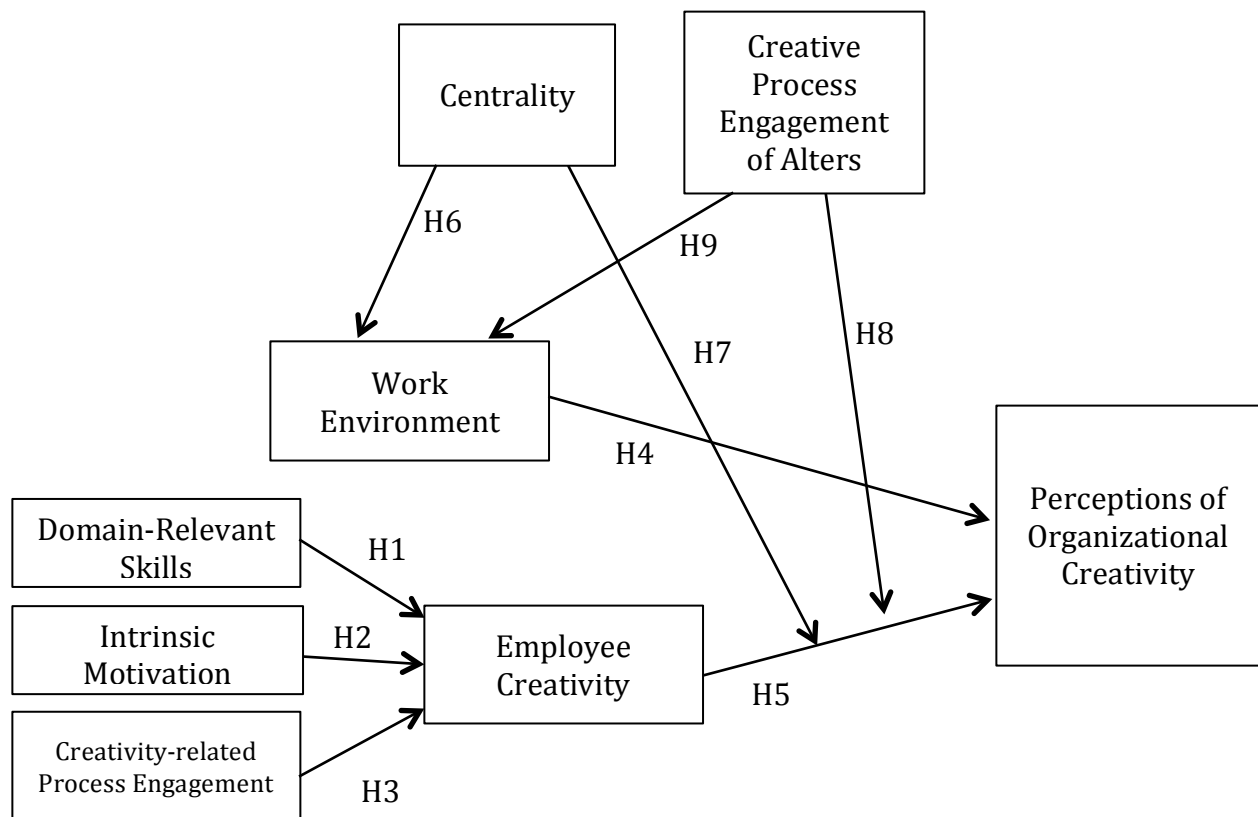
H6: The amount an employee's connections engage with creativity will positively influence the relationship between individual employee creativity and organizational creativity.

H7: The amount an employee's connections engage with creativity will positively influence how creative their work environment is.

H8: The lesser extent to which an employee is located as a "go between" in the organization's network of advice relationships, the weaker the positive relationship between employee creativity and organizational creativity will be.

H9: The lesser extent to which an employee is located as a "go between" in the organization's network of advice relationships, the lower they will perceive a creative work environment.

Figure 1. *Hypothesized Model of Organizational Creativity*



## **CHAPTER THREE**

### **METHOD**

As Obstfeld noted, “if combination is the key to innovation, then social network activity may be an important predictor of people’s involvement in innovation” (2005, p. 100). To address the social nature of creativity, this study will combine social network analysis with survey research to measure work environment, individual-level factors, and perceptions of organizational creativity. This answers the call to consider organizational creativity as a multi-level and socially-influenced outcome, even if analyzed at the individual level (Perry-Smith & Shalley, 2014). Unlike most creativity-related research that occurs within the contexts of manufacturing or technology firms, this research is based within service-oriented organizations, therefore extending the social context in which creativity research is conducted. Quatman and Chelladurai (2008) argue that utilizing ego-centric data to create variables within an equation is violating the original theoretical assumptions of network analysis, which historically was housed in sociological perspectives. However, social network analysis experts have recently highlighted the complementary nature of sociological and psychological perspectives in regard to social network analysis (Burt et al., 2013). In addition to a social network analysis of sport organization, this research answers the call to further analyze creativity-related processes engagement (Zhang & Bartol, 2010a).

#### **Participants & Procedure**

Employees at three professional sport organizations located in the U.S participated in the study. Survey data were collected from 65 individuals in total with an average return rate of

67.71% across the three organizations and a range of 63.64% - 72.73%. The data were collected during the early parts of their respective seasons. Organization 1 had a participation rate of 72.73% (n = 8), Organization 2 had a participation rate of 67.57% (n = 53), and Organization 3 had a participation rate of 63.64% (n = 7). Although with network analysis data, the highest level of participation is sought, this is within the accepted range for within-organizational behavior research, as a minimum required is 55%. Typically, social network research in organizational behavior research reports return rates between 65% and 90% (Liden, Erdogan, Wayne, & Sparrowe, 2006; Perry-Smith, 2006; Stork & Richards, 1992). Additionally, when using ego-centric variables, the network-level metrics are not important to the analysis, thus the 80% participation threshold is unnecessary. This will be discussed in more detail later in this chapter.

These organizations are housed within two professional sport leagues: Major League Soccer and National Women's Soccer League. Major League Soccer was founded in 1996 and is currently sanctioned by U.S. Soccer as the highest level of professional men's soccer in the United States and Canada. There are 20 teams currently participating, and the league has been expanding since 2003. The team in this study was founded at the beginning of MLS. Unlike soccer leagues in other parts of the world, Major League Soccer maintains a fixed membership, similar to the NBA, NFL, NHL and MLB. National Women's Soccer League was founded in 2013 as the highest level of professional women's soccer in the United States. The previous women's professional soccer league (WPS) folded in 2011 after three seasons of play. Originally founded with eight teams, the NWSL expanded to 10 teams in the last two years.

The survey was conducted online to allow for flexibility of their time for the employees. The participants were from the "front office", to maintain focus on business decisions rather than on-the-field decisions. "Front office" personnel are those employees with an sport organization

who focus on the business decisions off the field. This differentiates the employees who conduct on-field business, such as athletic trainers, coaches, grounds crew, from those who focus on ticket sales, community relations, game day operations, or marketing. Organizations were contacted through personal connections. Individuals within those organizations offered to put the researcher in touch with other organizations as well, and that assistance was accepted. At the request of human resources of these organizations, when the organization agreed to participate in the research study, a contact person was established within each organization to transmit information to the organization's front office employees. After a phone discussion with the researcher outlining the parameters of the network (i.e. only the full-time front office employees), each contact person emailed their employees asking them to participate in the survey. They then gave the researcher a roster of names of those who were sent the survey. In this way, employment of all survey participants was verified. Appendix D includes the email sent to employees. Two follow up emails were sent to encourage participation. A \$10 Starbucks or Amazon gift card was used as an incentive to participate. Conversation with the contact person suggested those two type of gift cards would be the most desired.

Because of the sensitive nature of this type of research, participants were given assurances of the confidentiality of their data. Employees were assured their data would not be shared individually with the organization (see Appendix D for email). The organization was also given assurances no identifying data would be in published research or provided to other participating organizations. The individual participants and organizations were coded with a randomly generated alphanumeric list and de-identified in the data shown to others.

In the final sample, there were 68 respondents, however 3 respondents' surveys were incomplete and thus were not included the final response rate or data set. All three organizations

were included as they reached the necessary response rate to be considered valid for social network analysis.

## Measures

**Independent variables.** The independent variables examined to influence employee creativity are congruous to Amabile's (1983) theory of individual creativity. They are domain-relevant skills, intrinsic motivation, and creativity-related processes engagement. The independent variables examined to influence perceptions of organizational creativity take into consideration both individual-level creativity, work environment, and the social influence of an individual's connections.

**Work environment.** To understand the influence of work environment, the Team Climate Inventory was used. Anderson and West (1998) developed the scale based on the four-factor theory of innovation; group innovations happen when participants feel participative safety, have task orientation, have clear and realistic objectives, and support for innovation. The original version included 38 items, which was prohibitive for organizational settings with time constraints and projects with multiple research questions (Kivimaki & Elovainio, 1999). However, a 14-item scale was developed and validated and includes four subscales (Kivimaki & Elovainio, 1999; Somech & Drach-Zahavy, 2013). These four subscales are: participative safety (4 items, e.g., "People feel understood and accepted," "We are together' attitude"; Cronbach's  $\alpha = .86$ ); support for innovation (3 items, e.g., "Search for new ways of looking at problems," "Cooperation in developing and applying ideas"; Cronbach's  $\alpha = .90$ ); vision (4 items, e.g., "Team's objectives clearly understood," "Team's objectives achievable"; Cronbach's  $\alpha = .88$ ) and task orientation (3 items, e.g., "Critical appraisal of weaknesses," "Preparedness to basic questions"; Cronbach's  $\alpha = .80$ ). The scale uses a 6-point Likert-type scale (from 1 = *not at all* to

6 = *very much*). According to Somech and Drach-Zahavy (2013), Pearson correlations among the four subscales indicated high significant correlations (from .61 to .84). They conducted a series of confirmatory factor analyses. The results indicated treating climate for innovation as one construct may be more appropriate than treating it as two-, three-, or four-dimensional construct.

***Intrinsic motivation.*** Intrinsic motivation has been widely shown to be an individual-level factor in facilitating creativity (Amabile, 1983; Perry-Smith & Shalley, 2014; Zhang & Bartol, 2010a). This measure was an adaptation of Amabile (1985) and Tierney, Farmer, and Graen (1999)'s scale. Although there are alternate scales used in creativity research (Perry-Smith & Shalley, 2014), this scale was used to maintain length of the survey. Also, the scale was previously used in conjunction with the Creativity-Related Processes Engagement scale also used in this survey (Zhang & Bartol, 2010a). Three statements were provided: "I enjoy finding solutions to complex problems," "I enjoy creating new procedures for work tasks," "I enjoy improving existing processes or products." (Zhang & Bartol, 2010a; Cronbach's  $\alpha = .82$ ). The original scale was structured as a response to: "Please indicate the extent to which you agree or disagree that each statement currently describes your self-orientation" and was scored 1 to 5 (1 = *strongly disagree* to 5 = *strongly agree*). However, the scale was modified to have an even numbered Likert scale. This is consistent with creativity research (e.g. Caniëls & Rietzschel, 2015). It forces respondents to make a choice of one side of the scale or the other, eliminating potential misuse of the middle point (Kulas, Stachowski & Haynes, 2008).

***Domain-relevant skills.*** Researchers have used work experience as a proxy for domain-relevant skills (Amabile, 1988; Tierney et al., 1999). Work experience was included as part of domain-relevant skills as more experienced employees may have more task knowledge, resulting in increased creativity (Amabile et al., 1996). Work experience was measured as a continuous

variable by years in the workforce related to their current position. This captured the task knowledge gained through years not only with that particular company, but others as well (Amabile, 1988). There is a difference between time in an organization and overall work experience. In the service industry, which it can be argued professional sport is a part of, researchers found support for experience negatively influencing (Slatten & Mehmetoglu, 2015). Shalley and Gilson (2004) agree, arguing that those longer in an organization may adhere to the routines and norms of the organization historically. However in terms of work experience, Amabile (1983) indicated those with more work experience will have a greater well of knowledge from which to draw. Previous literature in sport supports this position. Wolfe et al. (2006) argue tenure of employees is a source of competitive advantage, although does not address employee creativity specifically. Participants were asked “how long have you worked in your specific area?”

***Creativity-related process engagement.*** The Creativity-Related Processes Engagement 11-item scale, developed and validated by Zhang and Bartol (2010a) based on the conceptual work of Amabile (1983) and Reiter-Palmon and Illies (2004), was used in this study. This scale measured an individual’s engagement frequency with three creativity-related processes: problem identification, information searching and encoding, and idea generation. Respondents answered the following question: “In your job, to what extent do you engage in the following actions when seeking to accomplish an assignment or solve a problem?” (1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, 5 = *very frequently*). Aggregated, it can also measure the overall engagement of an organization with the creativity-related processes (Zhang & Bartol, 2010a). It is also an indication of valuing creativity and can be used as a proxy for experience with creativity-related processes and valuing the process. The three dimensions of the scale, *problem*



*identification, information searching and encoding, and idea generation* have been shown to be internally consistent with Cronbach's  $\alpha$  of .77, .77, and .81, respectively (Zhang & Bartol, 2010a).

