ENTREPRENEURIAL SUCCESS: AN INTEGRATIVE STUDY OF TEAM CLIMATE FOR INNOVATION, GROUP REGULATORY FOCUS, INNOVATION PERFORMANCE, AND SUCCESS

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
May, 2010

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ACKNOWLEDGMENTS

The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!', but 'That's funny …' - Isaac Asimov

Looking back, I've had a number of 'That's funny' moments which have conspired to lead me to this point. Most such moments involved excessive kindness, understanding, and generosity from friends, family, and acquaintances for which I am indebted. However, some people are owed special mention because of their extraordinary effect on my life. First, thanks Mom and Dad for your love and support through this and everything else I've done. It is easy to reach for the stars when you're sure of your footing and I've never once doubted that you were my bedrock. I couldn't have done it without you and the rest of the family. Thank you Karen, Kyle, Kaden, Kana, Karian, Kyson, Ninnie, Chad, Mallory, Brody, Daniel, Courtney, and Angela. I love you all. I also thank my friends and colleagues, Lance, Joel, Aaron, Jason, Janaki and Laura for creating an environment where success, hard work and collaboration was the norm rather than the exception. You're good people and I'm proud to know you. Thanks also the faculty at OSU, my committee, and Dr. Wallace in particular. Through your guidance and mentoring I've become a better educator, researcher and person. Finally, and most importantly, to my wife Amy. I could never have done this without you. You earned this Ph.D. every bit as much as I did by enduring the long hours, crankiness, absence, and uncertainty. Thank you for putting up with all of that and more. I love you and I hope you enjoy retirement. Finally, in order to have something nerdy in this manuscript, "De chelonian mobile."

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CHAPTER 1

INTRODUCTION

Despite the common perception, often the creation of new ventures is not the result of the lone entrepreneur who embraces risk and overcomes adversity in pursuit of a divine inspiration. Rather, a new venture usually results from a team of innovative hard working people brought together by the common purpose of developing an attractive opportunity into a profitable business. Some of the more prominent teams which have collaborated on new ventures include Paul Allen and Bill Gates (Microsoft), Steve Jobs and Steve Wozniak (Apple), and Warren Buffett and Charles Munger (Berkshire-Hathaway). Interestingly, in all three cases, there is one member who is the "face" of the team and whose name is commonly recognizable to the average citizen, and another who, although known by industry insiders, plays more of a background role. The presence of one member of each duo as the public identity of the venture could simply be due to contextual determinants; however, it may also be the result of individual differences in personality, such as extroversion. The disparate public identifiability of members resulting from individual differences coupled with team effectiveness leads to the question: What role do personal characteristics play in entrepreneurial teams and how do these differences interact to enhance or depress entrepreneurial success?

Entrepreneurial success is a multifaceted construct that results from a complicated and inscrutable process during which any number of obvious or hidden hazards may undermine the overall venture. Individual entrepreneurs may have their own definition

of success. The traditional conceptualization of the entrepreneur is the person who takes on risk and uncertainty in exchange for profit, however there are entrepreneurs who prefer to be their own boss or who start businesses for social benefit. Brockner, Higgins, and Low (2004, pg. 1285) note that one way to define success is by judging the extent to which needs of stakeholders are met. The entrepreneur recognizes an opportunity, which is then developed by meeting a series of demands imposed by stakeholders. Prior to progressing to the next stage of the entrepreneurial process, stakeholders must be satisfied (Brockner et al., 2004). Understanding how entrepreneurs attain the satisfaction of firm stakeholders is an important facet of entrepreneurship research.

A central factor in the successful entrepreneurial venture is innovation by the founding individual or team. Innovation is the specific instrument of entrepreneurship because innovation is the act that endows resources to create wealth (Drucker, 2006) and because it involves the creation of new combinations that may alter a previously existing industry or even lead to a new one (Schumpeter, 1934; Sharma & Chrisman, 1999; Stopford & Baden-Fuller, 1994). Implicit in the concept of innovation at both the individual and group level are intelligence and cognitive processes that make sense of a complex environment (Glynn, 1996). The occurrence of innovation performance and entrepreneurial success resulting from individual and group cognitions is one focus of this study.

Another core area of interest of this study is the impact of collective regulatory focus as a mediator of innovation and entrepreneurial success. Regulatory focus is a self-regulation mechanism through which individuals control behavior to bring themselves in line with their goals. Of the two underlying motivational strategies proposed by

regulatory focus theory, a promotion focus mediates the relationship between a climate for innovation and success by enhancing creativity that leads to innovations, while the second strategy (prevention) carefully regulates enacted innovations through vetting. The current study proposes that there is a team level construct analogous to individual regulatory focus through which teams or groups regulate their behavior in pursuit of team performance goals and outcomes. Furthermore, the two regulatory focus strategies will interact to increase innovation performance and entrepreneurial success.

Specifically, this study examines the impact of team climate for innovation (TCI: Anderson & West, 1998) on team innovation performance and early stage entrepreneurial success as mediated by collective regulatory focus. A climate is the shared perceptions of a group of individuals about an organizational context and, as such, this study tests a model of relationships among shared cognitions of innovation, regulatory focus, innovation performance and entrepreneurial success (Figure 1, p35) at the team level.

The results of this study contribute to three areas of research. First, this study increases our understanding of the impact of the innovative climate on small team innovation performance and entrepreneurial outcomes. Second, this study incorporates both psychological and situational predictors of entrepreneurial performance outcomes. Dimov (2007) calls for the investigation of entrepreneurial creativity through an interactionist perspective. Entrepreneurial opportunities are proposed to be the result of a stream of ideas that are shaped by situational interactions and creative action (Dimov, 2007). In this study, TCI (situation) predicts team regulatory focus (psychological) and thereby differentially predicts innovation performance and entrepreneurial success.

Finally, this study investigates the nature of regulatory focus at a group or team level both through the development of theory and empirical testing. This follows a pattern of research in which individual difference constructs such as self-efficacy (Bandura, 1997; Chen et al., 2002), achievement motivation (Zander & Forward, 1968) and expertise (Tesluk & Jacobs, 1998) have been examined at the team level and been found to be meaningful to our understanding of team dynamic processes. The development of collective regulatory focus allows this study to investigate the impact of differences in team motivation strategies on group innovation performance and entrepreneurial success.

CHAPTER 2

LITERATURE REVIEW

Entrepreneurial Success

Entrepreneurial ventures are the lifeblood of the US and worldwide economies. During 2006 in the United States, entrepreneurs established more than six hundred thousand new employee-hiring businesses (SBA, 2008). Small, entrepreneurial businesses such as these are responsible for the creation of 60 to 80 percent of new jobs over the past decade and pay about half of the total U.S. private payroll (SBA, 2008). Beyond the labor force contribution, small innovative firms also produce thirteen times more patents per employee than are created by larger firms, and the patents are typically for superior products as they tend to be cited more often (SBA, 2008). Incredibly, these impressive economic contributions result despite a large failure rate among new businesses. Of the newly established firms each year, around eighty-five percent of them will eventually fail or cease to exist (SBA, 2008). Given the significant role of entrepreneurial ventures in a vibrant economy, it is important for researchers to differentiate the firms that fall short of success from the successful firms.

Success though may be in the eye of the beholder. In the modern corporation, individual stakeholders may have their own definition of a successful venture. The common conjecture is that an entrepreneur's primary motives, personal profit and financial success, drive individual action (Schumpeter, 1976). The creation of financial value for the entrepreneur is a subject central to the field of entrepreneurship research

(Baron, 2004). An economic perspective on financially successful ventures is grounded in arbitrage and the early detection of market imperfections (Kirzner, 1973). Driven by the primary economic motive, the early detection of factor imbalances creates an opportunity for exploitation by the aware entrepreneur. In the case of an entrepreneur driven by the financial gains, the survival, growth and profitability of the new venture defines success.

Another way of measuring success though is through the satisfaction of people with a real interest in the venture. Brockner and colleagues (2004) propose that one way to judge entrepreneurial success is to measure to what extent the venture meets the needs and demands of interested stakeholders. Stakeholders with interest in the success of a new venture may include investors, customers, suppliers, society and the entrepreneurs themselves. Evaluating satisfaction in the relationship between these stakeholders and the entrepreneur is one way of measuring success. Each stakeholder has a unique set of requirements that demand satisfaction over time and the entrepreneur may have a different set of goals and requirements from other interested parties, even within the same entrepreneurial team. One team member may define success as a financial profit, while another may define it in terms of the social welfare established in the community through the creation of jobs and services. Despite the different perspectives on success, the creation of value defines entrepreneurship. Whether in a new venture or an established company, value creation is the essence of entrepreneurial action (Mitchell & Busenitz, et al., 2007).

Innovation and Entrepreneurship

From broad economic theories of entrepreneurship to opportunity emergence at an individual level, innovation is the basis of entrepreneurial action (Krueger, 2000; Schumpeter, 1934) and a key factor in the creation of value in new ventures. Innovation, as defined by West and Farr (1990, pg. 9), is "…the intentional introduction and application within a role, group, or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society. " This definition implies two key facets to innovative behaviors. First, creativity is important to the innovation process. There must be a newness of the entrepreneurial idea to the setting in order to create unique value. Second, although commonly misconceived as such, creativity is not the same construct as innovation. While creativity is a necessary condition for innovation to occur (Amabile, Conti, Coon, Lazenby, & Herron, 1996), an idea alone is not sufficient to be considered an innovation. Creativity may be limited to the generation of new ideas without any actual intent to implement. Innovative behavior advances the creative idea from inspiration to implementation. The act of implementation is the key component that differentiates innovation from creativity. The idea must be acted upon such that there is a refinement, modification or creation of products, policies, procedures that become unique and novel in some fashion (Brazeal & Herbert, 1999).

The implementation of creative ideas (i.e. innovation) is fundamental to success in an entrepreneurial venture. Schumpeter (1976, p. 103) concludes that "the process of creative destruction is the essential fact about capitalism" and that it is the creative mind that is the core of entrepreneurship. The establishment of a new venture requires

perseverance over a diverse set of challenges. A high level of creativity enhances the entrepreneur's ability to deal with these organizational issues. Stories abound of nascent entrepreneurs creating a prototype product in their basement or garage with limited resources and no funding. The successful venture originates from a novel and useful idea for goods or services that adds value for a customer, which the entrepreneur uses to convince potential stakeholders of the venture's value. Furthermore, new ventures typically lack a specialized labor force resulting in imaginative behavioral strategies by the entrepreneur to fulfill necessary organizational roles. Any situation in which a solution to a problem is not immediately available to the entrepreneur requires a creative spark. Implementation of the creative idea thus results in innovation.

Innovation Performance

The creation of an entrepreneurial idea and the management of scarce resources cause innovative behaviors in a new venture to be crucial to entrepreneurial success. The ability of the entrepreneur to innovate leads to successful new ventures in which there is sustained wealth creation (Alvarez & Busenitz, 2001). Entrepreneurs who perform innovative behaviors at a level superior to those of their competitors will have a greater chance of success in a new venture. However, the identification of superior innovative behavior becomes problematic because of the ambiguity and uncertainty embedded in new ventures. While traditional methods of measuring work performance focus on the completion of prescribed task behaviors, people do more than is included in their job description. The recognition that there are extra-role behaviors (including innovation) which enhance work performance has changed the way performance evaluation is viewed (Borman & Motowidlo, 1993) by organizational scholars.

As business organizations become more dynamic and less structured, the relevance of task performance to managers has decreased (Milkovich & Boudreau, 1997). A person's measure of performance becomes less about a set of specified and assigned duties and more about fulfilling necessary roles within an organization (Welbourne, Johnson, & Erez, 1998). In an entrepreneurial context, this lack of a relationship between task performance and overall performance is particularly relevant. The level of uncertainty in an organizational context shapes the prescription of formal task requirements (Ilgen & Hollenbeck, 1991). In situations with low levels of uncertainty, people are able to evaluate and positively identify tasks that add value to the organization. The person knows the outcomes demanded by a job requirement and thus identifies specific activities for task performance. However, in a highly uncertain environment, such as an entrepreneurial venture, it becomes impossible to identify all possible future tasks that must be performed in order for the organization to flourish. Consequently, there must be flexibility in work roles to allow the adaptation of the organization to the changing environment. As organizations have recognized the benefits of flexibility, there has been a change in focus by both practitioners and researchers from task-based performance to role-based performance (Milkovich et al., 1997).

Role theory proposes that employee performance is a function of the individual and the organization (Welbourne et al., 1998). A role is an expected pattern or set of behaviors (Biddle, 1979) that emerge from the beliefs and cognitions of individuals which themselves are influenced by environmental forces (Ilgen et al., 1991). Role theory recognizes that people are embedded in a social structure, which contributes to the formation of their beliefs and attitudes. The full set of performance competencies can be

identified through the roles a person fulfills which are important to the organization. When combined with identity theory, role formation helps in understanding which roles are important to work performance.

Identity theory proposes that the mere existence of roles is not adequate to establish beneficial role behavior. Rather, it is the saliency of each role that determines its importance in dynamic organizations (Burke, 1991). Roles most salient to a person are most likely to elicit a behavioral response. Thus, organizations can form the performance roles desired of their employees at work by manipulating the saliency of work roles. Roles may be manipulated intentionally through rewards, job requirements, or punishment (Welbourne et al., 1998), but they may also be unintentionally manipulated through the organization's climate and culture. Although many organizational roles have been examined (Griffin, Neal, & Parker, 2007), the most salient for a nascent entrepreneurial team is the role of innovator.

For a new venture to overcome the challenges associated with newness and smallness, the entrepreneur must innovate in order to confer a competitive edge to the new venture through her ability to creatively implement new processes, concepts, and solutions. Thus, the role of innovation as a form of performance becomes particularly important in an environment which lacks resources and in which uncertainty is high. An entrepreneurial team consisting of members performing in the role of innovator will exhibit superior team innovation performance and thereby enhanced entrepreneurial success. In this study, innovative climate and collective regulatory focus have both direct and indirect effects on innovation performance and entrepreneurial success. Thus, beyond the performance of innovative behaviors predicting organizational outcomes, I

distinguish between team climate for innovation and entrepreneurial success to identify the variance associated with each predictor in the study.

Innovation Climate

The identification of a profitable opportunity requires luck and/or a large set of skills and knowledge. Successful entrepreneurs possess unique knowledge structures, process, use information differently (e.g., Mitchell, Smith, Seawright, & Morse, 2000) and make decisions using unique heuristics as compared to non-entrepreneurs (Busenitz & Barney, 1997). The number of stakeholders who have demands and needs to satisfy increases the social complexity as well. While it is possible for a single person to possess all the required tools to be a successful entrepreneur, the role of entrepreneurial teams in the successful founding of new ventures has been considered important by teachers (Timmons, 1994) and researchers (Gartner, Shaver, Gatewood, & Katz, 1994), as well as potential financing partners (Cyr, Johnson, & Welbourne, 2000). Research has identified the importance of founding team characteristics in team learning (Clarysse & Moray, 2004), resource acquisition (Hayton & Zahra, 2005), and external social networking (Grandi & Grimaldi, 2003). Research has also supported the assertion that a heterogeneous teams of venture founders has synergistic gains above those of homogeneous teams (Colombo & Grilli, 2005). Thus, it becomes important to investigate the specific features which vary in teams to identify possible selection criteria for inclusion, which will result in better performance and outcomes.

Among the team characteristics that are proposed to impact entrepreneurial activity is that of team climate for innovation (TCI: West, 1990; Corbett & Hmieleski,

2007). TCI, identified as an important contextual factor in group level innovation (Agrell & Gustafson, 1996), is formed by four underlying factors: 1) Clarity of and commitment to objectives, 2) participative safety, 3) task orientation and 4) support for innovation (West, 1990). Support for the relationship between climate for innovation and actual innovative outcomes has been validated in top management teams (West & Anderson, 1996) as well as health care teams (e.g., Anderson et al., 1998) and industrial companies (e.g., Burningham & West, 1995). Although there has been support for TCI in related areas of research, there have not been any studies to my knowledge that examine the role of an innovative climate in the development of a successful entrepreneurial venture. The investigation of this relationship is one of the novel ideas tested in this study.

Defined as the shared perceptions of members of an organization with regard to organizational policies, practices and procedures (Reichers & Schneider, 1990), climate is an abstraction of the environment (Ostroff, Kinicki, & Tamkins, 2003). Although related to organizational culture, it is distinct in its focus on more behavioral aspects of shared perceptions. Svyantek and Bott (2004) characterize climate as the shared perceptions and the following interactions and behaviors with regards to creativity, innovation, service or safety within the organization. In contrast, culture is the shared norms and values that guide social interactions with peers, superiors, and followers. In other words, climate is a shared understanding of experiences in an organization while culture helps define why these experiences occurred (Schneider, 2000). Thus, climate can be thought of as a more transient construct while culture tends to be more static and unchanging (Schneider, 1990).

An additional aspect of the conceptualization of climate is the existence of climate dimensions. Rather than discuss climate in generalities, research has focused on facets of climate (i.e., climate for change, climate for safety) because a specific referent is needed to clarify the meaning of studies (Rousseau, 1988). In earlier climate research, it was thought that there were few dimensions of climate through which any social context could be characterized (e.g., James & Jones, 1974). This global view of climate was soon over taken however as new types of climate were studied by researchers. Finally, Schneider (1975, 1990) proposed that a global outlook on climate was untenable because such a broad perspective diffused the deeper understanding of situational perceptions. To regain focus, he suggested that research should focus on specific facets of climate that were of interest to organizations. Rather than study a global climate construct, where the holistic shared perceptions of an organization are identified, researchers would study particular climate constructs with specific organizational referent.

Additionally, climate is a multi-level construct. Shared, group level perceptions consist of individual situational perceptions. At the individual level, *psychological climate* refers to the individual cognitive interpretations of the context that develop through the continual interaction with the context and others (James et al., 1974). At the group level, *organizational climate* refers to the shared perceptions of those same individuals (James et al., 1974). That is, organizational climate, measured at an individual level, is the aggregate of shared perceptions among individuals (Schneider, Bowen, Holcombe, & Ehrhart, 2000). As in other organizations, entrepreneurial teams will form a full set of shared perceptions about the team's policies, practices and procedures, including a team climate for innovation (TCI). Thus, in the context of TCI, I

am interested in the shared perceptions of the four components of TCI at the work group level as theorized by West (1990).

Team clarity of objectives is the first factor of TCI. Teams that have clearly defined goals and objectives will be more likely to behave in ways that are in line with the pursuit of those goals. Using a rationale similar to goal setting theory (Locke & Latham, 1990), TCI enhances innovation by establishing a clear and achievable goal. Goal clarity allows the group to focus its attention, exert more effort, persist in the face of failure and enact innovative strategies in pursuit of the overall vision. Pinto and Prescott (1987) found that a clear set of goals and objectives was the only factor that predicted success during the team innovation process.

The second factor of TCI is that of participative safety. An organizational context in which members of a team feel safe to participate in the innovation process will result in a willingness to contribute individual skills and ability to group task performance goals. Participation enhances the effectiveness and commitment of individuals in groups and increases creativity among group members (Cowan, 1986). Also, greater participation in the decision making process increases the likelihood of the implementation of creative ideas and decreases the levels of resistance to that implementation (Kanter, 1983). In summation, participation in groups engages members to contribute their skills and knowledge to creative ideas and decreases the level of resistance to other's ideas (West, 1990). However, in order for individuals to be willing to participate in the group in such a fashion, there must be some level of psychological safety perceived in the group context. Interpersonal relations must be perceived as acceptably nonthreatening for the benefits of participation to occur.

The third TCI factor is the shared focus on task performance in relation to the goals and objectives of the group. Symbolic evidence of a shared task orientation is the appraisal and challenge of team objectives, goals, policies, procedures and practices with regard to high performance (West, 1990). Team members have shared concerns about the quality of task and non-task behavior, which is reflected by individual and team accountability for performance. In addition, team decision-making (and thereby innovation) improves with the presence of "constructive controversy" of group innovation processes (Tjosvold, 1991). Constructive controversy enhances innovation in groups by encouraging the deliberation and consideration of alternative interpretations of available information (West et al., 1996). Higher levels of innovation result because better creative solutions are derived from the shared focus on high levels of task performance in the group.

The final TCI factor is the internal support for innovation by the group. Support for innovation is *the expectation, approval and practical support of attempts to introduce new and improved ways of doing things in a work environment* (West, 1990, pg. 38). Team members support one another as idea generation occurs. Even if the potential innovation is negatively received by the team, there will be a supportive reaction from other group members that includes positive feedback. A supportive environment consists of the encouragement of innovation, even when attempts at innovative change fail in acceptance or practice. By encouraging such innovation, even in the light of failure, future innovation is promoted, hence increasing overall innovative climate.

The four factors of TCI combine to create a climate that can enhance team innovative capacity. Teams that possess high levels of vision, participative safety, task

orientation and support for innovation will have high levels of innovation as the climate within these teams allows individuals to exercise cognitive and emotional freedom. A high level in any of the four TCI factors contributes to the innovative climate within the team while a low level within any single factor detracts from it. Teams with all TCI factors rated highly enhance innovative behavior through the removal of inhibitive obstructions. The reduction of innovation related to low levels of TCI has been found in nursing teams and hospital management (Anderson et al., 1998). Given the saliency of innovation in entrepreneurial teams, it is sensible to expect TCI to have comparable effects in a new venture context.

Regulatory Focus

Although TCI may enhance innovation performance success through situational framing, the actual process by which innovative behavior occurs has not been fully addressed in the extant literature. Corresponding to Kanfer's (1990, 1992) notion of proximal state-like individual differences and processes as intermediaries between distal traits and performance, this study proposes regulatory focus as a mechanism through which team climate for innovation affects innovation role performance and entrepreneurial success. Research finds that regulatory focus acts as a mediating process in individual performance relationships. For example, Wallace and Chen (2006) examined the relationship between group-level and individual level distal traits related to individual performance through individual regulatory focus. Specifically, group safety climate and individual differences in conscientiousness were found to predict regulatory focus and thereby productivity and safety performance. Additional studies which have

examined the distal-proximal-performance relationships include: 1) an examination of distal and proximal individual differences and academic performance (Chen, Gully, Whiteman, & Kilcullen, 2000), 2) a study of self-efficacy and self-set goals as mediators between cognitive ability, goal orientation, and locus of control and performance (Phillips & Gully, 1997), and 3) the relationship of the five factor model and performance as mediated by several proximal constructs (Barrick, Mount, & Strauss, 1993; Barrick, Stewart, & Piotrowski, 2002). Although Kanfer's distal-proximal-performance model has found support in other avenues or research, it has not been examined with team climate for innovation, regulatory focus, innovation role performance and entrepreneurial success.

Regulatory focus theory (Higgins, 1997) has been found to be practically useful as a process involved in influencing the effects of distal constructs on individual performance and outcomes. Regulatory focus is a self-regulation process through which individual's direct behavior to bring themselves in line with their goals. Wallace and Chen (2006) found that individual regulatory focus mediates, to some extent, the relationship between conscientiousness and safety climate and productivity and safety performance. Regulatory focus fully mediated the conscientiousness/safety performance relationship and it partially mediated the safety climate/safety performance relationship. These results support the assertion that individual regulatory focus does play a role as a process in the pursuit of valuable outcomes.

Regulatory focus theory (RFT) is a hedonistic view of human behavior in which humans approach pleasure and avoid pain (Higgins, 1997). However, RFT develops this position further by recognizing that people may differ strategically in their approach or

avoidance styles. Two self-regulatory processes proposed by RFT are: 1) promotion focus, which is analogous to approaching pleasure and, 2) prevention focus, which is analogous to avoiding pain. Promotion regulatory focus and prevention regulatory focus manifest as a preference in the goals, motives and salient outcomes through which people may be motivated. Higgins (1997) proposed that regulatory focus is a strategic concern that influences the behaviors people employ when striving for desired goals. Specifically, a strategic concern refers to "a pattern of decisions in the acquisition, retention, and utilization of information that serves to meet certain objectives" (Bruner, Goodnow, & Austin, 1956, pg. 54).