***Employee creativity.*** Employee creativity was measured with three items developed by Oldham and Cummings (1996). This scale ( $\alpha = .78$ ) has been used often in research utilizing self-report data (Shalley et al., 2009). Individuals were asked to rate the level of creativity and originality in their work. Specifically, they were asked how strongly they agree with each of the following statements: "The work I produce is creative," "The work I produce is original," and "The work I produce is novel." Responses were coded using a Likert-type scale (from 1 = strongly disagree to 6 = strongly agree). The scale was modified from a four-point scale to a six-point scale to be consistent with other measures. This measure was chosen based on the chosen methodology and feasibility and contextual constraints. In a meta-analysis of self-report versus non-self-report (supervisor ratings, expert ratings, and objective measures), Ng and Feldman (2012) found self-report employee creativity to be a valid measure, although they noted steps should be taken to avoid common method variance. It was not feasible for this study to access supervisor ratings for individuals as the work group in professional sport organizations are fluid and complete anonymity was needed for network analysis data. This is similar to other studies, such as Shalley et al. (2009). Although there can be bias in self-reported measures, Axtell et al. (2000) found self-report measures correlate (.62) with supervisor ratings of creativity. As Shalley et al. (2009) argued, individuals may be best suited to report their creativity as they daily observe the subtle actions they take to be creative.

***Network ties.*** In the lexicon of network analysis, a *node* refers to the unit of analysis, perhaps an individual person, a firm, or nation state. In this case, a node refers to an individual

employee within an organization. A *tie* refers to the relationship between two nodes. *Ego* refers to when the analysis focuses on a particular node or a data point related to particular node. *Alters* are the nodes with ties to the ego (Borgatti, Mehra, Brass, & Labianca, 2009). The *network* is overall picture of these nodes and ties with boundaries defined by the researcher (Scott & Carrington, 2011). As this research focused on employees and their perceptions of their organization's creativity, the networks were bounded by the employees of each organization.

Much of the previous research in sport regarding innovation and creativity has focused on the role of a leader (Hoeber & Hoeber, 2012; Seifried & Katz, 2015). Although this has utility in understanding the manager's role in organizational innovation or creativity, network analysis is able to capture this influence as well as others. By reporting their network of relationships, employees indicate the influence of a predetermined leader, such as a CEO or General Manager, but also additional role players in an individual's perception of organizational creativity and their own employee creativity. It also allows for a multitude of iterations in terms of relationships, top-down advice, bottom-up, peer-to-peer, etc. (Obstfeld, 2005; Sosa, 2011).

The relationships between individuals within the organizations was measured based on who they go to for work advice. In line with previous work regarding creativity and network ties (Carnabuci & Dioszegi, 2015; Perry-Smith & Shalley, 2014), this was an effort to capture exposure to new ideas in general conversation rather than only advice for a specific task. Advice was the main focus of these relationships because advice is central to the diffusion of new knowledge and information (Copeland, Reynolds & Burton, 2008; Lomi, Lusher, Pattison, & Robins, 2013; Obstfeld, 2005). They have also been found to influence performance (Sparrowe, Liden, Wayne, Kraimer, 2001). The advice seeker is in a position of vulnerability, whereas the advice giver can potentially create a psychologically safe space for the exchange and can

influence the advice seeker's actions and perceptions. Respondents were asked "Of your coworkers, who do you tend to go to for help or advice on work-related matters?" This is a modified version of related social network research (Brass, 1985; Perry-Smith & Shalley, 2014). This measure represented an effort to capture the informal network of relationships within an organization (Ibarra, 1993). The relationships were measured as directed ties, because it is an information flow from an advice giver to an advice seeker (Obstfeld, 2005; Perry-Smith & Shalley, 2014).

Frequency of communication is often a proxy for relationship strength. Although some studies utilize emotional closeness and reciprocity as additional proxies for relationship strength (Granovetter, 1973), due to the balance of survey length to maintain high response rates and thoroughness, researchers have chosen between the three elements (Dokko et al., 2014; Perry-Smith & Shalley, 2014). For studies of social networks in business, organizations have found measures of communication frequency and emotional closeness to load on a single dimension (e.g. Hansen, 1999; Levin & Cross, 2004; Reagans & McEvily, 2003). This indicates either frequency or emotional closeness are possible proxies for relationship strength, or tie strength in social network vernacular. Participants were asked frequency of communication, as it is more appropriate for work-related relationships than emotional closeness, in terms of knowledge transfer (Perry-Smith & Shalley, 2014). Participants were asked frequency based on a 1 to 6 scale (1 = *Once a year*, 2 = *Once a month*; 3 = *Once a week*; 4 = *Several times a week*; 5 = *Once a day*; 6 = *Several times a day*) (e.g. Wang, Fang, Qureshi, Janssen, 2015).

**Centrality.** Centrality is often measured in three ways: *degree centrality*, *Eigenvector centrality* and *betweenness centrality*. To take into account the influence of indirect ties and overall network location, betweenness centrality was chosen to measure centrality. This is rather

than degree centrality, which measures the number of ties that a node has (Borgatti et al., 2009), or eigenvector centrality, which is the measurement of connection to prominent individuals (Balkundi & Kilduff, 2006). Perry-Smith (2006) utilized closeness centrality to measure centrality, however for the purpose of this research, betweenness centrality better captured the information needed to test the hypothesis. Betweenness centrality measures the extent to which an individual is the “go between” among different clusters of connections (Balkundi & Kilduff, 2006). This measurement better reflects the diversity of information an individual may encounter as a go between. It also better measures non-redundancy of information able to be accessed by an individual based on their location within the network (Perry-Smith, 2006). Reciprocity will not be necessary to calculate centrality since this may indicate a weak relationship, a key to new information (Granovetter, 1973; Perry-Smith, 2006).

***Creative process engagement of alters.*** As indicated previously, an individual’s network influences an individual’s creativity. Based on Dokko et al.’s (2014) interaction variable of ego’s team-level creativity and tie strength to the alter, a similar type of influence can be deduced for the creativity process engagement of an ego’s alters. Simply put, the creative process engagement of a person’s connections is likely to influence how a person views their work environment and organizational creativity. This variable was not determined by the overall network structure, hence not bounded by the restrictions of social network analysis response thresholds. Its purpose is to capture the influence of alters on an ego from whom that ego seeks advice. A similar formula to Dokko et al. (2014) was used for examination of the interaction between creative process engagement of alters and their tie strength to the ego. The interaction variable (Tie Strength x Alter’s Creativity-Related Processes Engagement) was created to measure the relative influence of an alters’ creative process engagement on the ego. The

interaction variable will then be aggregated for each ego node to reflect the overall influence of its alters' creative process engagement.

Not every alter had a creative process engagement score, however to more accurately reflect the influence of all alters on an ego, scores for those alters were imputed. There are several ways to impute missing social network analysis data. Utilizing averages of each alter's alters, based on the principle of *homophily* (Granovetter, 1973), each alter's missing scores were calculated. Homophily is the basic idea that 'birds of a feather flock together', so based on this principle each alter would be roughly an average of their connections. This is supported as a useful imputation of missing data in social network analysis (Huisman, 2009). Mathematically it was the arithmetic weighted mean, based on the fact each connection has a different importance (i.e. tie strength), therefore this equation was used:  $\Sigma(\text{Creative-Related Processes of Alter} \times \text{Tie Strength}) / \Sigma(\text{Tie Strengths})$ .

This variable is expected to influence the relationship between perceptions of personal creativity and organizational creativity through amplification. Therefore, the three dimensions of creativity related process engagement of alters, and employee creativity, will be transformed to avoid issues regarding the change in sign. Employee creativity was mean-centered, whereas the creativity-related processes engagement of alters' variables were transformed by adding the minimum value. By doing so, the interaction of negative numbers was avoided without changing the associations between the variables.

### **Control variables**

The control variables were gender and tenure (George & Zhou, 2001; Shalley & Gilson, 2004). Gender has previously been considered to affect creativity through its influence on team process (Somech & Drach-Zahavy, 2013), therefore was included in the hypothesis testing for

organizational creativity. Although some evidence suggests these variables may not influence individual or group creativity (Baer, 2010; Taggar, 2002), gender was included because it is still unclear if gender doesn't have significant influence (Carmeli, Dutton, & Hardin, 2015). Work experience was a proxy for domain-relevant skills, so it was necessary to control for the experience within that company specifically. Work experience can increase an individual's creativity through increased knowledge, but company tenure can increase a person's desire to keep the status quo (Shalley & Gilson, 2004; Slatten & Mehmetoglu, 2015). Therefore, company tenure will be controlled for when analyzing the relationship between work experience and employee creativity. One way to control for the effect of tenure in multiple regression is to perform a hierarchical regression. In SPSS, tenure was entered in the first step, then in the next step, the predictors whose effect was being evaluated. In SPSS, block 1 was the control variable and block 2 was the independent variables using the method "enter."

### **Dependent variable**

The dependent variable was employees' perceptions of creativity as an outcome of their organization, differentiating it from the independent variables that focus on creativity as a process. To avoid common method bias with the measurement for individual creativity, a scale will be adapted from Shin and Zhou's (2007) scale for rating team creativity ( $\alpha = .82$ ). The word team was replaced with organization to reflect a focus on the overall organization's creativity. The four item scale included "Overall, this organization takes risks in terms of producing new ideas in achieving the organization's goals," "Overall, this organization tries out new ideas and approaches to problems," "Overall, this organization generates novel, but operable work-related ideas," and "Overall, this organization identifies opportunities for new products/processes." ( $\alpha = 0.76$ ). Responses were measured using a Likert-type scale (from 1 = *strongly disagree* to 6 =

*strongly agree*). The scale was modified from 7 to 6 to have an even numbered Likert scale. This is consistent with creativity research (e.g. Caniëls & Rietzschel, 2015). It forces respondents to make a choice of one side of the scale or the other, eliminating the potential misuse of the middle point (Kulas et al., 2008).

Unfortunately, objective measures of organizational-level creativity within a non-R&D or manufacturing organization has proved to be difficult in previous research (Shalley & Zhou, 2008). Researchers often use objective measures related to technology such as patents to measure creativity (Pirola-Merlo & Mann, 2004). However, for service industry organizations, such as professional sports teams, these are not useful measures. Previous research has shown supervisor ratings are not significantly different from objective ratings of creativity, thus self-report measures will be used in this study (Zhou & George, 2001).

### **Data Analysis**

Descriptive statistics and correlations were calculated for all measures, except the social network portion as they are not survey questions but indicate relationships within a network structure. Scale reliability scores (e.g., Cronbach's  $\alpha$ ) were also calculated and reported. Additionally, principal component analyses were conducted for perceptions of organizational creativity, employee creativity, team climate, intrinsic motivation, and the creativity-related processes engagement using SPSS 22.2.

### **Overall Analysis**

A multiple linear regression model may have issues of a feedback loop between the dependent and independent variables (Ng & Feldman, 2012). Also, the sample size of this study limits the types of analysis that can be conducted. Organizational behavior research using social network analysis, procuring a large sample size is challenging. There was insufficient power for

conducting Structural Equation Modeling (Keith, 2015). To account for potential feedback loop issues, simultaneous equations model, such as 2-stage least squares (2SLS) or limited information maximum likelihood (LIML) is appropriate (Angrist & Krueger, 2009).

Limited information maximum likelihood will be used to determine the relationship between employee creativity and work environment on perceptions of organizational creativity, as well as the potential mediation of centrality and influence of CPE of alters on employee creativity and work environment. Previous creativity and social network analysis research tends to favor Ordinary Least Squares (OLS) (Perry-Smith & Shalley, 2014). This is not appropriate for this research as theories regarding employee creativity, work environment, and organizational creativity there may be issues of endogeneity (i.e., the likelihood for a loop of causality between the independent and dependent variables) (Angrist & Pischke, 2009). OLS prediction can become inconsistent when the value of the regressor variable correlates with the error term (Gujarati & Porter, 2004). LIML is used to estimate simultaneous equations consistently while also accounting for endogeneity (Gujarati & Porter, 2004). The  $F$  statistic for joint significance of instruments is not above 10, the “rule of thumb” (Angrist & Pischke, 2009), indicating a weak instrument ( $F(5,59) = 4.77, p = 0.001$ ). Staiger and Stock (1997) indicated LIML estimation is less biased with the existence of a weak instrument, especially when there is only one endogenous variable.

With LIML, an instrumental variable (or variables) is needed to satisfy the condition that the independent variable must not be correlated with the dependent variable’s error term. An instrument variable satisfies two assumptions, it must be relevant (i.e. partially correlated with the endogenous regressors) (Angrist & Krueger, 2009), and the variable has to be exogenous (i.e.



uncorrelated with the dependent variable beyond its influence on the endogenous regressor). It is also useful for the potential correlation among error terms in the equations (Shaver, 2005).