Behaviors resulting from either regulatory focus strategy are grounded within the broader approach domain of motivation. That is, even though avoidance of pain characterizes prevention focus, avoidant behaviors take place within a broader strategy of approaching a desired outcome and reducing the discrepancy between the current state and the goal state. For example, although prevention focus is portrayed as enacting behaviors to avoid pain, the behaviors are still oriented overall to approaching a desired end state. Thus, it is the process by which the end state is approached which is the critical function of each regulatory focus. In sum, preventative and promotive strategies result from the diverse goals, motives and salient outcomes by which people are motivated.

A person using a promotion focus approaches goals through self-growth and the pursuit of their ideal selves without regard to possible negative outcomes (Higgins, 1997, 2000a). The ideal self is an individuals' optimal set of characteristics that they or another person would ideally like for them to possess. A promotion-focused orientation tends to

center on hopes and aspirations when regulating behavior (Forster, Grant, Idson, & Higgins, 2001). Accomplishments motivate promotion-oriented individuals. They perceive their salient outcomes as gains (positive) or non-gains and they strategically approach these desired end-states by maximizing their chances for a match between the state and the actual outcome by trying to ensure that they do not commit an error of omission. Additionally, a promotion focus results in people feeling pleasure when rewarded or praised for their accomplishment and experiencing pain when not rewarded or praised for their accomplishments. To summarize, promotion focused individuals are concerned with attaining a match between their desired end state and the actual outcome (Higgins, 1997, pg. 1285).

To contrast, a person using a prevention focus is motivated by aligning their behaviors with their "ought" self and focusing their behavioral strategies on the fulfillment of their duty or responsibility without regard to possible positive outcomes (Higgins, 1997, 2000a). The "ought" self is an individuals' optimal set of characteristics that they or another person think they should or must possess. A prevention-focused orientation centers on obligation and accountability in the regulation of behavior and motivate such people by a lack of mistakes. They perceive salient outcomes as non-loss (positive) or loss and they strategically approach these desired end-states by minimizing their chances for a mismatch between the state and the actual outcome by ensuring they do not commit an error of commission. Furthermore, people using a prevention focus experience pleasure when there is an absence of negative consequences and experience pain when punished for their mistakes or are careless. In other words, prevention focused individuals are inclined to avoid mis-matches between desired end states and the actual

outcome and, as such, enact behavioral strategies to ensure that losses are not experienced (Higgins, 1997, pg. 1285).

Typically portrayed as a chronic disposition, regulatory focus is malleable to an extent. Antecedents to regulatory focus include needs, values and situational framing (Higgins, 1997) and a change in any one of them can modify a person's regulatory focus behavior. Higgins, Shah and Friedman (1997) experimentally manipulated conditions on a task such that the contextual framing induced a promotion or prevention focus on individual strategic orientation depending on the experimental group. Also, although people tend to lean one way or the other, it is theoretically possible for individuals to be dispositionally inclined toward both promotion and prevention regulatory focus. Regulatory focus is not a bipolar dichotomous scale. Rather, the facets of regulatory focus are two individual, independent constructs in which individuals may exhibit high or low levels of each (Wallace and Chen, 2006). The modification of individual regulatory focus by situational framing resulted in outcomes that aligned with the induced regulatory focus. Thus, regulatory focus has been found to be situationally adaptable and subject to social influence. In this study, I examine a specific social situation which influences collective regulatory focus.

Collective Regulatory Focus

Teams have become a foundation for much of the work completed in the modern organization. Individually talented people combine into directed groups with the hope that a synergy develops to make the team performance greater than the sum of its parts. Previous research has found that teams positively affect performance (see Cohen &

Bailey, 1997 for a review). Because of the popularity of the team as a work unit however, new challenges in management have surfaced which demand attention. Groupthink, for example, has contributed to disasters such as the Challenger explosion (Moorhead, Ference, & Neck, 1991). Social loafing by team members has become a well-researched subject (Liden, Wayne, Jaworski, & Bennett, 2004). One area that has lacked substantial investigation though is the antecedents, mechanisms, and consequences of team motivation processes. Although there has been some research efforts accomplished with collective efficacy (Zaccaro, Blair, Peterson, & Zazanis, 1995) and group goal setting (Locke et al., 1990), the quantity of research on team motivation processes has lagged behind individual motivation research. Chen and Kanfer (2006) recently called for more multilevel motivation research noting that a multilevel approach to motivation would improve our understanding of both team and team member effectiveness.

Chen and Kanfer (2006) suggest that there are three requirements for a multilevel conceptualization of motivated behavior in teams. The first step in this process would be to identify equivalent constructs or relationships at both the team and individual level. Second, consider the reciprocal relationships between the individual and team level motivation constructs. There are two possible directions of causality in a cross-level relationship, top-down or bottom-up. A top down relationship indicates that team characteristics and processes impact the individual level of the construct, while a bottom up relationship implies the opposite. As a final step in the process of developing a multilevel construct of motivational processes, researchers must examine the causes and outcomes of the motivation construct at both levels. In this study, collective regulatory focus is proposed to be functionally equivalent to individual regulatory focus, formed by

the shared needs and values of individuals within the team and have equivalent antecedents and consequences to individual level regulatory focus.

To accomplish the first step, collective regulatory focus, an analogous construct to individual regulatory focus, is defined as a process through which groups regulate their behavior in order to bring the group into alignment with desired outcomes. Research on group goals has been extensive, with broad qualitative (Locke et al., 1990) and quantitative (O'Leary-Kelly, Martocchio, & Frink, 1994) analyses finding evidence that group goals influence effort such that performance increases. In general terms, groups that have challenging goals do experience enhanced individual and team productivity as well as enhanced satisfaction. Group goal setting is thus akin to individual goal setting in that challenging goals at both levels elicit persistence, increased effort, focus attention and cause the adoption of goal accomplishment strategies (Locke, Shaw, Saari, & Latham, 1981). These group level goals act as the desired end state for the collective regulatory focus process.

The second step of the process Chen and Kanfer (2006) discussed is the nature of the reciprocal relationship between the collective and individual level. As in any multilevel system, the influential nature of the individual on the group and the group on the individual is muddled. Collective motivational processes are, by definition, the result of shared individual understandings of group needs, beliefs, and goals. However, individuals are also subject to the situational influences of participating in teams which may have a very different set of such goals when compared to individual needs, beliefs and goals. In order to determine then the nature of the relationship, it is helpful to identify the timing and source of goals at each level. In nascent teams, as is the case in this study,

there are no preexisting needs, beliefs or goals at the team level. A collective motivational structure must develop from the social interactions among team members as they conduct themselves in developing group goals. Once this collective structure is developed, then a reciprocal influence may then be exerted on individual group members. Thus, this would be the case of an initial bottom-up developmental relationship between the individual and collective level. A top down relationship may then act on individual group members to ameliorate deviation from the collective motivational processes.

As the final step in the development of a collective motivational process, the antecedents and outcomes of collective motivational constructs must be considered. Although both the collective and individual levels of self-regulation focus on the approach of desired states, the process mechanism by which the team level regulatory focus strategy arises is necessarily different**.** At the individual level, the hedonic principle forms the foundation of regulatory focus. Based in ancient Greek philosophy, the hedonic principle is a simple behavioral rule in which people are motivated to approach pleasure and avoid pain. Regulatory focus relies on this principle as the nucleus of promotion and prevention orientation. A promotion-focused individual self-regulates behavior to approach pleasurable outcomes (success) while a prevention-focused individual regulates behavior to avoid painful outcomes (failure). The predisposition to a particular orientation develops in the child-parent interactions of childhood (Higgins, 1997). Parents socialize their children to respond to the presence of presence or absence of negative outcomes, which results in persistent understanding of self-other interactions.

At the collective level, there is obviously no childhood in which an understanding of group needs and values form. However, in lieu, members of a group can form an

understanding of group values through interactions with one another. As described in Morgeson and Hofmann (1999), interactions among associates result in the formation of a collective structure in which other collective constructs may develop. More specifically, an interaction between a pair of people is a collective action as the interaction event is formed by the pair together. A group has multiple sets of such events as each group member interacts with each other group member. As this collective set of interactions occurs, a collective pattern of action emerges as a property of the group rather than as a property of individual group constituents. The collective action structure forms the foundation for the emergence other collective constructs, such as collective regulatory focus. Thus, individual interactions form the collective action structure, which itself is the foundation for collective constructs that influence individual action in the group.

For example, during previous employment, I managed quality systems in a unionized plant. As a large plant, there was significant turnover of personnel, which had to be replaced quickly to maintain plant efficiency. As such, we used a temporary agency to fill positions in the short term. This short-term solution was also used as a recruiting tool. Supervisors evaluated temporary workers over a ninety-day trial period. A full-time position was offered to those deemed worthwhile. Unfortunately for the company though, the union had a very strong collective structure that influenced most new full-time employees. Union members collectively developed a number of informal behavioral controls over their fifty-odd years of existence. They had unwritten rules about interacting with management, levels of effort, and acceptable abuse of the contract. As a result, the new employees slowly morphed from the person hired, with high levels

of performance, to the characteristic union employee with a poor attitude, a deficient work ethic and excessive leave with pay. Union members mocked each other when behaving too friendly to the managers. If working too hard, other employees further in the production queue would instruct hard workers to slow down. It is thus that collective action structure forms the basis of the collective construct of personality constructs. Each member of the group possessed an understanding of how union members should behave toward management and the company. The result was a collective personality (Hofmann & Jones, 2005) consisting of low collective agreeableness and collective conscientiousness.

In the context of this study, the collective action structure regarding strategies to approach desired end states forms the basis of collective regulatory focus. As members of a group interact with each other regarding the process of attaining group goals, they form a collective understanding about preferred group strategy. Collective understanding drives group decision making when considering actions to pursue goals. This process is very similar to that theorized by social information processing theory. Social information processing theory (Salancik & Pfeffer, 1978) proposes that personal attitudes, needs and values are subject to the influence of the social context in which they were formed. That is, as a group develops, individual social cognition influences the development of a shared set of needs and values among group members that become characteristics of the group. While almost all previous research on regulatory focus theory has focused on individual regulatory focus, people do not live in a vacuum absent of social influence. Social interactions constantly influence our attitudes, needs, values and perceptions. People in teams do interact and exchange information about their task and each other,

which informs their own judgments about needs and values. By extending this view to groups or teams, in conjunction with the collective action structure proposed by Morgeson and Hofmann (1999), the mechanism by which groups and teams enact collective strategies in pursuit of team goals becomes clear.

As a collective regulatory focus comes into being, regulatory focus strategies begin to guide group behavior. As team members develop shared attitudes about the need for security (prevention) or the need for nurturance (promotion), group goals are pursued using complementary strategies. The salient outcomes of a collective promotion focus group are oriented around accomplishment or the fulfillment of hopes and aspirations. Promotion focused groups will be sensitive to the presence or absence of positive outcomes and will attempt to ensure hits through the creative development of solutions. In contrast, the salient outcomes of a collective prevention focus group center on fulfilling group responsibilities and doing their duty. Prevention focused groups will be sensitive to the presence or absence of negative outcomes and will attempt to ensure that there are no committed errors through a rigorous screening process. Like the individual level of regulatory focus, the collective facets are not the end points of a bipolar construct. Rather they are two individual motivational processes, for which teams may exhibit high or low levels of each. At the individual level, Wallace, Chen and Kanfer (2005) found that the facets were indeed independent of each other and subject to contextual influence. Collective regulatory focus derived from the shared needs, values and cognitions associated group interaction forms the meditational construct for this study.

Climate for Innovation as an Antecedent of Collective Regulatory Focus

Team climate for innovation is the joint perception of vision, participative safety, task orientation and support for innovation (West, 1990) found in the actual enacted policies, procedures and practices exhibited by the members of the team. Situation framing associated with TCI manifests as a significant influence on the regulation of individual and collective goal pursuit activities. Previous research identified other climates, which may influence individual regulatory focus. Wallace and Chen (2006) found that the perceived safety climate influenced individual regulatory focus strategies enacted in the approach of safety and production goals. A climate, which emphasized safety, positively related to prevention focus. The shared perceptions of safety caused duty and responsibility to be more salient. This resulted in increased prevention focus as well as increased safety performance. Safety climate had the opposite effect on promotion focus. The climate related negatively to promotion focus and thereby safety performance.

Accordingly, a strong, positive climate for innovation frames situations such that team behaviors aligned with a promotion focus are performed in an attempt to approach the preferred group goal. Salient outcomes for the team become those associated with aspirations and achievements. A clear team vision gives a focus of attention for the group to direct their efforts while participative safety allows members to feel secure in application of those efforts. Thus, rather than expending effort on undirected action or protecting themselves, the team focuses on extraordinary task performance and, when failure occurs, supporting each other through trouble. Thus, the context established by TCI drives collective regulatory focus to exhibit promotion characteristics. Contrarily, a

strong negative climate for innovation will result a situational frame that facilitates the performance of prevention-focused behaviors. A situation characterized by a lack of vision, insecurity in personal safety, lack of task demand performance and a lack of support for innovation will likely result in a prevention behaviors focused on duty and completion of responsibilities.

Collective Regulatory Focus → Innovation Performance and Entrepreneurial Success

Innovation is a continuous process that involves environmental awareness, cognitive appraisal, adoption, diffusion of knowledge and implementation (Damanpour, 1991; Poole & Van de Ven, 1989). Each regulatory focus construct, promotion and prevention, can influence the process of innovation through unique means. Promotion oriented behavior increases innovation performance by facilitating the creation of a large number of alternatives from which the entrepreneur can choose to alleviate a problem or develop a new product (Brockner et al., 2004). Previous research in regulatory focus has found that individuals who exhibited promotion oriented behaviors generate more options than a person exhibiting a prevention focus (Crowe & Higgins, 1997). Promotion focused individuals pursue goals with the interest in attaining a "hit", thus they tend to generate many alternatives in the hopes that one of the alternatives is successful. They do not care if the alternatives are failures, only that one of them is a success. Liberman and colleagues (1999) also found that individuals with a promotion focus were more likely to be inventive or creative as these individuals are more willing to switch to a new method, activity or procedure if the current method, activity or procedure was not a "hit".

Generating alternatives (creativity) and the willingness to change (implementation) are the two critical components of innovation.

Brockner et al. (2004) suggested that a second means by which regulatory focus will affect innovation performance is through the screening of ideas prior to implementation. A team characterized by a prevention focus enacts strategies that concentrate on the avoidance of mistakes through loss prevention behaviors. Screening is similar to entrepreneurial due diligence, which necessitates the scrutiny of important ideas prior to implementation. In such a case, the team fulfills their duty and responsibility in ensuring that any idea that advances to the next stage is profitable. Screening behavior and due diligence aligns the ideal strategic outcome for a team with a collective prevention focus, which is a lack of errors or mistakes.

Although collective prevention focus can contribute to entrepreneurial success through screening, it is constrained from this contribution if the team is uniformly prevention focused. A team consisting exclusively of prevention focus will lack creative ideas because prevention strategies are typically risk-averse. Behaviors have that previously experienced positive results are generally preferred over any new idea produced. Crowe and Higgins (1997) found that groups conditioned to behave in a preventative fashion were less creative overall than the promotion experimental groups. The entrepreneurial process, especially the early stages, demands creativity. Thus, a uniform concentration of the team on prevention behaviors will stifle the new firm, resulting in failure.

Interactions of Collective Regulatory Foci on Innovation Performance and Entrepreneurial Success

Possibly the most intriguing aspect of this study is the theorized interaction of collective promotion focus and collective prevention focus. As discussed above, promotion focused teams are exceptional at the generation of creative ideas while prevention focused teams excel at the performance of due diligence. A group that has the ability access both foci during the entrepreneurial process will likely have superior results compared to groups who can only access a single focus. To illustrate, in a new venture the development team must overcome a number of challenges to move the business forward. Creative problem solving forms solutions to these challenges as the team encounters them. As discussed earlier, individuals and teams who enact promotion-focused strategies tend to generate a large number of creative alternatives when compared with a similar prevention focused group. The result of group cognitions at this point is a large number of possible solutions to the problem faced by the team. However, promotion strategies act to ensure that a positive outcome results. A group engaging in promotion strategies alone would "shotgun" solutions until the issue was resolved. That is, they will try numerous possible solutions until they find the correct strategy to resolve the problem. In an entrepreneurial venture though, resources are constrained. There is typically neither the time, money, nor labor available to implement a number of ideas in order to identify the best possible solution. An entrepreneurial team needs to be correct the first time it attempts to resolve an issue, develop a product, or expand a market. Thus, using the "shotgun" effect to resolve issues is not the optimal solution for entrepreneurial teams.

Teams that can access prevention-focused behaviors have the strategic tools to accomplish idea vetting efficiently in this situation. At this point in the development process, there are a large number of possible implementations, however not all of them may be good for the new venture. In addition, due to a limitation in resources, not all of them should be enacted. In such a case, prevention strategies are acted upon to ensure that the team's sense of duty and responsibility are fulfilled. While in a promotion mode of behavior, the team focuses on gains and non-gains from the idea. When the team employs a more prevention mode of behavior, the team's strategic focus changes to losses and the prevention of losses. The transformation of team focus from promotion to prevention allows due diligence to be performance on the initial set of ideas generated in the promotion phase.

However, this begs a question about the malleability of collective regulatory focus. Previous research has found support for the temporary manipulation of regulatory focus behaviors in individuals. Forster, Grant, Idson and Higgins (2001) found that situational framing influenced the approach of goals such that a promotion frame enhanced the impact of success feedback and a prevention frame enhanced the impact of failure feedback. Temporary changes in regulatory focus result from the use of immediately salient information (Brockner et al., 2004). In a situation in which promotion oriented information is prominent, the instantaneous self-regulatory cognitions use that information to choose goal pursuit strategies. Even in a case where the individual has a strong prevention focus, the limited set of information used in cognition causes the enactment of promotion strategies. However, due to a difference in formative mechanisms, collective regulatory focus malleability does not operate equivalently.

As stated earlier, collective regulatory focus results from interactions among team members as they form joint understandings about group strategic tendencies. Such understanding shared among group members forms a collective action structure that influences all group and individual actions within that context. As groups come to understand how each individual interacts with the others, generic strategies for goal pursuit develop. However, specific situational influences can cause the group to express the latent strategy. Thus, a situation with outcomes framed as losses will prompt an entrepreneurial team that normally expresses a promotion focus to enact prevention strategies. Again, the expression of regulatory focus behaviors results from the collective structure imposed upon the team through individual interactions. A situation in which openness to experience and creativity are the salient outcomes for which the team is striving results in the higher motivation for individuals on the team with a promotion focus. In contrast, a situation with outcomes that demand duty and responsibility, results in higher motivation for individuals on the team with a prevention focus. This phenomenon has been described by Higgins (2000b) as regulatory fit. When a situation demands behaviors aligned with an individual's regulatory focus disposition, the person's motivation will be higher. Thus, in a team situation, where individual chronic dispositions vary, the nature of the immediate team goal energizes one set of individuals and de-energizes the other. The regulatory fit process alters the collective structure that defines the collective regulatory focus construct.

For example, a team with both promotion focused and prevention focused capabilities when faced with a situation in which ideas must be generated and vetted before deciding on the best solution for their problem. During the idea generation

process, the salient outcome to the team was the generation of alternatives, a definite promotion oriented activity. Team members interact with each other resulting in a collective action structure defined by the promotion oriented behaviors due to the regulatory fit between themselves and the situation. They are more motivated to behave promotionally, thus a promotion focus drives the team's collective action. When faced with a situation where the team must screen their alternatives, the promotion oriented motivational energy fades as a prevention-focused energy increases from the need to ensure that there are no losses incurred by the team via vetting behaviors. Thus, prevention focus orientation begins to drive the actions of the team. The change in motivational locus of the team results from a change in the collective action structure. A number of alternatives are generated and considered, using both promotion and prevention collective regulatory focus, with the result being the implementation of the best possible available solution to the team problem.

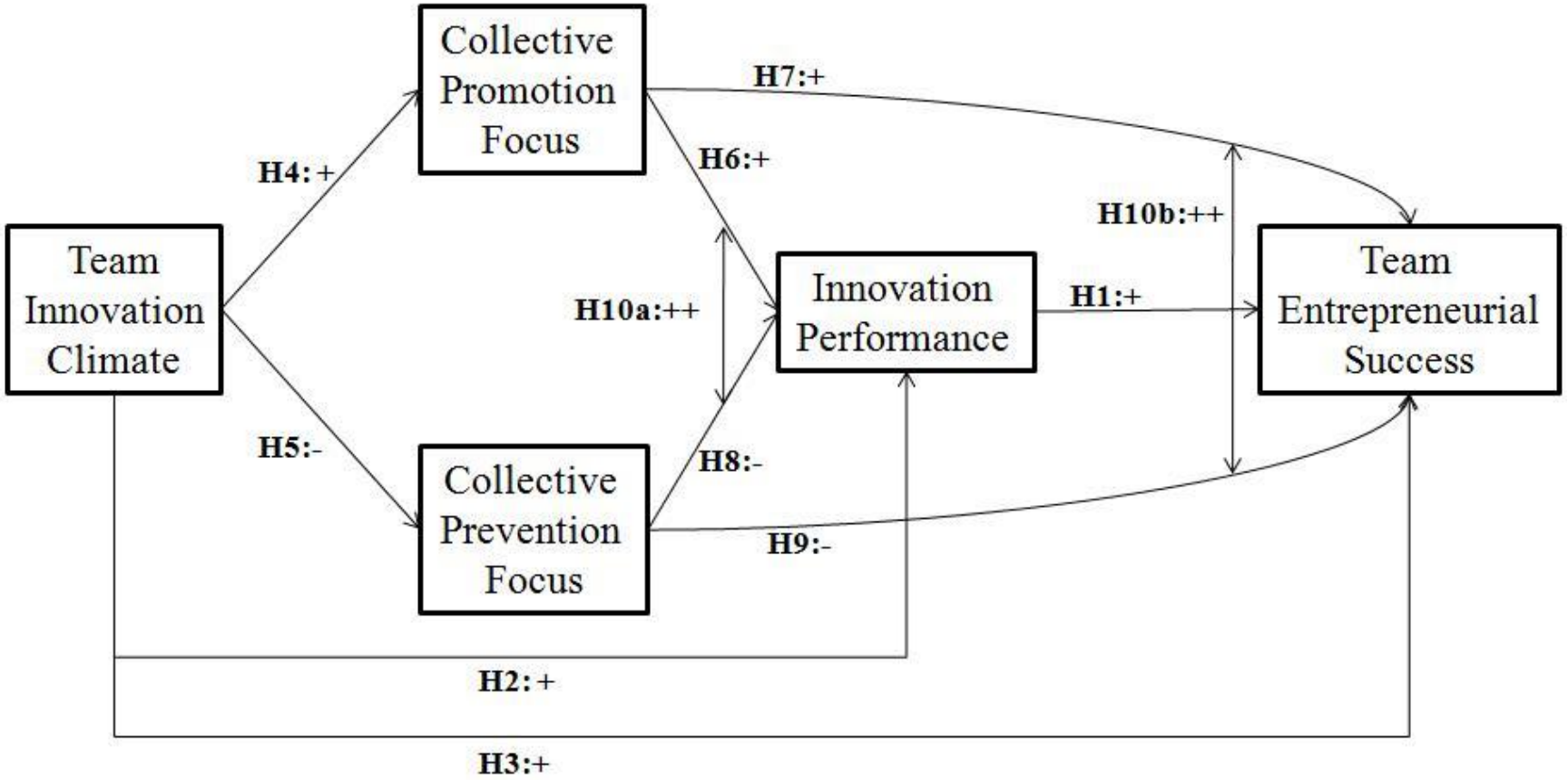
In sum, because of a shift in the collective action structure within a team, collective regulatory focus is malleable and responsive to the regulatory fit of the team to the outcomes demanded by the immediate situation. Specifically, the malleability of the construct results from the levels of motivation in individuals because of the change in situational regulatory fit.