### **Assessment of Common Method Variance**

The information for both the dependent and independent variables were gathered on the same survey, therefore there is the potential for common method variance as a potential explanation for the findings. There is some evidence of common method variance issues in self-report creativity research (Ng & Feldman, 2012). These issues were not found in measurements of social relationships or and tenure, but were found for measures related to organizational support for creativity. However, as Ng and Feldman (2012) argue, the benefits of self-report data outweigh the possible difficulties and steps taken to reduce common method variance can greatly reduce any inflated results. Also, this type of data gathering is common in innovation management research (e.g. Scott & Bruce, 1994; Shalley et al., 2009; Tierney et al., 1999). Finally, the issue of common method variance issues with a mediating variable will not be an issue because the mediating variables are calculations of an individual's position in a network or based on the responses of their alters.

## CHAPTER FOUR

### RESULTS

This chapter contains the results of the data analyses conducted for this study. This chapter consists of four sections: 1) sample description 2) measurement, 3) hypothesis testing for individual creativity, 4) hypothesis testing for organizational creativity.

#### **Sample Description**

All organizations were part of a professional sports league, and were based in major cities in the Midwest and Northeast of the United States. Eight of the eleven employees in Organization A participated in this study, along with 53 of Organization B's 75 employees, and seven of Organization C's eleven employees. Due to the small number of employees in Organizations A and C, hierarchical linear modeling would not be possible. A Kruskal-Wallis test indicated no significant differences ( $p > .05$ ) among the organizations for any of the key variables: Organizational Creativity, Employee Creativity, Team Climate Inventory dimensions, Creativity-Related Processes Engagement scale dimensions, Intrinsic Motivation, and Domain-relevant skills. Therefore data were aggregated across the three organizations.

The overall sample was 57.6% male. Organization A was 57.14% female, Organization B was 33.33% female, Organization C was 87.5% female. As seen in Table 1, the vast majority of respondents had been with their current organization for five or fewer years, ranging from less than 6 months to 17 years

Table 1

*Descriptive Data of Organization A, B, and C Samples*

Length	Work Experience				Tenure			
	Org A	Org B	Org C	Total	Org A	Org B	Org C	Total
< a year	28.6%	9.8%	37.5%	15.2%	57.1%	29.4%	50%	34.8%
1-2 yrs	14.3%	25.5%	-	21.2%	14.3%	23.5%	25%	22.7%
3-5 yrs	28.6%	25.5%	50%	28.8%	28.6%	33.3%	12.5%	30.3%
6-10 yrs	-	13.7%	-	18.1%	-	5.9%	12.5%	9%
10+ yrs	28.6%	25.5%	12.5%	16.5%	-	7.8%	-	3%

**Measurement**

This section reports the results of factor analyses and reliability tests to prepare the data for multivariate analysis. The multi-dimensional scales (Team Climate Inventory and Creativity-Related Processes Engagement) were subjected to principal components analysis to examine their dimensionality. Then, the internal consistency of all multi-item measures was tested via Cronbach's alpha.

**Dimensionality of the Team Climate Inventory.** Sample adequacy for factor analysis was examined using the Kaiser-Meyer-Olkin test with the acceptable value set at  $> 0.60$ , which was the case with this data ( $KMO = 0.887$ ). The Bartlett's test of sphericity, which tests for overall significance of all the correlations in the correlation matrix, was significant ( $\chi^2 (91) = 742.63, p < 0.001$ ). Therefore, the data were deemed adequate for principal components analysis. Team climate has been conceptualized as having four factors: vision, participative safety, task orientation, and support for innovation (West, 1990). Others have found it to be unidimensional (Somech & Drach-Zahavy, 2013). As there is little agreement on the dimensionality of the Team

Climate Inventory, a principal components analysis with Varimax rotation and Kaiser normalization was conducted. Two components with eigenvalues greater than one were extracted. The first component had an eigenvalue of 6.671, and explained 47.65% of the variance. The second component had an eigenvalue of 2.780, with 19.86% of the variance explained. Examination of the factor scores showed a number of multidimensional items.

Five multi-dimensional items were eliminated sequentially through iterative factor analyses. The original vision dimension maintained its distinctiveness as a dimension, but was reduced from four to two items. The items, “I am in complete agreement with the objectives of my work group” and “My work group’s objectives are clearly understood by all members of the group” loaded highly on both factors and were removed. The remaining four dimensions from the original scale (vision, participative safety, task orientation, and support for innovation) failed to differentiate themselves in this sample. Instead, these dimensions represented a single factor labeled, “process” in this study. Two items from the original participative safety dimension were eliminated due to multiple loadings, “We (my work group) have a strong, “we are in it together” attitude” and “People feel completely understood and accepted by each other in the work group”. The innovation item, “In this work group we always take the time needed to develop new ideas” was also removed due to multiple loadings. The resulting two dimensions for Team Climate Inventory were Vision and the remaining items, which were assigned the name Process, based on their similarity as process-focused items. The resulting factor analysis is shown in Table 1, and seems to represent a hybrid version of the uni-dimensional and four-factor versions of the scale.

Table 2

*Final Team Climate Inventory Dimensions Rotated Component Matrix*

Items	Process	Vision
All members of the work group build on each other's ideas	<b>.886</b>	.150
Group members fully prepared to question the basis of tasks	<b>.845</b>	.125
Group cooperates to help develop new ideas	<b>.827</b>	.242
There are real attempts to share info within whole group	<b>.805</b>	.177
Whole group critically appraise weaknesses to achieve best possible outcome	<b>.782</b>	.114
Group keeps each other well-informed about work-related issues	<b>.781</b>	.179
Group always searching for fresh new ways of looking at problems	<b>.769</b>	.338
My group's objectives make a valuable contribution to the organization	.126	<b>.842</b>
I strongly believe that my group's objectives can be achieved	.217	<b>.784</b>
<i>Variance accounted for (VAF)</i>	52.3%	<b>17.9%</b>
<i>Eigenvalue</i>	4.703	<b>1.612</b>

The final, nine-item, two component Team Climate Inventory explained 70.16%. Both dimensions showed good reliability with Cronbach's alphas of 0.921 for Process and 0.801 for Vision. Factor scores for each of the two dimensions were used in all further analyses.

**Dimensions of creativity-related processes engagement.** Similar analysis was done for Creative-Related Processes Engagement scale. A sample adequacy for factor analysis was examined using the Kaiser-Meyer-Olkin test with the acceptable value set at  $> 0.60$ , which was the case with this data ( $KMO = 0.70$ ). The Bartlett's test of sphericity, which tests for overall significance of all the correlations in the correlation matrix, was significant ( $\chi^2 [55] = 230.53$ ,

$p < 0.001$ ). Therefore, the data were deemed adequate for principal component analysis. This scale has three dimensions: problem identification, idea searching and encoding, and idea generation. Previous research has combined the three dimensions in to one averaged variable (Harrison & Wagner, 2015). However, the initial scale developers kept the distinct dimensions in analysis (Zhang & Bartol, 2010a). Therefore, a principal components analysis with Varimax rotation with Kaiser normalization was conducted. Three components with eigenvalues greater than one were extracted. The first component had an eigenvalue of 2.60, with 23.6% of the variance explained. The second component had an eigenvalue of 2.28, with 20.73% of the variance explained. The third component had an eigenvalue of 1.85 with 16.84% of the variance explained. Although the principal component analysis indicated three distinct factors, similar to the hypothesis of creative-related processes having these three distinct stages, an examination of the factor scores indicated a number of multidimensional items.

This scale was first developed in 2010 and has not had as much testing. When the original scale developers pilot tested with experts, they found only Cronbach's alpha of .77, .77, and .82 respectively for the three dimensions (Zhang & Bartol, 2010a). Five multi-dimensional items were eliminated sequentially through iterative factor analysis. The item, "I break down a difficult problem/assignment into parts to obtain greater understanding," part of the problem identification dimension, loaded highly for multiple factors and was removed. The item, part of information searching and encoding dimension, "I search for information from multiple sources (e.g., personal memories, others' experiences, documentation, Internet, etc.)." loaded highly for multiple factors and was removed. The items, "I consider diverse sources of information in generating new ideas.," "I look for connections with solutions used in seeming diverse areas.," and "I generate a significant number of alternatives to the same problem before I choose the final

solution.,” all part of the idea generation dimension, loaded highly for multiple factors and were removed. The resulting factor analysis is shown in Table 2, and maintains the three-dimensional construct originally theorized by Amabile (1983) and developed by Zhang and Bartol (2010a).

Table 3

*Final Creativity-Related Processes Engagement Dimensions Rotated Component Analysis*

	Idea searching and encoding	Problem identification	Idea Generation
Consult a wide variety of info	<b>.824</b>	.190	.036
Retain large amounts of information about area of expertise	<b>.822</b>	.152	.095
Spend time understanding nature of problem	.099	<b>.913</b>	-.056
Think about problem from multiple perspectives	.251	<b>.845</b>	.177
Devise potential solutions that move away from established ways	-.103	.136	<b>.899</b>
Spend time sifting through info that helps generate new ideas	.443	-.067	<b>.740</b>
<i>Variance accounted for (VAF)</i>	27.2%	27.2%	23.4%
<i>Eigenvalue</i>	1.634	1.630	1.402

The final, six-item, three component Creativity-Related Processes Engagement (CRPE) scale explained 77.76% of the variance. The three dimensions showed good reliability with Cronbach’s alphas of 0.644 for idea searching & encoding, 0.764 for problem identification, and 0.738 for idea generation. The factor scores for each of the three dimensions were used in all further analyses.

Scale reliability scores were calculated for the variables with multiple items within each

construct. The dimensionality was tested were for Employee Creativity, Organizational Creativity, and Intrinsic Motivation via principal component analysis with Varimax rotation. Since only one eigenvalue was found for each of these scales, they were found to be uni-dimensional. They are also all internally consistent and therefore reliable. Cronbach's alpha for Organizational Creativity was 0.893, for Employee Creativity was 0.842, and for Intrinsic Motivation was a 0.630. The averages were used for future analyses.

### **Descriptive Statistics**

Summary statistics for all the variables used in this study are presented in Table 3. The mean perceptions of organizational creativity, intrinsic motivation, employee creativity, Team Climate Inventory dimensions of vision and process were all based on a six-point Likert scale, ranging from 1 = "Strongly Disagree" to 6 = Strongly Agree." This means that on average participants agreed that they were creative, their organization was creative, and viewed their work environment positively. Engagement in Creativity-Related Processes were based on five-point frequency scale, ranging from 1 = "never" to 5 = "very frequently". As seen in Table 3, organizational creativity was highly correlated with intrinsic motivation, as well as correlated with vision dimension of Team Climate Inventory and employee creativity. Of the engagement in creativity-related processes dimensions, information searching & encoding was the only dimension correlated with employee creativity.



Table 4

*Descriptive Statistics and Correlation Matrix*

	Org'l Creativity	TCI Vision	TCI Process	Empl. Creativity	Problem ID	Idea Search & Encoding	Idea Generation	Intrinsic Motivation
TCI Vision	-.254*							
TCI Process	.151	.148						
Employee Creativity	.292*	.342**	.330**					
Problem ID	.203	.014	.071	.039				
Idea Search & Encoding	.229	.130	.189	.448**	-.027			
Idea Generation	.020	.145	-.094	.173	-.007	.021		
Intrinsic Motivation	.471**	-.152	.089	.190	.138	.165	.249*	
Mean	4.38	5.00	4.59	4.44	3.98	4.06	3.71	5.16
SD	0.86	0.76	0.96	0.88	0.64	0.69	0.57	0.55
Min	2.25	2.50	1.00	2.67	2.50	2.50	2.00	3.67
Max	5.75	6.00	6.00	6.00	5.00	5.00	5.00	6.00

Note: \*. Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

**Hypothesis Testing for Individual Creativity**

Prior to conducting a hierarchical multiple regression, the relevant assumptions were tested. Although the correlations revealed some correlations between employee creativity and the work environment dimensions, the VIF and Tolerance statistics were within the acceptable limits (Coakes, 2005). Residual and scatter plots indicated assumptions of normality, linearity, and homoscedasticity were all met (Pallant, 2001). A two stage hierarchical multiple regression was conducted with employee creativity as the dependent variable. Tenure was entered at stage one of the regression to control for tenure at one specific company. The remaining variables were entered in stage two.

Table 5

*Predictors of Employee Creativity (N = 65)*

Variable	Employee Creativity						
	Model 1			Model 2			
	<i>B</i>	<i>B</i> SE	$\beta$	<i>B</i>	<i>B</i> SE	$\beta$	95% CI
Constant	4.293	0.173		2.603**	1.020		(.562, 4.645)
Tenure at Company	0.033	0.029	0.140	0.023	0.031	0.097	(-0.038, 0.084)
Work experience				0.002	0.019	0.012	(-0.036, 0.039)
Intrinsic motivation				0.334	0.190	0.214	(-0.047, 0.715)
CRPE – Idea searching & encoding				0.338**	0.103	0.384	(0.133, 0.544)
CRPE – Problem ID				0.027	0.099	0.019	(-0.181, 0.214)
CRPE - Idea generation				0.081	0.102	0.092	(-0.124, 0.286)
$R^2$	0.140			0.268			
$F$	1.272			3.604**			
$\Delta R^2$				0.249			
$\Delta F$				4.011**			

*Note.*  $N = 65$ . CI = confidence interval. \* Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

The hierarchical multiple regression indicated that at stage one, tenure at the organization did not contribute significantly the regression model,  $F(1, 65) = 1.272, p = .264$ ) and accounted for 1.9% of the variation in employee creativity. In stage two, the variables explained an additional 24.9% of the variation in employee creativity. This change in  $R^2$  was significant,  $F(5, 59) = 4.011, p < 0.01$ . When all six variables were included in the regression model, only idea searching and encoding was a significant predictor of employee creativity. The variables accounted for 26.8% of the variance in employee creativity.

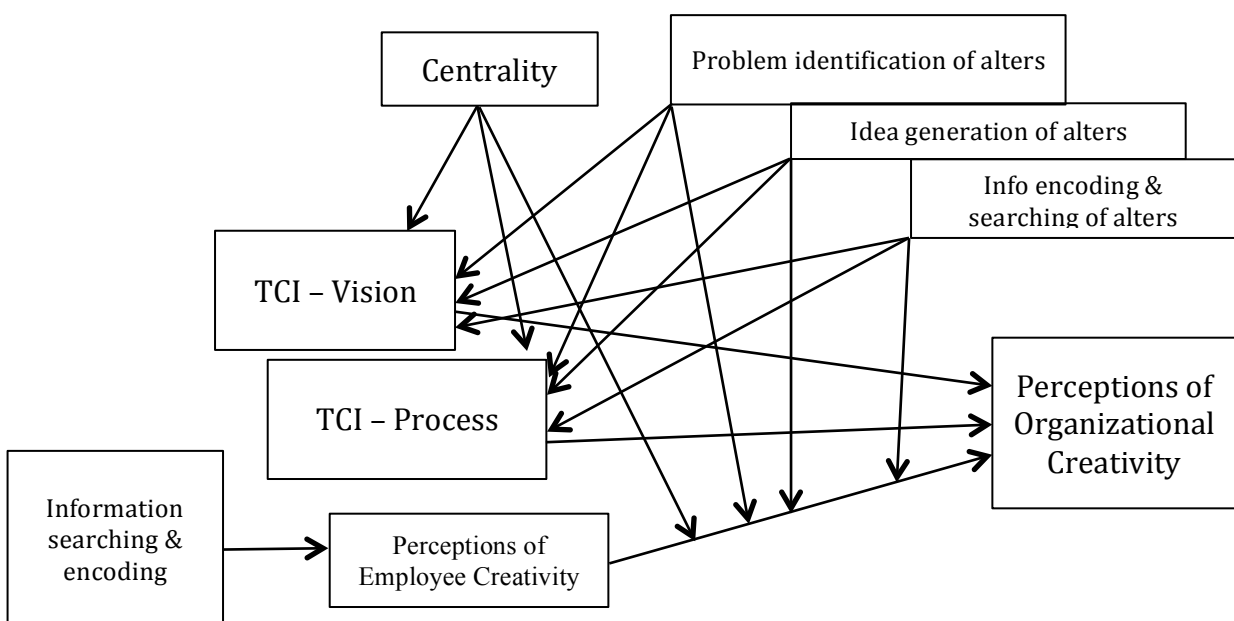
Hypothesis 1 was not confirmed; greater domain relevant skills were not associated with higher levels of perceived employee creativity. Hypothesis 2 was partially confirmed. Higher

levels of creativity-related processes engagement in idea searching and encoding was associated with higher levels of employee creativity, however engagement in idea generation and problem identification were not. Hypothesis 3 was not confirmed; higher levels of intrinsic motivation were not associated with higher levels of employee creativity. In this study, the evidence indicated employee creativity is a function of information searching and encoding, one of the dimensions of creativity-related processes engagement.

### Hypothesis Testing for Organizational Creativity

After running the factor analyses for creativity-related processes engagement and team climate, the subsequent variables were included in the model for organizational creativity as seen in Figure 2.

Figure 2. *Organizational Creativity Hypothesized Model*



## Model Testing

As a simultaneous equations model, Limited Information Maximum Likelihood (LIML) is based on three assumptions: appropriate instrumental variables, homoscedasticity, and the absence of multicollinearity among independent variables. Assumptions were tested prior to conducting the LIML analysis.

**Instrument variables.** Appropriate instrumental variables must be uncorrelated with the residual of the dependent variable and correlate with the endogenous variable. Amabile's (1983) componential theory of individual creativity identifies intrinsic motivation, domain-relevant skills, and three dimensions of creativity-related processes as potential predictors of employee creativity. Therefore, these variables were considered as possible instrumental variables. Creativity-Related Processes Engagement is broken into three distinct dimensions as outlined above. Problem identification dimension was correlated with the error values of the structural model ( $R = 0.300, p < 0.01$ ), and intrinsic motivation variable was also correlated with the error values of the structural model ( $R = 0.437, p = 0.001$ ), therefore they are not appropriate to be instrumental variables. However, creativity-related processes engagement idea generation dimension and work experience are not significantly correlated with Employee Creativity ( $R = 0.173, p = 0.165$ ;  $R = 0.001, p = 0.997$  respectively) they are also not appropriate instrumental variables. However, information searching and encoding is an appropriate instrumental variable because it is correlated ( $R = 0.448, p < 0.001$ ) with Employee Creativity, and not correlated with the error values of the structural model ( $R = -0.013, p = 0.917$ ). According to the diagnostics test, creativity-related processes engagement information searching and encoding dimension is a weak instrument ( $F = 9.533, p = 0.003$ ). With weak instruments, LIML is considered most appropriate (Puhani, 2000; Salkind, 2006).

**Multicollinearity.** Simultaneous equations models assume independent identically distributed (i.i.d.) errors. If this assumption is violated, the power needed to produce efficient estimates breaks down. Although Team Climate Inventory dimensions of vision and process were correlated with employee creativity ( $R = 0.262, p = 0.034$ ;  $R = 0.274, p = 0.026$ ), multicollinearity testing indicated VIF was less than 2 for all the dependent variables. In his Monte Carlo studies, Puhani (2000) concluded if collinearity does not exist then LIML estimator may be used in an analysis.

**Heteroscedasticity.** Heteroscedasticity is the non-constant of the variance. LIML assumes the variance of the error is constant. Based on the results of the Breusch-Pagan's test, it is not present in this research ( $F = .549, p = 0.651$ ). Abridged White's test was also conducted to confirm these results ( $F = 0.464, p = 0.631$ ) (Gularti, 2004). Heteroscedasticity biases the standard errors of our estimates and therefore makes correct hypothesis testing impossible. Since it was not found, hypothesis testing for the overall model can proceed.

### **Model testing**

**Limited Information Maximum Likelihood model.** In terms of the main effects, Gender was controlled for in the model, and as outlined above, Creativity-related processes engagement dimension of information searching and encoding was used as an instrumental variable for Employee Creativity. As seen in Table 6, the model was statistically significant,  $F(5, 59) = 4.37, p < 0.002$ . The model explained 27% of the variance in perceptions of organizational creativity.

Table 6

*Organizational Creativity Model with Parameter Estimates*

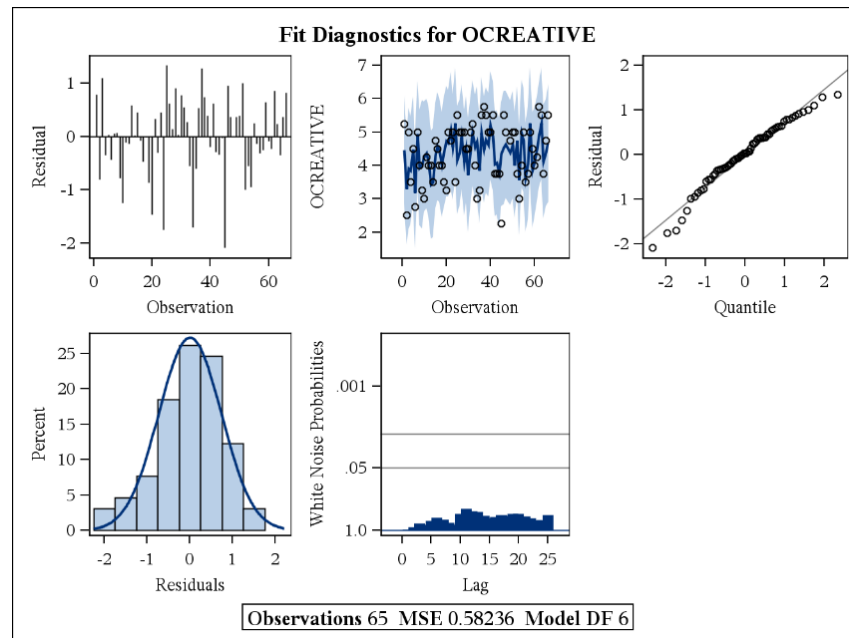
Variable	Parameter	
	Estimates	<i>SD</i>
Intercept	3.476**	1.0918
Gender	0.112	0.198
Team Climate Inventory Process	0.286**	0.101
Team Climate Inventory Vision	0.266**	0.098
Employee Creativity	0.185	0.243
Idea Searching & Encoding	-0.016	0.135
$R^2$	0.240	
$F$	4.37*	

*Note:* K-Class Estimation with K=0.7521384204

Perceptions of work environment, represented by the two dimensions of Team Climate Inventory, Vision and Process, were shown to have statistically significant relationships with perceptions of organizational creativity ( $p < 0.01$ ). However, Employee Creativity and the instrumental variable of Information Searching & Encoding engagement did not have a statistically significant relationship with perceptions of organizational creativity. Therefore, Hypothesis 4 was confirmed, but Hypothesis 5 was not. A creative work environment had a positive relationship with organizational creativity but employee creativity did not have a significant relationship with organizational creativity. For every point increase in work environment processes, there was a 26% increase in the probability of a greater perception of organizational creativity. For every point increase in work environment vision, there was a 28.56% increase in the probability of greater perception of organizational creativity. This indicates that both dimensions of work environment, process and vision, have relatively equal

strength of relationship with organizational creativity. Despite the low sample size, the overall the fit diagnostics, specifically the Q-Q plot, indicated the model was fitted accurately.

Figure 3. *Fit Diagnostics for Organizational Creativity*



Therefore, the final model is found in Figure 4. Perceptions of organizational creativity are influenced by how positively an individual perceives the work environment’s process and vision. An alter’s engagement in creativity-related processes does not have an effect and neither does one’s own perception of individual creativity.

**Interaction variables.** It was theorized in this paper that an individual’s connections (those they go to for advice), and engagement in creativity-related processes would influence the relationship between perceptions of their own creativity and organizational creativity. To test that, the variables of Employee Creativity and Creativity Related Processes Engagement of Alters (the three dimensions: Problem Identification of Alters, Information Searching & Encoding of Alters, and Idea Generation of Alters) were transformed to avoid issues regarding the change in sign. Employee creativity was mean centered and creativity-related processes

engagement of alters dimensions were transformed by adding the minimum value. In this way, the interaction of negative numbers was avoided without changing the associations between the variables. These transformed variables and the interactions of Employee Creativity and the three dimensions were regressed on the dependent variable, Organizational Creativity. None of the interaction variables were statistically significant. As well, the Creativity-related processes engagement of alters had no main effects on perceptions of organizational creativity, which was not theorized in the original model. This indicates that Hypothesis 6 is not supported. The amount an employee's connections engage with creativity does not influence the relationship between perceptions of individual creativity and organizational creativity.



Table 7

*Examination of Alters Engagement in Creativity Related Processes on the Relationship between Employee Creativity and Organizational Creativity (N = 65)*

Variable	Perceptions of Organizational Creativity						
	Model 1			Model 2			
	<i>B</i>	<i>B SE</i>	$\beta$	<i>B</i>	<i>B SE</i>	$\beta$	95% CI for <i>B</i>
Constant	2.455	0.540		2.650	0.633		(-5.048, 1.629)
Problem ID of alters	-0.001	0.013	-0.007	0.280	0.237	-1.398	(-0.195, 0.754)
Info. S&E. of alters	0.007	0.015	0.058	0.373	0.373	2.955	(-0.373, 1.119)
Idea Gen. of alters	-0.004	0.015	-0.035	-0.170	0.264	2.592	(-.699, 0.360)
Employee Creativity	0.427**	0.119	0.429	0.378**	0.141	0.379	(0.152, 0.648)
Problem ID of alters X Empl. Creativity				-0.019	0.016	-2.885	(-0.052, 0.014)
Info. S&E of alters X Empl. Creativity				-0.025	0.026	1.401	(-0.077, 0.026)
Idea Gen. of alters X Empl. Creativity				0.012	0.018	-2.585	(-0.025, 0.049)
$R^2$	0.178			0.221			
$F$	3.238*			2.314*			
$\Delta R^2$				0.044			
$\Delta F$				1.067			

*Note. Note. N = 65. CI = confidence interval. \* Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).*

**Alters and work environment.** The person's location as a "go between" in the organization's network of advice relationships appeared to not influence their work environment or the relationship between employee creativity and organizational creativity. Likewise, Creativity-related processes engagement of alters was not found to be correlated with work environment and therefore that relationship was dropped from the model as well. Hypothesis 6 and Hypothesis 7 were not confirmed. The degree to which an employee's connections engage with creativity did not positively influence the relationship between individual employee creativity and organizational creativity. Also, the degree to which an employee's connections engage with creativity did not influence their perceptions of creativity of their work environment.