CHAPTER 3

CURRENT INVESTIGATION

Figure 1 presents the hypothesized theoretical model of relationships. This model attempts to capture collective regulatory focus, which mediates team climate for innovation to team entrepreneurial outcomes. Unique to this study are a construct and two specific relationships. First, collective regulatory focus is a new construct that has yet to be examined as a mediator of distal antecedents and performance and outcomes. Second, to my knowledge, there has been no previous investigation of a relationship between team climate for innovation and any entrepreneurial innovative performance or entrepreneurial success outcomes. Finally, and perhaps most interestingly, there is an interaction of the two collective regulatory upon each other, which may enhance entrepreneurial success above that of either focus alone. In the following sections, the rationale for these relationships will be described in more detail. Note that this chapter builds on the theoretical foundations found in the previous chapter's literature review.

Figure 1. Theoretical Model



Predictors of Entrepreneurial Success

Although many organizational performance roles have been examined in previous research (Griffin et al., 2007), the most salient for a nascent entrepreneurial team is the role of innovator. New ventures require the founding team to behave innovatively in order for the firm to overcome the significant challenges associated with early stage entrepreneurship. Deficient capitalization, the need to prove the concept, and a lack of specialized labor are among the obstacles that must be overcome. Thus, there are considerable environmental pressures beyond the organization itself that shape the attitudes and behaviors of the entrepreneur. An entrepreneur who responds to these contextual influences and accepts the role of innovator as salient will react with innovative behaviors. Consequently, innovative solutions will overcome some obstacles. Superior team innovation performance results and thereby enhances entrepreneurial success.

H1: (a) The higher the level of innovation performance by entrepreneurial teams, the higher the level of entrepreneurial success. (b) Innovation performance partially mediates the relationship between collective regulatory focus and entrepreneurial success. (c) Innovation performance partially mediates the relationship between team climate for innovation and entrepreneurial success.

The four components of Team Climate for Innovation combine to create a climate that enhances team innovative capacity. Teams that possess high levels of vision, participative safety, task orientation and support for innovation will have higher levels of innovation performance and entrepreneurial success as the climate within these teams

allows individuals to exercise cognitive and emotional freedom. In order to obtain superior team innovation via TCI, it is important for there to be high levels of each of the four components. The lack of any one component defuses the innovative climate resulting in less team innovation. Teams characterized by a high TCI enhance innovative behavior by team members by removing barriers that would inhibit innovation. The inhibitive effect of low TCI has been found in non-entrepreneurial contexts (Anderson et al., 1998) and it is sensible to expect a similar effect to influence innovation performance and entrepreneurial success. In this case, innovative climate and collective regulatory focus have direct and indirect effects on innovation performance and entrepreneurial success. Beyond the performance of innovative behaviors predicting organizational outcomes, we distinguish between each to identify the variance associated with each predictor in the study. Thus, I propose that:

H2: Shared perceptions of overall team climate for innovation relates positively to team innovation performance.

H3: Shared perceptions of overall team climate for innovation relates positively to team entrepreneurial success.

Predictors of Collective Regulatory Focus

Team climate for innovation creates a strong context that influences the regulation of individual and collective goal pursuit activities. Other climate constructs have been found to influence individual regulatory focus through a shared understanding of appropriate and inappropriate individual behaviors (cf. Wallace et al., 2006). It is reasonable to expect that such a mechanism will also affect goal striving behaviors

associated with collective regulatory focus, as TCI is the shared perceptions associated with innovative capabilities. These shared perceptions act as contextual influences on the exhibition of collective regulatory focus.

A team that exhibits a high level of innovative climate will encourage members to regulate behavior to enhance a promotion collective regulatory focus. That is, innovative climate encourages the team to pursue activities without regard to possible losses in favor of focusing on gains. A clear, shared vision by the team removes doubt in the path forward. A shared sense of participative safety calms the fear of negative feedback within the team. The implementation of constructive controversy, which challenges proposed solutions, enhances a focus on task performance by the team. Finally, when there is a support for innovation within the team, the contextual influence increases the inventive will of the team.

In contrast, low levels of TCI should depress the promotion focus in favor of a prevention focus as the shared perception of innovative climate reflects poorly on team behavior and encourages loss prevention. The lack of vision in the team's future action will lead to uncertainty and doubt which will cause team members to act to prevent loss. An unsafe team environment will cause team members to be reluctant to participate in team innovation processes. An unfocused team will not have high standards of excellence and challenge each other to maximize their performance. A lack of support for innovative behaviors will depress the will of team members to enact such behaviors. In summary, a high level of TCI should encourage a promotion focus of the collective regulatory focus through the creation of a climate in which the pursuit of gains is non-

problematic. Low levels of TCI in any single component will result in an environment in which team members tend toward a prevention focus. Thus,

H4: Shared perceptions of overall team climate for innovation relates positively to promotion collective regulatory focus.

H5: Shared perceptions of overall team climate for innovation relates negatively to prevention collective regulatory focus.

Collective Regulatory Focus as a Predictor of Innovation Performance and Entrepreneurial Success

Although the simple definition of innovation is the implementation of creative ideas, as a cognitive process, innovation is tremendously complex. As mentioned above, innovation is a continuous process that involves environmental awareness, cognitive appraisal, adoption, diffusion of knowledge and implementation (Damanpour, 1991; Poole et al., 1989). Brockner et al. (2004) proposed two specific mechanisms by which regulatory focus will enhance the probability of entrepreneurial success. First, a promotion-focused orientation creates a competitive advantage for entrepreneurs by enabling the creation of a large number of alternative ideas. The ability to generate alternatives and the willingness to change are both critical to the innovation process. This rationale is applicable to collective promotion focus. Groups which possess a high promotion focus will generate a greater number of innovative ideas and option when compared to those with a low promotion focus resulting in a higher probability of successful innovations which lead to entrepreneurial success: Thus,

H6: Collective promotion focus in teams relates positively to innovation performance.

H7: Collective promotion focus in teams relates positively to entrepreneurial success.

The second mechanism suggested by Brockner et al. (2004) is the screening of ideas to assess their viability as an entrepreneurial venture. A prevention-focused team behaves in a way such that they approach goals by avoiding losses. People are motivated to approach desired outcomes with the specific means as determined by their strategic concern. In the case of a person who uses a promotion focus, the approach style is centered on ensuring gains. Losses and mistakes are irrelevant. Only a gain is relevant to the promotion-focused individual. However, a prevention focus works by ensuring that mistakes are not made and the person endures no losses. The ideal strategic outcome for a prevention-focused individual is that no errors were committed in pursuit of a particular course of action. The prevention oriented collective regulatory focus acts similarly in ensuring that the team acts to ensure that there is no error of commission made. Therefore, a group with a promotion focus generates many options and ideas without regard to their efficacy. Collective prevention focus works to prevent decisions that would cause teams to pursue poor options and ideas. It prevents errors of commission by causing teams to be careful about engaging in poor entrepreneurial ventures that may subsequently fail.

However, a prevention-focused team will have a lack of creative ideas in which to demonstrate their screening ability. Prevention motivation is a relatively risk-averse goal pursuit strategy in which known behaviors and ideas are preferred over novel

alternatives. An exclusive focus on loss prevention is contrary to the nature of the early stage entrepreneurial success where creativity is at a premium. Developing a number of ideas to pursue, as well as the method of pursuit, is important to early stage entrepreneurial success. Thus, despite the screening capabilities provoked by a collective regulatory focus, a team which has high levels of prevention focus will have less entrepreneurial success than a group with a low level of prevention focus due to an focus on loss prevention.

H8: Collective prevention focus in teams relates negatively to innovation performance.

H9: Collective prevention focus in teams relates negatively to entrepreneurial success.

Interactions of Regulatory Foci on Innovation Performance and Entrepreneurial Success

Although each regulatory focus factor works in its own way in the pursuit of entrepreneurial goals, their interaction magnifies each contribution such that a group which possesses the ability to access both promotion and prevention focus will enjoy greater entrepreneurial success than either alone. The augmentation of entrepreneurial success will occur because the collective regulatory behaviors complement each other to enhance the innovation pursued as an entrepreneurial venture. That is, a team that consists of a high level of promotion and a high level of prevention focus will regulate its behavior such that pursued innovations will be superior to those generated by teams with high level of any single regulatory focus. In the course of regular innovative activities, teams with high level of both foci will approach their desired outcome, entrepreneurial

success, using both of the mechanisms described above. A team with high levels of promotion focus will develop a large number of possible innovations as part of their pursuit of ensuring that there are no errors of omission. The same team with a high prevention focus will then ensure there are no errors of commission through the thorough screening of the large number of innovations. The result of a broad selection of possible innovations to pursue and an effective screening process to allow only the enactment of the best possible innovation is that the final option the team pursues as an entrepreneurial venture will be the best option available to them. Thus,

H10: Collective prevention focus and collective promotion focus in teams interacts such that high levels of each will be more positively related to (10a) innovation performance and (10b) entrepreneurial success than those groups that have high levels in either single focus or low levels on both.

Figure 2. Interaction of Collective Regulatory Focus Facets in Prediction of Innovation Performance

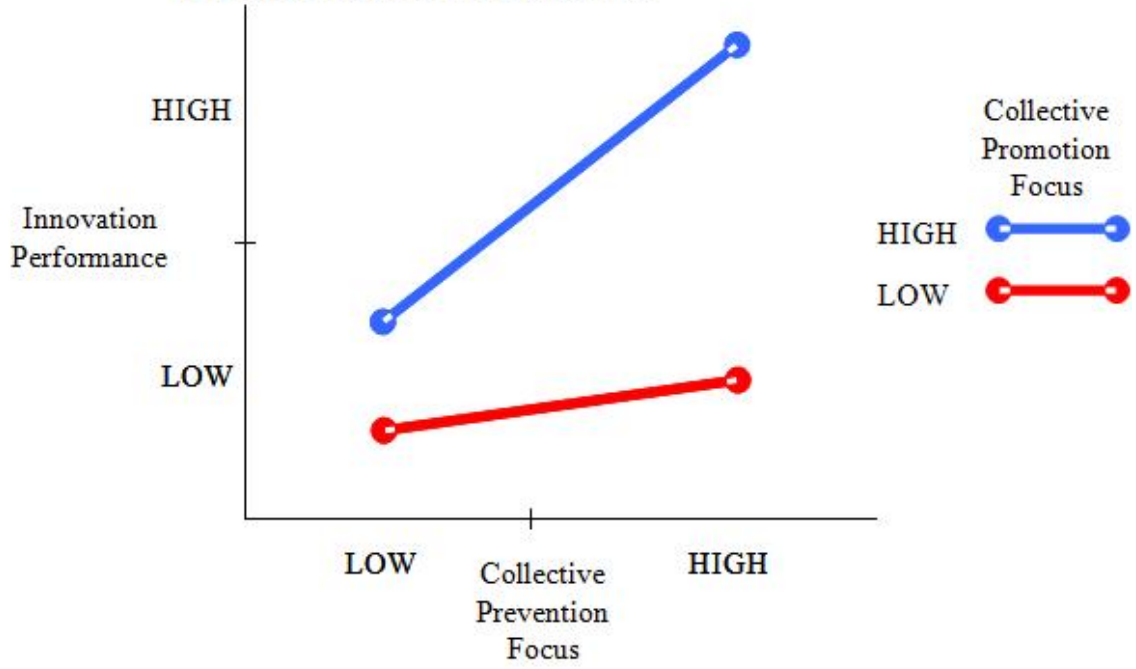
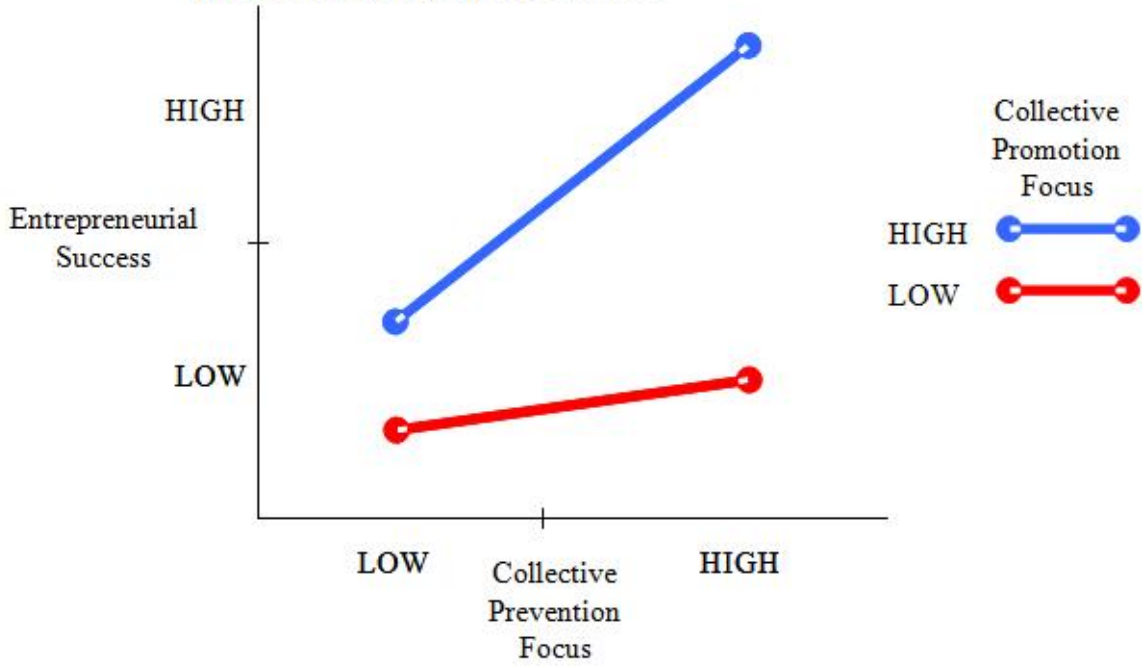