**Centrality.** It was theorized that betweenness centrality would influence work environment and the relationship between employee creativity and organizational creativity. However, it is not recommended to use network-level variables when the response rate is below 80% (Stork & Richards, 1992). Creativity-related processes engagement of alters remains as a variable because it is not influenced by the potential for significant missing variables. Betweenness centrality was not found to be correlated with any of the other variables in the model. This may be due to response issues. Therefore Hypothesis 8 and Hypothesis 9 appear not to be confirmed, but cannot be firmly confirmed or not confirmed due to these issues.

Figure 4. *Social Network of Organization A for advice sought*

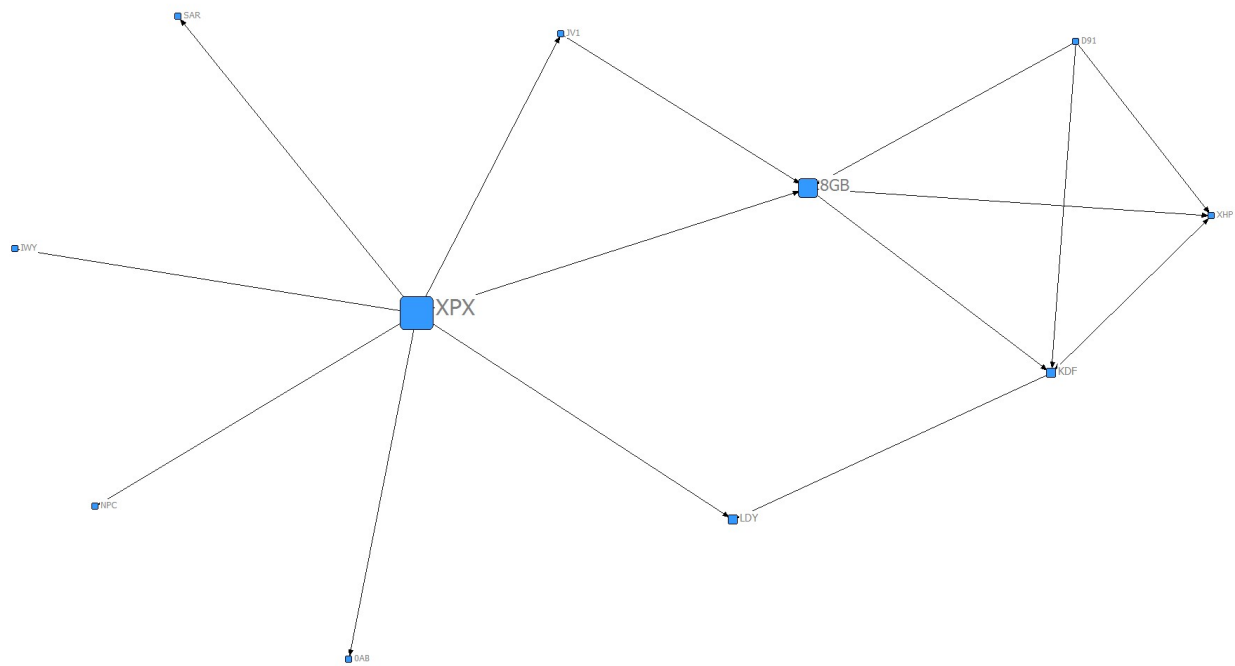


Figure 5. *Social Network of Organization B for advice sought*

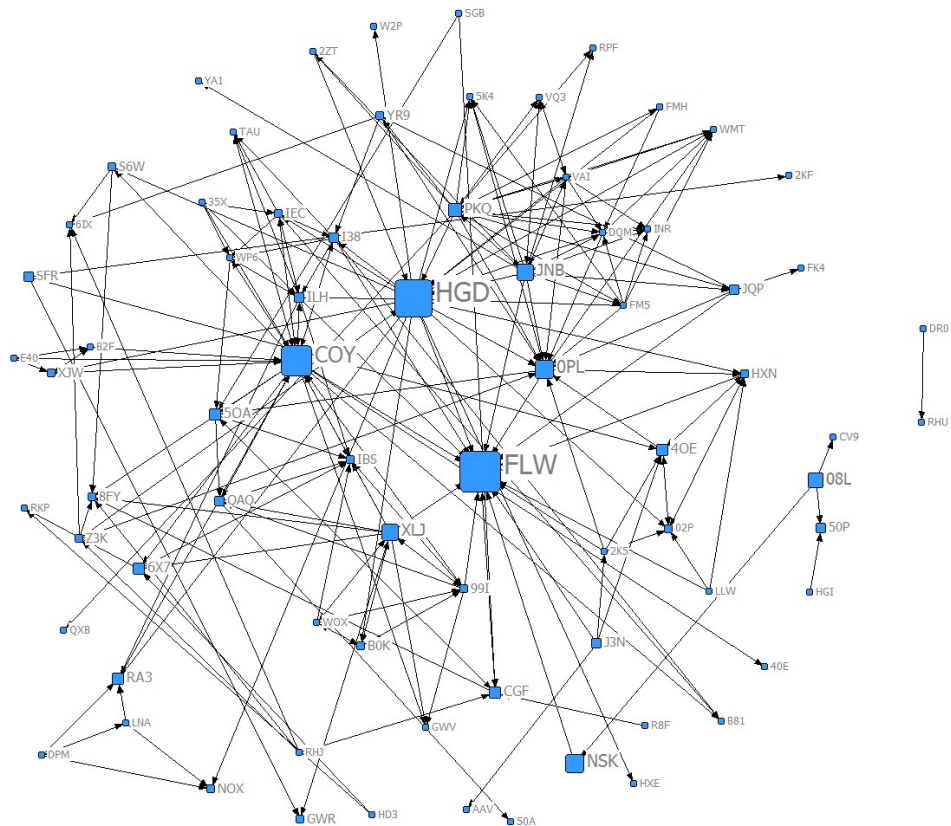
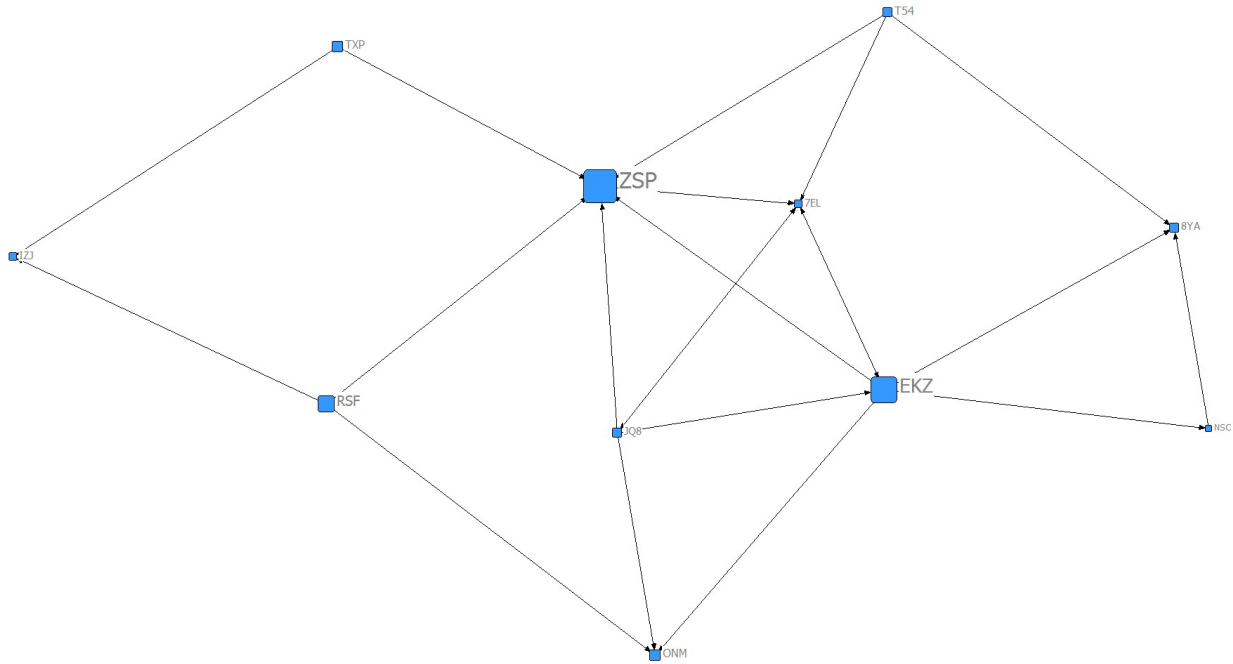
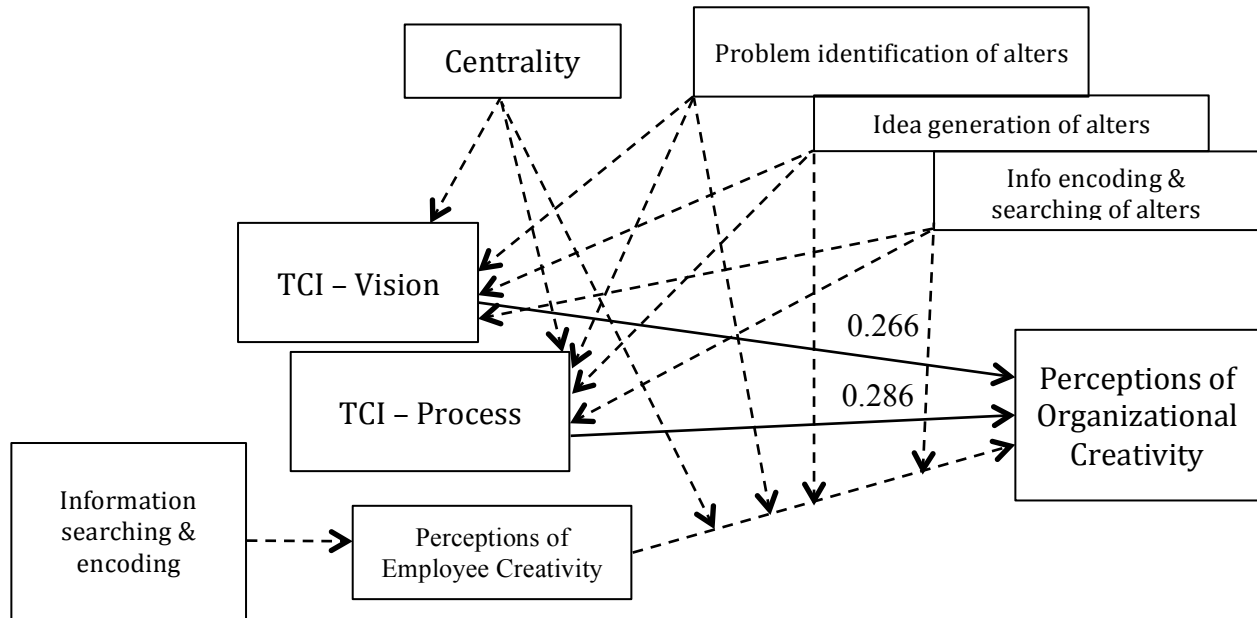


Figure 6. *Social Network of Organization C for advice sought*



In terms of betweenness centrality, it appears in the social network diagram of each of the organizations, there are clear leaders. Betweenness centrality is a strong predictor of leadership perception (Balkundi & Kilduff, 2006). Betweenness centrality is a measurement of the “go-between” individual, who according to the research becomes a leader by brokering deals across clusters within a network. As seen in Figure 4, the larger node and label represents a greater betweenness centrality value for that individual. It is clear individual *XPX* is an important go-between within this small organization. As seen in Figure 5, Organization B is a much more complicated network due to its size. However, again there are a few individuals, *FLW*, *HGD*, and to a lesser extent, *COY*, who act as go-betweens for clusters within the organization. As seen in Figure 6, Organization C has fewer leaders based on betweenness centrality. *ZSP* emerged as a leader and to a lesser extent *EKZ*, however a more connected overall network of relationships tempered these go-betweens.

Figure 7. *Organizational Creativity Final Model*



*Note:* Dashed lines indicate a non-significant relationship and solid lines indicate a significant relationship. Numbers are parameter estimates of solid-lined relationships.

## **CHAPTER FIVE**

### **DISCUSSION**

There is a dearth of literature in the sport industry surrounding innovation and creativity, despite their growing prominence in the discourse surrounding the various professional sport leagues (Mooney, 2014). This dissertation was aimed to address this gap, by analyzing the beginning stage of innovation within organizations, organizational creativity. This is the beginning of an unpacking of the processes and factors that influence organizational creativity and innovation in the sport industry. Two theories were brought together to form part of the model tested, West's (1990) four-factor theory of team climate and Amabile's (1983) componential theory of individual creativity. To account for the social interactions, social network analysis was added to the model.

#### **Work Environment**

People are more likely to perceive their organization as creative if they experience a work environment that has a clear vision and better processes. These processes are support innovation, participative safety, and greater task orientation. A clear vision involves a clear understanding of and agreement with the objectives of their work group. An organization that supports innovation is one that is always looking for new ideas and cooperates to develop those ideas. Participative safety involves creating a space where employees feel they can contribute their ideas without penalty or mockery. Task orientation references how the work group focuses on the task at hand through critical appraisal of the situation and achieving the best possible outcome for the group. This reflects previous research regarding work environment and creativity and innovation. In

Hülshager et al.'s (2009) meta-analysis, they found a relationship between work environment and innovation. Others have also found a relationship between work environment and group creativity (Gong et al., 2013; Peltokorpi & Hasu, 2014). The more employees experience the four aspects of a better work environment, the more likely they perceive higher levels of organizational creativity. The work environment in sport is similar. Winand et al., (2013) found non-profit regional organizations were most innovative when the work environment encouraged change and innovation.

There is logic to the relationship between clear vision and perceptions of organizational creativity. If employees understand the organizational goals, they can better identify the problems in achieving those goals. Employees can also identify solutions that may be useful to solving those problems. The definition of organizational creativity is the production of ideas useful and new to the organization (Woodman et al., 1993). Similar to goal-setting theory (Lock & Latham, 1990), the clarity brought forth in a defined organizational vision allows employees to focus on a set of problems as well as solutions that will be useful, as well as new.

Perceptions of the processes within the work environment also had a relationship with organizational creativity. Those who experienced better processes were more likely to perceive the organization as creative. The processes include task orientation, participative safety, and support for innovation. Sport organizations have been posited as conservative, hierarchical organizations focused on traditions (Wolfe et al. 2006). However, evidence in the results is in opposition to that. The results found employees agreed their work group generally supported innovation and the processes resulting in innovation. This may signal a shift in the sport industry, as it continues to become more competitive and professionalized, providing greater incentive for building a more creativity-supportive environment (Hoeber et al., 2015).

Another potential reason for the relationship between work environment and organizational creativity is selective memory. Some researchers have argued that the stronger the work environment, the greater potential for groupthink (Hülsheger et al., 2009). So although employees perceive their organization as creative, it may only be to reinforce their imagined identity rather than a measurement of creative idea production. On the other hand, it could be the reverse. Employees, who perceive their organization as creative, remember events and interpret actions within their work environment that reinforces that perception rather than opposes it. This is where observational data or other forms of external measurement beyond perception would be useful to contrast or confirm employees' perceptions. Perception, rather than an external measure, is still useful for managers though. The perception of a creative organization could motivate individuals to engage in more creative behaviors (Amabile et al., 1996).

A better work environment, based on the four dimensions, is linked to greater perceptions of organizational creativity. Organizational creativity is the beginning step to innovation for organizations (Woodman et al., 1993). Creative ideas need to be adopted and implemented after they are generated. The work environment with a strong relationship to perceptions of organizational creativity may not be the same work environment useful to adopting or implementing innovations. The theories posited regarding ambidextrous organizations argue that the work environment needs to change when moving from being creative to implementing creative ideas (Patel, Messersmith, & Lepak, 2013).

### **Explanation for Non-Findings**

Of particular interest is the lack of relationships found among the different variables. Work experience, intrinsic motivation, and two dimensions of the creative process, problem identification and idea generation were not associated with perceptions of employee creativity.



Likewise, employee creativity was not associated with organizational creativity. Both of these relationships were expected. In fact, there was no relationship found between variables, positive or negative. One explanation may be the sport industry context. There are dissimilar expectations for sport organizations than those organizations generally studied in the creativity and innovation literature. The league structure creates essentially an oligarchy (Wolfe et al., 2006). This may explain the disconnect between perceived employee creativity and organizational creativity. Even if employees see themselves as creative, it may not result in a more creative organization because of disincentives based on league structure. Teams may not seek competitive advantage through the traditional ways because they operate in an oligarchy (Chadwick, 2009). So beyond on-field innovations, even self-perceived creative employees may not feel the need to utilize that creativity for the organization. In fact, it may be the rational choice. A professional sports team benefits from another team innovating, thus increasing firm and league value, which in turn increases all teams' value without having to take the risk of being creative.

The social nature of the creative process was not apparent in this research. Again, the structure of the sport industry may be playing a role. The cooperative/competitive dynamics of a professional sports league lends itself to seeking advice outside of one's own organization much more frequently than those in free-market industries. While employees focused on on-the-field management functions compete directly against other teams in their league, front office employees are in a different situation. Within a professional sports league, teams compete on field, but they also cooperate on rules, revenue sharing, etc. This builds a social situation where those with one set of responsibilities may go to others across the league with similar responsibilities for advice, despite being in "opposing" organizations. For example, an operations director at an MLS team in Kansas City may seek out advice from the operations director at an

MLS team in San Jose. Perhaps, they implicitly understand that an increase in value of any team's worth increases the value of the whole league. This type of socially influenced creativity was not captured in this research, which focused on within-organization advice networks.

**Individual Creativity.** Interestingly, employee's perceptions of their own creativity were not related to their perceptions of organizational creativity. The lack of relationship between the perceptions of one's own creativity and that of one's organization is particularly surprising, as one would assume organizational creativity to be an aggregate of its employees' creativity. Higher levels of employee creativity would mean the organization itself would be more creative. However, there may be other forces at work here. On the one hand, if employees believe they are an integral part of the organization, they may perceive their creativity to be linked to the organization's creativity. The higher their creativity, the higher they perceive the organizational creativity to be. Their logic would be, I am creative; therefore the organization must be creative because I am an integral part of this organization. Research on creativity and cohesion within a group would support this perspective (Chang et al., 2014; Hulsheger et al., 2009). However, in a non-perception-based measurement of creative idea generation, when the cohesion of the group becomes too strong, the generation of ideas decreases exponentially (Sosa, 2011). So while individuals may feel I am creative, my organization is creative, idea generation may be decreasing. On the other hand, highly creative employees might find the overall organization lacking in creativity when compared with their own. Thus, their logic would be, I am creative, but if I compare my organization to myself, it is not as creative. Somewhat related, Perry-Smith & Shalley (2014) found individuals within a group that were highly connected within the group would be less likely to be creative. One of these scenarios is no more likely than the other. In

fact, both could occur, thereby confounding any linear relationship between employee creativity and perceived organizational creativity.

The antecedents to individuals' creativity posited by Amabile (1983) failed to predict individuals' perceptions of their own creativity. Work experience, engagement in activities such as idea generation and problem identification, and intrinsic motivation were unrelated to individual creativity in this study. This is in opposition to Amabile's (1983) theory of individual creativity. In fact, the only creativity-related process that was associated with employees' perceptions of their own creativity was the process of information searching and encoding. Unlike previous research (Zhang & Bartol, 2010a), higher engagement in problem identification and idea generation was not associated with higher levels of perceived employee creativity. It is difficult to compare to previous research except Zhang and Bartol (2010a) because most research combined the dimensions (Harrison & Wagner, 2015; Jiang & Yang, 2015; Zhang & Bartol, 2010b). However, it is clear employees do not view their engagement in problem identification and idea generation as linearly related to their own creativity.

Although some previous researchers (e.g., Harrison & Wagner, 2015; Jiang & Yang, 2015; Zhang & Bartol, 2010b) have combined the three creativity processes, problem identification, information searching and encoding, and idea generation, into one overall construct of creative behavior, findings in this paper suggest they are distinct processes. Furthermore, not all of the processes seem to impact individuals' sense of their own creativity. By combining the three processes into a single dimension for analysis, distinct differences in the relationships cannot be uncovered. However, the results indicate there are differences in how each of the dimensions interacts with employee creativity. Future researchers should consider keeping the dimensions distinct so the mechanisms of engaging in creative processes can be

better understood. Other researchers agree and have called for a greater understanding of this component of individual creativity (Rigolizzo & Amabile, 2015).

Part of the discrepancy between the findings in the results and those in previous studies is in the conceptualization of the three processes as distinct actions (as in this study) or as aspects of a single process (as in other studies). Much of the previous research has been done in larger companies and in industries where research and development departments are common, based on the development of tangible products, and where distinctive processes are salient. The service industries, including professional sport, may not have much experience with research and development, and even less experience in distinctive creative processes, such as problem identification and idea generation. If employees do engage in these activities, they may not encode them as distinct parts of a creative process. The multidimensionality of the dimensions in this study is evidence this may be the case. For practitioners, training employees in the creative processes will help them to understand how these activities are linked together and to creative ideas.

Individual employee creativity was not affected by work experience either, although Amabile's (1983) model suggests that it should. Amabile envisioned domain-relevant skills, represented by work experience, as important for building knowledge to draw from when thinking creatively. Domain-relevant skills are considered the "raw materials" individuals need to generate novel and useful ideas, which is the functioning definition of creativity. They included knowledge, technical skills and talents related to their specific domain. Previous research has found increased knowledge related to one's work helps an individual increase the number of potential idea combinations, an important step in producing a creative idea (Amabile & Gryskiewicz, 1989; Gong et al., 2009; Perry-Smith & Shalley, 2014; Taggar, 2002). Work

experience may not always have a clear relationship with employee creativity however. Some of this previous research has been measured the actual use of the skills (Taggar, 2002), which confounds motivation to use the skills and the skills themselves. Others have used a sample of university students (e.g., Perry-Smith & Shalley, 2014), which may not accurately reflect the work experiences of long tenured employees. If employee creativity were objectively measured, rather than using a self-reported measure, perhaps that potential knowledge would have a stronger relationship with employee creativity because it would capture the usage of knowledge. Future work should incorporate multiple measures of employee creativity to determine which types of measures work best in predicting various outcomes.

Intrinsic motivation did not have a relationship with employee creativity. This was also contrary to expectations, based on the theory of individual creativity (Amabile, 1983). The original theory posited that employees with higher levels of intrinsic task motivation learn more about problems and any knowledge related to those problems. They also persist longer to overcome obstacles to solving difficult problems and expend additional energy in coming up with unique solutions (Rigolizzo & Amabile, 2015; Tierney et al., 1999). These results add to the mixed results on the relationship between intrinsic motivation and employee creativity. As Grant and Berry (2011) indicated in their study of the influence of prosocial behavior on the connection of intrinsic motivation and employee creativity, the association between intrinsic motivation and employee creativity has had mixed results. This may be due to the complex nature of intrinsic motivation itself. Intrinsic motivation has been theorized as a tripartite model with individuals having intrinsic motivation to know, intrinsic motivation toward accomplishment, and intrinsic motivation to experience stimulation (Vallerand, 2012). Others have argued it may be due the type of creativity versus the type of motivation (e.g., Dewey, 2007). There is some indication

that intrinsic motivation to know motivates individuals to engage in finding novel ideas but not necessarily useful ones (Grant & Berry, 2011). When the research is conducted in the laboratory setting, the objective measures of creativity tend to focus on the novel rather than the useful, since relative utility has no reference for a laboratory setting in comparison to an organizational setting (Dewey, 2007). Moving beyond self-report data and involving more complex measures of intrinsic motivation may uncover the types of significant relationships between creativity and intrinsic motivation.

### **Individual vs. group structural processes**

Previous research has indicated creativity is a socially influenced process (Grant & Berry, 2011; Perry-Smith & Shalley, 2014; Sosa, 2011). Therefore, it was expected that the behaviors of a person's connections within the organization would influence that person's perceptions of the organization and their work environment – including their perceptions of the creativity of the organization. The creativity-related behaviors of these colleagues (i.e., idea generation, information searching and encoding, and problem identification) were expected to moderate the relationship between perceptions of one's own creativity and that of the organization. However, these group behaviors had no significant impact on this relationship. Even more surprising, the behaviors of these colleagues had no effect on the work climate. People in the organization and the interactions among them establish the climate and the culture. This, in turn, should influence and socialize individuals. Therefore it was expected the behaviors of colleagues would have an effect on the work climate.