Figure 3. Interaction of Collective Regulatory Focus Facets in Prediction of Entrepreneurial Success



Collective Regulatory Focus as a Mediator

To further clarify the relationships outlined above, I propose an integrated process model (see Figure 1) that examines many of the hypothesized relationships presented above. Building on Kanfer's (1990, 1992) notion that self-regulatory processes carry the effects of distal individual differences and contextual factors to outcomes, and consistent with the notion that climates influence regulatory processes and that regulatory processes influence performance and outcomes (Wallace et al., 2006), the integrated model is organized such that regulatory work foci are proximal to performance and success than team climate for innovation. Consequently, collective regulatory focus is likely a mediator of the innovative climate and innovation performance and entrepreneurial

success relationships by regulating the cognitive and behavioral processes within a given group. Given the role regulatory focus plays in the formation of behaviors, it should fully mediate the distal-outcome relationship.

In sum, team climate for innovation is expected to predict group regulatory foci that, in turn, predict innovation performance and entrepreneurial success. The same pattern of relationships outlined in hypotheses 1-9 is also expected in the broader integrative model. Thus, the model places group prevention and promotion work foci as key mediators between the more distal climate for innovation and innovation performance and entrepreneurial success.

H11: Collective prevention focus and promotion focus in teams fully mediates the effects of team climate for innovation on (11a) innovation performance and (11b) entrepreneurial success.

CHAPTER 4

METHODS

Participants

Three state-funded, non-profit organizations located in the central and western United States agreed to participate in the current research in exchange for summary information from this study. The stated goal of these organizations is to encourage and enable the development of an entrepreneurial culture in their respective states. One collaborative endeavor was a business plan competition, which is the source for the sample in this study.

Substantial prizes and possible venture funding acted as an enticement to participate in the business plan competition. Self-organized or advisor organized teams participated in the competition by identifying possible business opportunities, developing a business model and planning a business, which were presented to a series of judges. Each state organization rewarded the winning team in the state with a substantial cash prize. In the typical year, at least one of the participating teams elicits venture capital to explore their business opportunity further. Thus, even beyond the considerable prize money associated with the contest, there was real financial incentive, in the form of venture capital, to apply effort to the business plan competition. The business concept did not have to be of their own devising (i.e., they may use other sources for their business ideas, such as university intellectual property departments), but each team identified, developed, and presented the business concept on their own.

In total, 170 individuals representing 67 teams responded to at least one survey solicitation. After reducing the overall subject pool to those surveys with complete data and teams with responses from more than one team member, the sample consisted of 105 individuals (57.1% male, 42.9% female) spread across forty business plan teams. The teams had between two and five members with an average team size of 2.6 individuals. The average age of the sample was 24.1 years (SD=4.1) and 19% of the participants had previous experience in starting a business. The sample consisted of 9.5% accounting majors, 17.1% entrepreneurship majors, 12.4% finance majors, 18.1% management majors, 11.4% marketing majors, 8.6% engineering majors, and the remaining 22.9% were in other academic programs.

Design & Procedure

This study had three collection periods. After allowing time for shared perceptions to develop within teams, the first data collection, including innovation climate and demographic information, was collected. Gathered a month later, the second data collection consisted of measuring collective regulatory focus within the teams. Two weeks later, the final data collection period introduced two independent raters of performance at the group level. As part of the competition, each team had an advisor at their institution that was responsible for providing guidance and support. This advisor, typically an entrepreneurship educator familiar with the entrepreneurial process, completed a survey measuring team innovation performance. In addition to the advisor report, the organization managing the competition enlisted the assistance of venture

capitalists and angel investors to evaluate the business plans using a common scoring system.

Measures

Team Climate for Innovation

The Team Climate Inventory (Anderson et al., 1998), representing the shared perceptions of team members of the innovativeness of their teams, measures the four facets of team climate for innovation: participative safety, task orientation, support for innovation and vision. However, this version of the scale is 34 items long, which unnecessarily lengthened the survey. Instead, a shortened version of this scale was used, consisting of 4 items associated with vision, 4 items with participative safety, 3 items with support for innovation, and 3 items with task orientation. Kivimaki and Elovainio (1999) validated the shortened version of the scale (TCI-S) which was found to substantially represent team innovation. The TCI-S uses a 7-point Likert format (1=to a very little extent; 7=to a very great extent).

Collective Regulatory Focus

The Regulatory Focus at Work Scale (RWS: Wallace et al., 2006; Wallace, Johnson, & Frazier, 2009) was adapted for this study to measure the regulatory focus shared by the team. A referent shift was achieved by changing the referent in the items to refer to the team rather than the individual. The RWS consists of 12-items designed to tap specific self-regulatory behaviors in a work context. Using a 5-point Likert scale (1=Never; 5=Constantly), previous research provides good psychometric validation evidence.

Team Innovation Performance

Each advisor rated their teams using a measure of innovative behavior, based on a scale developed by Scott and Bruce (1994), to provide an index of innovation performance. Reponses were made using a 5-point Likert scale, anchored by “not at all” to “to an exceptional degree”.

Team Entrepreneurial Success

Ratings of entrepreneurial success result from the overall ranking for each business plan as determined by judges in the business plan competition. Drawn from venture capitalists and angel investors in each region, these judges volunteered to participate in the competition by applying the experience and knowledge gained through investing in new ventures to evaluate the viability of each business plan. In order to ensure consistent application of judging criteria across teams, the organizations created a common score sheet with points assigned for accomplishments in the creation of the business plan (See Appendix A). Three judges read the business plans for each team and then scored them based on the categories outlined on the score sheet. The state organizations tabulated these scores to generate a ranking among all participating teams within their state. The team with the highest overall score in the competition ranked first, the second highest ranked second, and so forth. Once the competition was complete, administrators of the business plan competition at the state organizations forwarded the final ranking of the business plan teams. The organizations only reported the final rankings for use in this study rather than the full set of scores for each plan, thereby limiting the ability to assess inter-rater reliability among the judges. For the purpose of this study, these rankings were reverse scored in order to account for the fact that first place (1) was better than fifth place (5).

Analysis

Psychometrics

Evaluation of psychometrics of all measures is the initial stage of the analysis process to ensure acceptable internal consistencies of the measures as well as the expected factor structures. Confirmatory factor analysis using LISREL 8.72 appraised the factor structure.

Aggregation Issues

In order to establish the validity of aggregate variables from the individual level to the group level, there must be acceptable levels of within group homogeneity and between group heterogeneity and the group itself must be a occur naturally (Bliese, 2000). Within group homogeneity requires that individual responses on a measure agree and are reliable to authenticate the group as a cohesive unit. $Rwg_{(j)}$, which compares the variance associated with a particular variable within a team to the expected variance within that team, assesses the agreement within a group (James, Demaree, & Wolf, 1984). The rule of thumb cutoff at which within group agreement is generally accepted is a $rwg_{(j)}$ greater than or equal to 0.70 (Lance, Butts, & Michels, 2006). Reliability, the second aspect of establishing within group homogeneity, is the consistency of ratings within the group. Intraclass correlation coefficients (ICC) offer an indication into the reliability of group level variable. ICC(1) represents the amount of variance attributable to membership in a group or, as James (1982) proposed, the interrater reliability of the group. ICC(2) represents the reliability of group means (Bliese,2000). An ICC(2) value greater than or equal to 0.70 allows the assumption that group means are reliable (Bliese,2000).

The second condition which must be satisfied for aggregation to be warranted is variance between groups. This condition is satisfied using an ANOVA to identify the presence of statistical differences between groups. A significant result of the ANOVA indicates that there is adequate between group variance to establish heterogeneity.

Once between group heterogeneity and within group homogeneity is established, the final step in the validation of variable aggregation is determining whether the group is naturally occurring or a statistical artifact (Bliese, 2000). It is possible to create artificial groups, which have the desired group characteristics using statistical techniques such as cluster analysis, so this final step is intended to ensure that the groups in the study are the result of natural action rather than analytical action.

Hypothesis Testing

The final part of the analysis is the appraisal of hypotheses using multivariate regression. Initially, I suggested that I would use the method outlined in Shrout and Bolger (2002) to assess model relationships, however more sophisticated methods for the assessment have been developed which allow for the simultaneous estimation of multiple mediators in a complex model. Although the methodology suggested by Shrout and Bolger is sufficient in simple mediation models, Edwards and Lambert (2007) and others (cf. Preacher and Hayes, 2008) suggest that, a model with multiple mediators may be more accurately estimated through the simultaneous inclusion of all variables in a single model for in the analysis.

Simultaneous estimation has three advantages over the use of simple mediation analysis in a multiple mediator equation. First, by testing all mediators at the same time, a better estimate of the total indirect effect of X on Y is possible. In a simple mediation

approach, the indirect effect can be estimated through a single mediator which precludes an estimate of the overall X-Y relationship. The second advantage extends this thought by suggesting that by including both mediators, one may be able to to determine the effect of each mediator in the whole model. Inclusion of both mediators removes an omitted variable which may impact the relationship of each mediator on the dependent variable. The third advantage is that in simple mediation, one can only identify the influence of a single mediator at a time, which does not allow for the examination of interactions between the mediators such as suppression effects. Simultaneous estimation can help illuminate when such effects are taking place.

Using a moderated path analysis framework, I examined the main effects, indirect and interaction effects in the theoretical model. This first step in moderated path analysis is the estimation of OLS regression coefficients associated with the hypotheses. Before engaging in this analysis, all predictors were mean centered (Aiken and West, 1991). The complete theoretical model, represented by equation 4.1, includes entrepreneurial success (ES) as the dependent variable with team climate for innovation (TCI), prevention regulatory focus (PRE), promotion regulatory focus (PRO), and team innovation performance (TIP) as predictors.

4.1 Full theoretical model

$$ES=a_0+a_1TCI+a_2PRO+a_3PRE+a_4(PRO)(PRE)+a_5TIP+e_a$$

Moderated path analysis uses regression equations to represent paths and interactions within the model through the integration and reduction of equations for the direct, indirect, and total effects. Reduced form equations stem from the incorporation of

regression equations for the mediator variables into Equation 4.1. Thus, in addition to estimating the complete theoretical model (Eq. 4.1), I estimate the following equations:

4.2 Team innovation performance model

$$TIP=b_0+b_1TCI+b_2PRO+b_3PRE+b_4(PRO)(PRE)+e_b$$

4.3 Promotion regulatory focus model

$$PRO=c_0+c_1TCI+e_c$$

4.4 Prevention regulatory focus model

$$PRE=d_0+d_1TCI+e_d$$

Finally, in order to test the interactions and indirect effects in the model, equations for each modeled relationship (equations 4.1-4.4) were integrated and reduced. This process occurs as an extension of the moderated causal steps approach proposed by Baron and Kenny (1986), however rather than comparing the coefficients of the causal steps, these steps are integrated into a single reduced equation. This reduced equation is then rearranged to produce an equation from which simple slopes of the interaction can be calculated. Using the systematic integration process proposed by Edwards and Lambert (2007), the integration of the final reduced equation is as follows.