This would indicate that behaviors other than engagement in creative processes are the influential actions in building a work climate. Although a person seeks advice from his or her co-workers, the co-workers may not be sharing creativity-related information or indicate their own

engagement in these processes. It may remain a private behavior rather than an integral part of the work environment. Sport organizations have been characterized as hierarchical and conservative (Wolfe et al., 2006). This structure may influence the ways that creativity and engagement in creative processes are perceived. Individuals may then be motivated to view their own engagement in creative processes as not welcome in a conservative organization. If the engagement in creative processes remains a private, individual action, then the effects of that engagement would not be publically touted as part of the organization's work environment. The engagement of one's network in idea generation was the only process associated with one's own engagement in idea generation. Idea generation is a practice that is more commonly engaged in with others via brainstorming or other shared practices (Zhang & Bartol, 2010a). Problem identification and information search could more likely be achieved without social interaction. This is particularly true in work environments without formal processes for innovation and problem solving.

In the original development of the scale for engagement in creativity-related processes, Zhang & Bartol (2010a) found that leader encouragement of creativity influenced the relationship between psychological empowerment and engagement in the creative processes. They tested only the overall engagement, rather than the individual dimensions. It is evident however that each of the dimensions is socially influenced in a different way. As creativity-related processes are fundamental to generating creative ideas, it would be important to fully understand the internal and external dynamics of these processes. Creating novel ideas often involves connecting the ideas of two or more individuals through social interaction (Obstfeld, 2005). Future research should incorporate observation techniques to determine the degree of

sharing and interaction that occurs in each of the three processes (if any), and determine the effects of the frequency and quality of these interactions on the production of creative ideas.

Although there was no evidence of colleagues' engagement in creative processes influencing an individual's work environment or their perceptions of the relationship between their own creativity and that of their organization, the model only captures the influence of colleagues within one's organization. External influences may also influence engagement in these processes. There is some evidence that external influences play a role regarding spousal interaction (Harrison & Wagner, 2015). Engaging in creative processes with a spouse helped employees become more creative in their jobs. Beyond specifically creative processes, Perry-Smith & Shalley (2014) also found that interactions outside of one's group increased team creativity. So although group cohesion can facilitate trust regarding sharing ideas, too much cohesion could result in groupthink (Büschgens et al., 2013). Exploring the influence of external interactions on creative processes, particularly in organizations with a more conservative perspective, would extend the literature on creative processes, as well as the social network literature on creativity.

Similar to the multidimensionality of the engagement in creative processes, the lack of relationship between colleagues' engagement in creativity and individual's work environment, would indicate there is either a lack of understanding regarding creative processes or these processes remain internal and not discussed within the organization. Organizations may support the idea of innovation, but not the processes that result in innovation. Essentially it would be telling people to be innovative without giving them the tools of creative processes engagement to achieve the end result of innovation. As social interactions regarding creativity have been shown to increase both individual creativity (Sosa, 2011) and group creativity (Perry-Smith & Shalley,



2014), it is important for managers in the sport industry to provide opportunities or resources for employees to better understand the processes involved in creativity.

### **Structure of Sport Organizations**

Another area of exploration is the work environment of sport organizations in-season versus out-of-season. Previous research, as well as the research presented in this paper, regarding creativity and work environment, has focused on the cross-sectional data without consideration for time of year (Cunningham, 2003, 2008; Fink et al., 2001, Fink et al., 2003). However, research in regard to work-life balance in the sport context have found in-season and out of season are different in regard to time demands and stress (Bruening & Dixon, 2007). These organizations may need to be considered ‘pulsating organizations’ (Hanlon & Cuskelly, 2002). Although not exactly as they define it, with personnel shrinking and expanding significantly for an event, these organizations do have shrinking and expanding responsibilities based on the season, as well as a shrinking and expanding volunteer and part-time staff. These organizations are heavily influenced by seasonal changes based on the event calendar. This is of particular importance for creative process and output. Differences in time and stress can influence both the individual’s ability to be creative as well as the social context within which they work (Rigolizzo & Amabile, 2015). Therefore, an exploration of the in-season, out of season work environment and its influence on organizational creativity would provide important insight into the ideal times to engage in creative problem-solving as an organization.

Networks of influence outside the organization may also influence perceptions of organizational creativity. The social network analyzed above focused on the within-organizational networks of influence. This was in effort to capture the influences of co-workers, however because these sport organizations are housed within a league structure, there may be

important outside influences as well. Previous research in social network analysis and organizational creativity found external networks can be influential (Perry-Smith & Shalley, 2014). Leagues do not simply share revenue and rule governance, but often have knowledge-sharing programs that would build stronger outside networks than perhaps in more free-market industries. That being the case, extending the research beyond the within-organization advice influence may capture how individuals seek out new ideas for their organization and how they perceive their organization's creativity.

## **Measurement**

Although the relationship between work environment and perceptions of organizational creativity was found as expected, the two-dimensional nature of the work environment was not expected. Based on West's (1990) four-factor theory of team climate, work environment was theorized to have four distinct dimensions: vision, participative safety, task orientation, and support for innovation. Some previous research combined all four dimensions (Rasulzada & Dackert, 2009), whereas others analyzed them separately (Hülshager et al., 2009). This lack of consistency in analysis for the dimensions of Team Climate Inventory, as well as the results of this study, suggest these processes are not entirely distinct and it would be dependent upon the participant's interpretation of the processes in real-life settings. The results indicate the two distinct processes are grouped by vision-related statements and processes-focused statements. The two items of vision included in the first dimension were "I strongly believe that my work group's objectives can actually be achieved" and "My work group's objectives make a valuable contribution to the organization," both focused on the objectives already in place. The second dimension was more process-focused. The items included statements such as, "People keep each other very well informed about work-related issues in the work group," "My work group

members are fully prepared to question the basis of what our work group is doing,” and “People in the work group always cooperate in order to help develop and apply new ideas.” These bridged the three dimensions of participative safety, task orientation and support for innovation.

The work environment is a complex and ever-changing experience for employees, which may explain the multidimensionality of some of the work environment items. For example, keeping co-workers well informed may be linked to an action that also could be experienced as cooperating in order to help develop and apply new ideas. A solution for addressing this inconsistency would be to build observational data and cross check these observations with employee perceptions to better understand how employees experience support for innovation, participative safety, and task orientation. It would also be useful to interview employees regarding their work environment and how they perceive these processes to determine what distinctiveness they perceive among these dimensions.

The entirety of the research was conducted by asking participants their perceptions of their own creativity, intrinsic motivation, engagement in creative processes, their work environment, and overall organizational creativity. Perception is inherently biased, and can be affected by the individual’s memory, time of the survey, a person’s affect at the time of the survey, or any number of other experiences and beliefs (Ng & Feldman, 2012). It remains a useful component of creativity research as it reduces time and resource constraints (Shalley et al., 2009). More importantly, as Amabile and her colleagues argued in their defense of their use of perceptions in reporting work environment and creativity that “the level at which the source of influence operates is less important than the perceptions themselves and their relation to creativity” 1996, p. 1157). An individual’s perceptions of their work environment would impact

that individual's creativity or the creative output they bring to the organization, based not on "reality," but on their perceptions of that supposed reality.

In contrast to that, the organization itself does not worry as much about the individual perceptions but the results of those perceptions and how they influence overall firm performance. It may be that in an analysis of firm performance and innovation, more objective measures should be found and used. It may be useful to consider the perceptions of a work environment related to the objective outputs of organizational creativity or innovation. In general, participants in this study perceived themselves to be at least somewhat creative, indicating a positivity bias. However, the likelihood that everyone in these organizations was, in fact, coming up with ideas new and useful to the organization is less likely. The actual engagement in creative processes on a social level, something that can be objectively counted, may be more useful to managers, as it is a point of potential change for an organization. Managers can control activities; they can't control perceptions.

Practically however, while managers cannot control perceptions, they can focus their activities on improving perceptions that will influence organizational creativity. Based on these results, managers in the sport industry seeking to increase their employees' perceptions of organizational creativity should focus on their work environments. When employees perceive the organization to have a clear vision, strong task orientation, participative safety, and support for innovation, they perceive the organization to be more creative. It is important to point out that these two areas, vision and process, encompassing the four factors theorized by West (1990), influence the perceptions of organizational creativity. This means simply being supportive of innovation or having clear vision is not as impactful as addressing each of the four factors in

more detail. This provides a clear direction for the sport industry, which traditionally has been conservative and traditional in its culture (Wolfe et al., 2006).

## **Limitations**

The sample size limited the type of analysis available for an adequate amount of power. Additionally, in regard to sample size, the organizations had to be collapsed into one sample group, which negated any opportunity to do cross-organizational, multi-level analysis. Despite the offer of financial incentive, and personal connection to multiple organizations, the difficulty of obtaining such a high level of participant response due to the use of social network analysis is acknowledged. Future research will involve looking for alternative sources of data to allow for a wider range of analyses.

Another limitation of this study was the cross-sectional nature of the data, in particular employee creativity and organizational creativity perceptions. Previous research in this area has used cross-sectional data have acknowledged this limitation (Shalley et al., 2009; see Hülshager et al., 2009 meta analysis for additional examples). And indeed, there is evidence of common method variance issues in self-report creativity research (Ng & Feldman, 2012). However, this study attempted to reduce those issues with the study design but acknowledge this shortcoming.

There is an underlying assumption in a great deal of sport innovation and creativity literature. Researchers assume adopting innovations is inherently positive (Hoeber & Hoeber 2012; Hoeber et al., 2015; Kellison & Hong, 2015; Winand et al., 2013). Cunningham (2011) is a marked difference in that he also measured the perception of creative work environment to department financial success for collegiate athletics. This research does not claim to assume this, and acknowledges this study is aimed to determine the potential for innovation through

perceptions of an organization's creativity. Although organizational creativity has been shown in management research to increase innovative behavior, it is not assumed here.

### **Future Research**

The results indicated engagement in creative processes is a set of complex actions and that each of the three processes, problem identification, idea searching and encoding, and idea generation interact with the environment differently. Further exploration of the three processes and how individuals within sport organizations perceive them or engage with them need to be conducted. Also, to address the limitations of this study, an analysis based on comparison with external metrics such as firm value would be a valuable extension of this research. An analysis of creativity levels in comparison to external metrics such as firm value or increase attendance would be useful. This would provide utility to practitioners as well as validate or invalidate the theories of innovation within the monopolistic league setting.

Finally, the outside organization influences need to be explored. The results of the study indicated the engagement of creative processes did not have an impact on one's connections, it was only measured within the organization. Perhaps because these are smaller organizations, individuals interact more externally across teams within a league, across stakeholder groups, or even publically over social media, in regard to problem identification, idea searching and encoding, and idea generation. There is evidence of external influences for innovation within sport (Hoeber et al., 2015; Newell & Swan, 1995; Winand et al., 2013).

### **Conclusion**

This research adds a new element to the creativity research with the addition of an examination of individuals' alters' creativity-related processes engagement. There is an indication that individuals engage differently with each of the creative processes, problem

identification, information searching and encoding, and idea generation. Also, the results show idea generation remains the only creativity-related process that is socially related. It also appears work environment influences employees' perception of organizational creativity, but their own creativity does not. The results reveal a work environment focused on general processes, such as participative safety and task orientation, and a clear vision results in higher perceptions of organizational creativity. It is assumed a work environment supportive of innovation and participate safety would also encourage engagement in creative processes, but the research indicates this may not be the case. Sport management research tends to focus on the adoption of innovation. This study is a first step in understanding the creation of innovation, and the processes that affect workers' perceptions of the ways in which their work environment is related to organizational creativity.

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## Additional Tables

Table 8

### *Descriptions of Variables*

Variable	Description
TCIVFac	Factor Score for the Vision dimension of Team Climate Inventory
TCIPro	Factor Score for Process dimension of Team Climate Inventory
CRPEPI	Averaged CRPE - Problem Identification subdimension
CRPEISE	Averaged CRPE - Information searching & encoding subdimension
CRPEIG	Averaged CRPE - Idea Generation subdimension
CRPE	Averaged Creativity-Related Processes Engagement
INMOV	Averaged Intrinsic Motivation
ECREATV	Averaged Employee Creativity
TIES	Number of ties
OCREATV	Averaged Organizational Creativity
TENURE	The amount of time an individual has worked at their current organization
EXP	The amount of time an individual has worked in their specific area of the industry
GENDER	Female; male
CRPEPIA	$\Sigma$ (Problem Identification of Alter*TieStrength)
CRPEISEA	$\Sigma$ (Information Searching & Encoding of Alter*TieStrength)
CRPEIGA	$\Sigma$ (Idea Generation of Alter*TieStrength)
Inter PI	Problem identification of alters X Employee Creativity interaction variable
Inter ISE	Information searching & encoding of alters X Employee Creativity interaction variable
Inter IG	Idea generation of alters X Employee Creativity interaction variable
ORGSIZE	Size of the organization - Full-time front office employees only

Table 9  
Correlations table for all variables

	GENDER	TENURE	EXP	InterISE	InterPI	InterIG	CRPEIGA	CRPEPIA	CRPEISEA	INMOV	CRPEIG	CRPEPI	CRPEISE	TCIPro	TCIVFac	ECREATV
OCREATV	-0.143	0.091	0.2	0.003	0.02	0.05	0.022	0.03	-0.077	.471**	0.02	0.203	0.229	0.151	-.254*	.292*
ECREATV	0.174	0.119	0	-0.12	0.08	0.17	0.144	0.09	-0.11	0.19	0.173	0.039	.448**	.330**	.342**	
TCIVFac	.354**	0.172	0.1	0.032	0.16	-0.02	-0.002	0.167	0.108	-0.15	0.145	0.014	0.13	0.148		
TCIPro	.266*	-0.027	0	0.021	-0.02	-0.06	-0.074	-0.027	0.036	0.089	-0.094	0.071	0.189			
CRPEISE	0.094	0.159	0	-0.02	0.04	-0.15	-0.177	0.035	-0.036	0.165	0.021	-0.03	1			
CRPEPI	0.083	0.007	0.1	0.062	0.18	0.14	0.131	0.175	0.059	0.138	-0.007	1				
CRPEIG	0.089	-0.061	-0	-0.13	0	.261*	.259*	0.002	-0.131	.249*	1					
INMOV	-0.204	-0.117	-0	0.022	0.05	0.05	0.022	0.062	-0.036	1						
CRPEISEA	0.059	0.137	-0.1	.999**	0.1	-0.07	-0.069	0.086	1							
CRPEPIA	0.169	0.05	0	0.096	.998**	0.18	0.174	1								
CRPEIGA	.303*	0.169	0.1	-0.06	0.18	.998**	1									
InterIG	.255*	0.167	0.1	-0.06	0.18	1										
InterPI	0.173	0.047	0	0.107	1											
InterISE	0.018	0.132	-0.1	1												
EXP	-0.098	.464**	1													
TENURE	-0.091	1														

Note: \*, Correlation is significant at the 0.05 level (2-tailed). \*\*, Correlation is significant at the .01 level (2-tailed).