Through the implementation steps of the moderated path analysis, I will also analyze the discrete model relationships associated with the hypotheses. The first step is to determine the reduced equation for team innovation performance because there are hypotheses associated with this equation but also because this equation is instrumental in the reduced entrepreneurial success equation. The equations for promotion regulatory

focus (Eq. 4.3) and prevention regulatory focus (Eq. 4.4) substitute into the equation for team innovation performance (Eq. 4.2) resulting in an integrated version of the team innovation performance equation (Eq. 4.5.4). Error terms were removed for clarity.

4.2 Team innovation performance model

$$TIP=b_0+b_1TCI+b_2PRO+b_3PRE+b_4(PRO)(PRE)+e_b$$

4.5.1

$$TIP=b_0+b_1\ TCI+b_2(c_0+c_1TCI)+b_3(d_0+d_1TCI)+b_4(c_0+c_1\ TCI)(d_0+d_1\ TCI)$$

4.5.2

$$TIP=b_0+b_1TCI+b_2c_0+b_2c_1TCI+b_3d_0+b_3d_1TCI+b_4c_0d_0+b_4c_0d_1TCI+b_4c_1TCI$$

$$d_0+b_4c_1d_1TCI^2$$

4.5.3

$$TIP=b_0+b_2c_0+b_3d_0+b_4c_0d_0+b_4c_0d_1\ TCI+b_4c_1d_0\ TCI+b_1\ TCI+b_2c_1\ TCI+b_3d_1\ TCI+b_4c_1d_1TCI^2$$

4.5.4 Integrated and reduced equation for Team Innovation Performance

$$TIP=[b_0+c_0(b_2+b_4d_1\ TCI)+d_0(b_3+b_4c_1TCI)+b_4c_0d_0]+[b_1+b_2c_1+b_3d_1]TCI+b_4c_1d_1TCI^2$$

The next step in the estimation of the full theoretical model is to substitute the integrated equation for team innovation performance (Eq. 4.5.4), along with the equations for regulatory focus (Eq. 4.3 and Eq. 4.4) into the equation for entrepreneurial success (Eq. 4.1).

4.1 Full theoretical model

$$ES=a_0+a_1TCI+a_2PRO+a_3PRE+a_4(PRO)(PRE)+a_5TIP$$

4.6.1

$$ES=a_0+a_1TCI+a_2(c_0+c_1TCI)+a_3(d_0+d_1TCI)+a_4(c_0+c_1TCI)(d_0+d_1TCI)+a_5(b_0+b_1TCI+b_2(c_0+c_1TCI)+b_3(d_0+d_1TCI)+b_4(c_0+c_1TCI)(d_0+d_1TCI))$$

4.6.2

$$ES=a_0+a_1\ TCI+a_2c_0+a_2c_1\ TCI+a_3d_0+a_3d_1\ TCI+a_4c_0d_0+a_4c_0d_1\ TCI+a_4c_1\ d_0\ TCI+a_4c_1d_1\ TCI^2+a_5b_0+a_5b_1TCI+a_5b_2c_0+a_5b_2c_1\ TCI+a_5b_3d_0+a_5b_3d_1\ TCI+a_5b_4c_0d_0+a_5b_4c_0d_1\ TCI+a_5b_4c_1\ d_0\ TCI+a_5b_4c_1d_1\ TCI^2$$

4.6.3 Integrated and reduced equation for the full theoretical model

$$ES = [a_0 + a_2c_0 + a_3d_0 + a_4c_0d_0 + a_4c_0d_1\ TCI + a_4c_1\ d_0\ TCI + a_5b_0 + a_5b_2c_0 + a_5b_3d_0 + a_5b_4c_0d_0 + a_5b_4c_0d_1\ TCI + a_5b_4c_1\ d_0\ TCI] + [a_1 + a_2c_1 + a_3d_1 + a_5b_1 + a_5b_2c_1 + a_5b_3d_1]TCI + [a_4c_1d_1 + a_5b_4c_1d_1]\ TCI^2$$

Confirmation or disconfirmation of study hypotheses will be established using the preceding equations and the appraisal of relevant products of coefficients. Thus, Hypothesis 1 predicts that: a) team innovation performance relates positively with entrepreneurial success, b) team innovation performance partially mediates the relationship between regulatory focus and entrepreneurial success, and c) team innovation performance partially mediates the relationship between team climate for innovation and entrepreneurial success. Simple main effects are assessed using the fundamental regression equations (Eq. 4.1-Eq. 4.4), while the interaction and the indirect effects use the integrated equations depending on the outcome of interest (Eq. 4.5.4 for Team Innovation Performance and Eq. 4.6.3 for the full theoretical model). Table 1 summarizes the hypotheses and coefficients used in testing.

Using the full regression for entrepreneurial success (Eq. 4.6.3), Hypothesis 1a will be supported if a_1 is positive and significant. Hypothesis 1b gains support if a_5b_2 is positive and significant or if a_5b_3 is negative and significant. Finally, Hypothesis 1c is supported if the indirect path from team climate for innovation through team innovation performance, a_5b_1, is significant.

Table 1. Summary of equations and coefficients

Hypothesis	Source Equation	Relevent Coefficient(s)	Expected sign
H1a	4.6.3	a_1	+
H1b	4.6.3	$a_5 b_2$ or a5b3	+
H1c	4.6.3	$a_5 b_1$	+
H2	4.5.4	b_1	+
H3	4.6.3	a_1	+
H4	4.3	c_1	+
H5	4.4	d_1	-
H6	4.2	b_2	+
H7	4.4	a_2	+
H8	4.2	b_3	-
H9	4.4	a_3	-
H10a	4.5.4	$b_4 c_1 d_1$	+
H10b	4.6.3	$(a_4 c_1 d_1 + a_5 b_4 c_1 d_1)$	+
H11a	4.2; 4.5.4	b_1 ; $b_2 c_1$ or $b_3 d_1$	+
H11b	4.1; 4.6.3	a_1 ; $a_2 c_1$ or $a_3 d_1$	+

Simple Equations

4.1 $$ES=a_0+a_1 TCI+a_2 PRO+a_3 PRE+a_4 (PRO)(PRE)+a_5 TIP+e_a$$

4.2 $$TIP=b0+b1TCI+b2PRO+b3PRE+b4(PRO)(PRE)+eb$$

4.3 $$PRO=c_0+c_1 TCI+e_c$$

4.4 $$PRO=c_0+c_1 TCI+e_c$$

Integrated Equations

4.5.4 $$TIP=[b_0+c_0(b_2+b_4 d_1\ TCI)+d_0(b_3+b_4 c_1 TCI)+b_4 c_0 d_0]+[b_1+b_2 c_1+b_3 d_1]TCI+b_4 c_1 d_1 TCI^2$$

4.6.3 $$ES=[a_0+a_2 c_0+a_3 d_0+a_4 c_0 d_0+a_4 c_0 d_1\ TCI+a_4 c_1\ d_0\ TCI+a_5 b_0+a_5 b_2 c_0+a_5 b_3 d_0+a_5 b_4 c_0 d_0+a_5 b_4 c_0 d_1\ TCI+a_5 b_4 c_1\ d_0\ TCI]+[a_1+a_2 c_1+a_3 d_1+a_5 b_1+a_5 b_2 c_1+a_5 b_3 d_1]TCI+[a_4 c_1 d_1+a_5 b_4 c_1 d_1]\ TCI^2$$

ES: entrepreneurial success; TCI: team climate for innovation; PRE: collective prevention regulatory focus; PRO: collective promotion regulatory focus; TIP: team innovation performance

From the integrated team innovation performance equation (Eq. 4.5.4), a relationship from team climate for innovation to team innovation performance, as predicted by Hypothesis 2, will be supported if b_1 is positive and significant. Hypothesis

3 predicts a positive relationship between team climate for innovation and entrepreneurial success, represented in the integrated equation (Eq. 4.6.3) as a positive and significant a_1. In Hypothesis 4, a positive relationship between team climate for innovation and collective promotion regulatory focus, which is depicted by c_1 in the simple regression for promotion regulatory focus (Eq. 4.3) while Hypothesis 5 states that team climate for innovation and collective prevention focus will have a negative relationship, which is portrayed in the corresponding simple regression (Eq. 4.4) by d_1.

From the equation for team innovation performance (Eq. 4.2), Hypotheses 6 will be supported if collective promotion focus relates positively to team innovation performance as represented by b_2, while Hypotheses 8 will be supported if collective prevention regulatory focus relates to team innovation performance, as represented by a significant negative b_3. Similarly, Hypothesis 7 predicts a positive relationship between collective promotion regulatory focus and entrepreneurial success as represented by a_2 in the simple equation for entrepreneurial success (Eq. 4.4). The final direct predictor in this equation for entrepreneurial success is collective prevention regulatory focus, which is theorized in Hypothesis 9 to have a negative relationship as reflected by a_3.

Hypothesis 10 states that collective promotion and collective prevention regulatory focus will interact such that when both are at high levels they will enhance each other's relationship with team innovation performance. Thus, hypothesis 10a will be supported if $b_4c_1d_1$ in the integrated team innovation performance model (Eq. 4.5.4) is positive and significant. Hypothesis 10b will be supported if $(a_4c_1d_1 + a_5b_4c_1d_1)$ in the full, integrated theoretical model (Eq. 4.6.3) is positive and significant. Finally, Hypothesis 11a, which states that the regulatory foci will fully mediate the effects of

team climate for innovation on team innovation performance will be supported if two conditions are satisfied: 1) team climate for innovation (b_1) becomes non-significant in the simple team innovation performance equation (Eq. 4.2) once the regulatory focus variables are added and 2) either b_2c_1 *or* b_3d_1 or both are found to be significant in the integrated team innovation performance equation (Eq. 4.5.4). Hypothesis 11b, which states that the regulatory foci will fully mediate the effects of team climate for innovation on entrepreneurial success follows a similar pattern with support being derived from two conditions: 1) team climate for innovation, a_1, becomes non-significant in the simple entrepreneurial success equation (Eq. 4.1) once the regulatory focus variables are added and 2) either a_2c_1 or a_3d_1 or both are found to be significant in the integrated entrepreneurial success equation (Eq. 4.6.3).

The relevant equations were estimated using the regression module in SPSS (SPSS, Inc., 2006). Because moderated path analysis uses products of coefficients to estimate interactions, indirect and total effects, the constrained non-linear regression (CNLR) module in SPSS was used to estimate coefficients from 1,000 bootstrap samples. A significant limitation of the use of products of coefficients is that the resulting regression estimate is non-normal, which violates the assumption of normality in regression. Thus, the use of a bootstrap sample lightens the reliance on this assumption by generating a normal distribution of the coefficients through repeated sampling of the original sample. I used the default loss function of the CNLR module to generate OLS coefficient estimates. From the bootstrap sample, bias corrected confidence intervals were generated for each variable of interest using an Excel spreadsheet (Edwards & Lambert, 2007). Thus, simple main effects were tested for significance using the t-test

generated in the SPSS regressions, while indirect and total effects were tested for significance using bias corrected confidence intervals produced as a result of the implementation of the CNLR module's generation of a bootstrap sample.

In summation, Chapter 4 discussed the plans for gathering participants, study design, measurement selection and validation, data collection and data analysis to test the theoretical model. Chapter 5 presents the results of these plans.

CHAPTER 5

RESULTS

In this chapter, the results of this study are presented in three segments. The first segment of the chapter contains evidence for the psychometric validity of the measures used in the study. Such evidence consists of the assessment of the internal consistency of the measures as well as the confirmation of the factor structure via CFA. The second segment appraises the aggregation of the individual level measure to the climate construct at the group level through within group homogeneity, between group heterogeneity and the reliability of the measures (Bliese, 2000). Finally, the hypotheses were tested with multivariate regression using bootstrapping techniques. Descriptive data and zero-order correlations can be found in Table 2.