## Appendix A

### Survey Given to Participants

**Team Climate Inventory** (Kivimaki & Elovainio, 1999, Shortened TCI Adapted from Anderson & West, 1998)

“In the following questions, you will be asked to how much you agree/disagree with the statements below regarding your work group. Focus on your primary work group when answering the questions.” (1 = “Strongly Disagree,” 2 = “Disagree,” 3 = “Somewhat Disagree,” 4 = “Slightly Agree,” 5 = “Agree,” 6 = “Strongly Agree”).

#### *Vision*

1. I am in complete agreement with the objectives of my work group.
2. My work group’s objectives are clearly understood by all members of the group.
3. I strongly believe that my work group’s objectives can actually be achieved.
4. My work group’s objectives make a valuable contribution to the organization.

#### *Participative Safety*

5. We (my work group) have a strong, “we are in it together” attitude.
6. People keep each other very well informed about work-related issues in the work group.
7. People feel completely understood and accepted by each other in the work group.
8. There are real attempts to share information throughout the entire work group.

#### *Task Orientation*

9. My work group members are fully prepared to question the basis of what our work group is doing.
10. The entire work group can critically appraise the potential weaknesses in what we are doing in order to achieve the best possible outcome.
11. All members of the work group build on each other’s ideas in order to achieve the best possible outcome.

#### *Support for Innovation*

12. People in this work group are always searching for fresh, new ways of looking at problems.
13. In this work group we always take the time needed to develop new ideas.
14. People in the work group always cooperate in order to help develop and apply new ideas.

### **Creativity Related Processes Engagement (Zhang & Bartol, 2010a)**

“In your job, to what extent do you engage in the following actions when seeking to accomplish an assignment or solve a problem?” (1 = “never,” 2 = “rarely,” 3 = “occasionally,” 4 = “frequently,” 5 = “very frequently”).

#### *Problem Identification:*

1. I spend considerable time trying to understand the nature of the problem.
2. I think about the problem from multiple perspectives.
3. I break down a difficult problem/assignment into parts to obtain greater understanding.

#### *Information searching and encoding:*

4. I consult with a wide variety of information.
5. I search for information from multiple sources (e.g., personal memories, others' experiences, documentation, Internet, etc.).
6. I retain large amounts of detailed information in my area of expertise for future use.

#### *Idea generation*

7. I consider diverse sources of information in generating new ideas.
8. I look for connections with solutions used in seeming diverse areas.
9. I generate a significant number of alternatives to the same problem before I choose the final solution.
10. I try to devise potential solutions that move away from established ways of doing things.
11. I spend considerable time shifting through information that helps to generate new ideas.

### **Intrinsic Motivation (adapted from Amabile [1985], Tierney, Farmer, and Graen [1999])**

In the following questions, you will be asked to how much you agree/disagree with the statements below regarding your work experience.” (1 = “Strongly Disagree,” 2 = “Disagree,” 3 = “Somewhat Disagree,” 4 = “Slightly Agree,” 5 = “Agree,” 6 = “Strongly Agree”).

1. I enjoy finding solutions to complex problems.
2. I enjoy creating new procedures for work tasks.
3. I enjoy improving existing processes or products.

### **Employee Creativity (Shalley et al., 2009)**

Responses will be coded using a Likert-type scale (from 1 = strongly disagree to 6 = strongly agree).

1. The work I produce is creative.
2. The work I produce is original.
3. The work I produce is novel.

### **Social Network Survey**

“Of your coworkers, who do you tend to go to for help or advice on work-related matters?” (1 = “Never”; 5 = “Very Frequently”)

**Organizational Creativity** (Adapted from Shin & Zhou, 2007 team creativity scale)

In the following questions, you will be asked to how much you agree/disagree with the statements below regarding your organization. Remember to focus on the organization as a whole. (1 = “Strongly Disagree,” 2 = “Disagree,” 3 = “Somewhat Disagree,” 4 = “Slightly Agree,” 5 = “Agree,” 6 = “Strongly Agree”).

1. Overall, this organization takes risks in terms of producing new ideas in achieving the organization’s goals.
2. Overall, this organization tries out new ideas and approaches to problems.
3. Overall, this organization generates novel, but operable work-related ideas.
4. Overall, this organization identifies opportunities for new products/processes.

## Appendix B

Hello [insert HR Director name here],

This email has been sent to you . I'm a PhD candidate in sport management and want to help organizations improve their creativity. Through this survey, I can better understand the industry's needs. Increasing creativity in organizations has been shown to improve organizational performance, financial value, and employee satisfaction and retention.

As a former employee of a professional sports league and team, I understand your time constraints, however if you and your front office participate in this 30-minute survey, we will provide a summary of the results in an easy-to-share report format for your convenience. Participants will also receive a \$10 Amazon or Starbucks gift card as a thank you for their time.

This survey has been utilized by organizations all over the world to determine the elements of organizational creativity. We would like to hear from you and your employees in this 15-20-minute survey examining those elements. Please contact me if you have any additional questions. You would provide me a roster of your front office employees (to verify the number of employees) and if you could forward my next email to your organization to provide them with the link and an explanation of the survey. It is imperative to get as high a response rate as possible within each organization to make the network analysis data valid.

You will find attached the consent form. I have also provided you with a sample of the online survey. It is important to note, the information will remain entirely confidential, the data will be de-identified and used in aggregate.

If you have questions about this project, you may contact Natalie Smith at 814-573-3317 or via email at [nlsmith3@illinois.edu](mailto:nlsmith3@illinois.edu) . Alternatively, you may contact Dr. Chris Green at 217 244-2773 or via email at [cgreen@illinois.edu](mailto:cgreen@illinois.edu) .

Best Regards,

Natalie Smith

Sport + Development Lab  
The University of Illinois, Urbana-Champaign

## Appendix C

### Online Consent Document

#### **Examining the Factors Influencing Organizational Creativity in Professional Sport Organizations**

You are invited to participate in a research study on organizational creativity in the sport industry. This study is conducted by Natalie Smith, Ph.d. Candidate at the University of Illinois Urbana-Champaign and Dr. Chris Green, Professor and Director of the Sport+Development Lab at the University of Illinois at Urbana Champaign.

This study will take approximately 30 minutes of your time. You will be asked to complete an online survey about your work environment, personal creativity, and organizational creativity. You will also be asked to list the colleagues you seek advice from. Although you will be listing actual names, your individual information will **never** be seen by your employer, the public, or co-workers. The information will only be seen by the researchers will be de-identify the data and when the researchers report the data only aggregated data will be used.

Your decision to participate or decline participation in this study is completely voluntary and you have the right to terminate your participation at any time without penalty. You may skip any questions you do not wish to answer. If you do not wish to complete this survey just close your browser. You will receive a \$10 Starbucks or Amazon gift card for participating in the survey.

Your participation in this research will be completely confidential and data will be averaged and reported in aggregate. Possible outlets of dissemination may be through academic conferences and journals, as well as presentations to the participating teams. Although your participation in this research may not benefit you personally, it will help us understand the factors associated with creative work environments and could influence programming and policies at your workplace. At no time after the data is de-identified will your answers be linked to your name. Every effort will be made to ensure that no individual's data is identifiable.

#### **Will my study-related information be kept confidential?**

Yes, but not always. In general, we will not tell anyone any information about you. When this research is discussed or published, no one will know that you were in the study. However, laws and university rules might require us to disclose information about you. For example, if required by laws or University Policy, study information which identifies you may be seen or copied by the following people or groups:

- The university committee and office that reviews and approves research studies, the Institutional Review Board (IRB) and Office for Protection of Research Subjects;
- University and state auditors, and Departments of the university responsible for oversight of research

There are no risks to individuals participating in this survey beyond those that exist in daily life. However, some questions regarding your work environment or organization may be uncomfortable to answer. Remember your participation will not be known by your employer or affect your relationships, status, etc. with your employer, work team, etc.

If you have questions about this project, you may contact Natalie Smith at 814-573-3317 or via email at [nsmith3@illinois.edu](mailto:nsmith3@illinois.edu) . Alternatively, you may contact Dr. Chris Green at 217 244-2773 or via email at [cgreen@illinois.edu](mailto:cgreen@illinois.edu) .

If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 or via email at [irb@illinois.edu](mailto:irb@illinois.edu).

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, I certify that I am 18 years old or older and, by clicking the submit button to enter the survey, I indicate my willingness to voluntarily take part in the study.

## Appendix D

Hello,

This email has been sent to you with the approval of your organization. I'm a PhD candidate in sport management and want to help organizations improve their creativity. Through this survey, I can better understand the industry's needs. Increasing creativity in organizations has been shown to improve organizational performance, financial value, and employee satisfaction and retention.

As a former employee of a professional sports league and team, I understand your time constraints, however we would greatly appreciate your participation in this survey. Participants will also receive a \$10 Amazon or Starbucks gift card as a thank you for their time.

This survey has been utilized by organizations all over the world to determine the elements of organizational creativity. We would like to hear from you in this 30-minute survey examining those elements. It is imperative to get as high a response rate as possible within each organization to make the network analysis data valid.

You will find attached the consent form, please read the consent form prior to filling out the survey. When you click on the link, you will be signaling your consent to participate. It is important to note, the information will remain entirely confidential, the data will be de-identified and used in aggregate.

The survey link: [Insert survey link]

If you have questions about this project, you may contact Natalie Smith at 814-573-3317 or via email at [nsmith3@illinois.edu](mailto:nsmith3@illinois.edu) . Alternatively, you may contact Dr. Chris Green at 217 244-2773 or via email at [cgreen@illinois.edu](mailto:cgreen@illinois.edu) .

Best Regards,

Natalie Smith

Sport + Development Lab  
The University of Illinois, Urbana-Champaign

## Appendix E

### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Office of the Vice Chancellor for Research

Office for the Protection of Research Subjects  
528 East Green Street  
Suite 203  
Champaign, IL 61820



March 11, 2016

B. Christine Green  
Department of Recreation, Sport and Tourism  
104 Huff Hall  
1206 South Fourth Street  
Champaign, IL 61820

RE: *Examining the Factors Influencing Organizational Creativity in Professional Sport Organizations*  
IRB Protocol Number: 16584

Dear Dr. Green:

This letter authorizes the use of human subjects in your project entitled *Examining the Factors Influencing Organizational Creativity in Professional Sport Organizations*. The University of Illinois at Urbana-Champaign Institutional Review Board (IRB) approved, by expedited review, the protocol as described in your IRB application. The expiration date for this protocol, IRB number 16584, is 03/08/2017. The risk designation applied to your project is *no more than minimal risk*.

Copies of the attached date-stamped consent form(s) must be used in obtaining informed consent. If there is a need to revise or alter the consent form(s), please submit the revised form(s) for IRB review, approval, and date-stamping prior to use.

Under applicable regulations, no changes to procedures involving human subjects may be made without prior IRB review and approval. The regulations also require that you promptly notify the IRB of any problems involving human subjects, including unanticipated side effects, adverse reactions, and any injuries or complications that arise during the project.

If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me at the OPRS office, or visit our Web site at <http://oprs.research.illinois.edu>.

Sincerely,

Rebecca Van Tine, MS

Human Subjects Research Specialist, Office for the Protection of Research Subjects

Attachment(s): Online informed consent document; and Waiver of Documentation of Informed Consent form

c: Natalie Smith