Although the correlations among variables are not necessarily tests of the proposed model, there are some interesting patterns in these results. As predicted, team innovation positively relates to collective promotion focus, however it also positively relates to collective prevention focus, which is contrary to my hypotheses. The two facets of collective regulatory focus are highly correlated, which has implications for measurement as discussed below, and both are positively correlated with innovation performance. Of the two facets though, only prevention has a significant relationships to entrepreneurial success. The positive relationships of prevention focus to innovation performance and entrepreneurial success are both counter to the predicted relationships. Team innovation performance had the highest correlation to entrepreneurial success

among all of the model variables. Of the control variables, the only relationship with a noteworthy correlation is that of gender with team climate for innovation. This seems to indicate that male dominated groups tended to view their entrepreneurial teams as possessing a high climate for innovation; however this perception did not carry over to actual performance as indicated by the lack of a significant correlation with either of the outcome variables.

Psychometrics

Team Climate Inventory. Kivimaki and Elovainio (1999) published a short version of the Team Climate Inventory (Anderson and West, 1998) which reduces the number of questions from thirty four to fourteen. This version of the Team Climate Inventory limits the burden on the subject of answering an excessive number of survey questions, so it was used in this study. The full Team Climate Inventory, with the items included in the short version marked by an asterisk, is in the Appendix A. This short version of the Team Climate Inventory (TCI-S) produced an acceptable level of internal consistency (α=.95). Confirmatory factor analysis was conducted using LISREL 8.72 to ensure an appropriate factor structure for TCI-s. A model with all collapsed into their respective four factors to act as an indicator for the higher order TCI construct was compared against one in which the items loaded onto a four factor model representing the facets of the Team Climate Inventory. One item, which was highly collinear with the rest of the items in the scale, had to be removed from analysis in order to achieve identification of the model. Results of the comparison reveal that the higher order factor model fit the model well χ^2_2=0.72, CFI=1.0, SRMR=0.006, RMSEA=0.00. The results

Table 2.

Descriptives and correlations among variables

Variables	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Team Innovation Climate	3.96	0.62	0.95							
2. Collective Prevention Focus	4.13	0.49	0.58**	0.80						
3. Collective Promotion Focus	4.07	0.51	0.67**	0.80**	0.74					
4. Team Innovation Performance	3.77	0.70	0.19	0.41**	0.44**	0.85				
5. Success	5.67	3.48	0.15	0.33*	0.25	0.37*	-			
6. Age	24.09	3.38	-0.15	0.04	0.00	0.00	0.10	-		
7. Gender	1.42	0.33	-0.32*	-0.02	0.01	0.02	-0.25	0.12	-	
8. Previous Entrepreneur	1.80	0.30	-0.10	-0.20	-0.10	-0.186	-0.09	-0.25	0.09	-

*p<.05; **p<.01 α reliabilities shown on the diagonal

for the four factor model fit the data as well (χ^2_{59}=114.67, CFI=0.98, SRMR=0.052, RMSEA=0.095). Given the chi-square difference between models ($\Delta\chi^2_{57}$=113.95, $p<0.01$), the higher order factor model fits the data better. As the four-factor model consists of the first order factors that combine to create the higher order team climate for innovation factor and there is a general desire for theoretical models to be parsimonious, I retain the single factor measure for use in the theoretical model. Additionally, all item loadings were found to be significant.

Regulatory Focus The Regulatory Focus at Work Scale (Wallace & Chen, 2006; Wallace, Johnson, & Frazier, 2009) is theoretically composed of two factors, promotion regulatory focus and prevention regulatory focus. The RFWS resulted in an acceptable level of internal consistency for each facet (promotion α=.74; prevention α=.80). The factor structure of regulatory focus was tested using confirmatory factor analysis in LISREL 8.72 to evaluate collective regulatory focus in which the items load on their related regulatory focus factor. Prior to confirmation of the factor structure however, one item from each factor was removed from the measure. Due to a high level of collinearity between these items and the rest of the measure items, the measurement model was empirically unidentifiable. After these items were removed, the confirmatory factor analysis of the two factor model of regulatory focus gives marginal fit with regard to recommendations by Hu and Bentler (1999) (χ^2_{35}=90.47, CFI=0.92, SRMR=0.080, RMSEA=0.12). Though the RMSEA does not attain the recommended cutoff of .06, Hu and Bentler (1999) noted that RMSEA is susceptible to inflation in small samples. With a sample size of 105 subjects and other fit indices that are within acceptable bounds, this situation seems to be such a case. These results indicate that fit is acceptable when

viewed in conjunction with the extensive theoretical justification and past empirical and psychometric research which supports a two factor model (Wallace et al., 2005; Wallace & Chen, 2006; Wallace et al., 2009). All item loadings were found to be significant.

Performance. Two measures of performance were collected. The six item innovative behavior measure, adapted for use on team, produced an acceptable internal consistency level (α=.85). To further examine the measure, I conducted an exploratory factor analysis using principal axis factoring and varimax rotation. Using an Eigenvalue greater than 1.0 and the scree plot as criteria, the results of the EFA indicate a two factor solution for the measure of team innovation performance (see Table 2); however the factor matrix seems to be muddled across the two factors. Again these ambiguous results may be a reflection of the small sample size, which in this case is even more restricted than above due to the limited number of teams that participated in the competition (N=40). For exploratory factor analysis, depending on the nature of the subject, the sample size is recommended to have at least 100 subjects to provide an accurate representation of population parameter estimates (Fabrigar, Wegener, MacCallum, and Strahan, 1999). Because the EFA results indicate that one factor looks to be dominant in the factor matrix, I used the team innovation performance measure in hypothesis testing.

Entrepreneurial success was defined as the participating team's overall ranking in each state competition. Lower rankings are considered to be superior to higher ranking for success (1st place, 2nd place, etc.). Because multiple ratings of entrepreneurial success were not available, reliability and model fit was not calculated.

Table 3.

Exploratory Factor Analysis of Team Innovation Performance

	Loadings	
	Factor 1	Factor 2
Item 1	0.54	0.49
Item 2	0.83	
Item 3	0.63	
Item 4	0.78	-0.42
Item 5	0.67	-0.47
Item 6	0.89	
Explained Variance	53.40%	12.80%

Loadings <0.40 removed for clarity

Assessment of Aggregation

In order to aggregate data at a higher level, there are three conditions which must be attained (Bliese, 2000). First, the team level construct must first be established by evaluating the within group homogeneity and second, it must be shown that there is between group heterogeneity. Finally, the group must naturally exist and not be a statistical artifact.

To satisfy the first condition, $r_{wg(j)}$ values for each composite variable were calculated using a normal distribution which resulted in a $r_{wg(j)}$ of 0.87 for team climate for innovation (range=0.76-0.99, SD=0.25), 0.86 for prevention regulatory focus (range=0.59-1.0, SD =0.26) and 0.84 for promotion regulatory focus (range=0.28-1.0, SD =0.25). Using a null distribution, resulting $r_{wg(j)}$s were 0.94 for team climate for innovation (range=0.74-1.00, SD=0.16), 0.93 for prevention regulatory focus (range=0.35-1.0, SD =0.12) and 0.94 for promotion regulatory focus (range=0.74-1.0, SD =0.06). Although there were a few groups which lacked within group agreement as

reflected by a $rwg_{(j)}$ value less that 0.70, the average $rwg_{(j)}$ across that entire sample suggests that on the whole, within group agreement is present.

To augment this assertion, I computed ICCs according to the method suggested by Bliese (2000) in which a one-way ANOVA was conducted using the following formulas (Eq. 4.7 and Eq. 4.8) with the group as the factor (Bartko, 1976):

Equation 4.7

$$ICC(1) = \frac{MSB - MSW}{MSB + (k+1) * MSW}$$

Equation 4.8

$$ICC(2) = \frac{\mathrm{MSB} - \mathrm{MSW}}{\mathrm{MSB}^2}$$

Using the climate variables as the DV and grouped by team, ICCs for team climate for innovation resulted in ICC(1)=0.43; ICC(2)=0.66; F=2.98, $p<0.05$. The facets of collective regulatory focus resulted in ICC(1)=0.37; ICC(2)=0.65; F=2.41, $p<0.05$ for a collective prevention regulatory focus and ICC(1)=0.41; ICC(2)=0.61; F=2.64, $p<0.05$ for a collective promotion regulatory focus. ICC (1) and the $r_{wg(j)}$ seem to establish as group homogeneity. Across the three constructs, roughly 40% of the individual variance is attributable to group membership as indicated by the ICC(1)s.

Between group heterogeneity is established by the significant F-test of the one-way ANOVA and ICC(2). Although ICC(2)s in this sample are below the rule of thumb cut off of 0.70, they are only marginally so. These low levels are also considered in light of the role that group size plays in the calculation of ICC(2), where Klein and Kozloski (2001, p225) describe an ICC(2) with a group size of 2 as “utterly unstable”. ICC(2) is ICC(1) corrected for group size using the Spearman Brown equation (James, 2009). In

this case, the average team in this study was composed of 2.6 individuals which lessens the impact of the ICC(2) in determining aggregation. Because the rest of the evidence for within group homogeneity and between group heterogeneity supports the identification of team climate for innovation and collective regulatory as group level constructs, aggregation of the individual responses to the group level seems warranted.

The final step in determining acceptable aggregation is the natural occurrence of these groups as opposed to them being a statistical artifact. As discussed above, the participating groups result from self-organization or advisor organization, thus they comply with this final requirement. Overall, these results support the aggregation of all team level variables into the composite constructs which are the items of interest in this study. As this is the case, I proceeded to the testing of my proposed hypotheses.

Hypothesis Testing

Although Table 1 provides interesting results with regard to the correlations of variables in the theoretical model, the need to examine complex interactions and indirect effects, multivariate regression must be used. Of the control variables, only gender has a significant correlation with any of the variables in the theoretical model, thus it is the only included control variable.

Simple Main Effects

Team Climate for Innovation as a predictor of Collective Regulatory Focus. Team climate for innovation forms the foundation of the theoretical model and serves as the basis for the development of a group level form of regulatory focus. This relationship was estimated using equations 4.3 (collective promotion regulatory focus) and 4.4 (collective

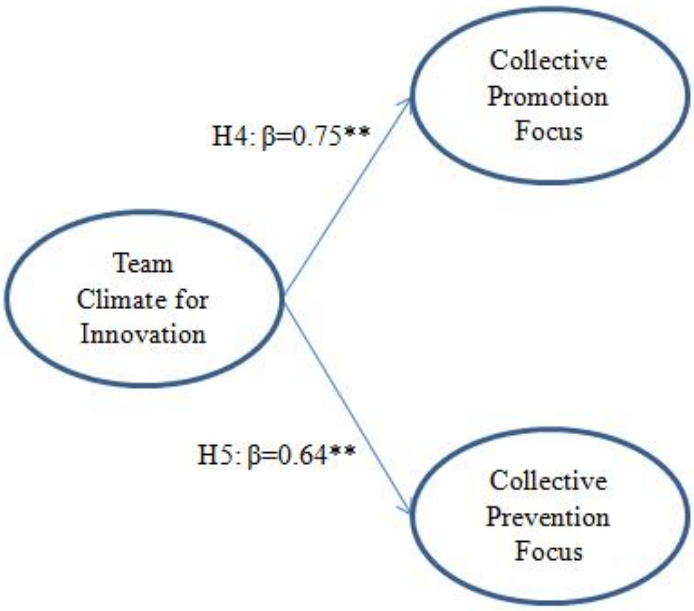
prevention regulatory focus). As shown in Table 3, results show a significant relationship between TCI and each of the facets of regulatory focus. However, only Hypothesis 4, in which TCI relates positively to a collective promotion focus, was actually supported (β=.75, $p < .01$). Hypothesis 5 predicted a negative relationship between TCI and collective prevention focus, but results indicate a significant and positive relationship (β=.64, $p < .01$). Table 4 summarizes these results, which are also shown in Figure 4.

Table 4.
Team Climate for Innovation as a predictor of Collective Regulatory Focus.

Variable	b	β	SE	t	p	R^2
Equation 4.3: Promotion						
Team Climate for Innovation	0.61*	0.75*	0.10	6.11	0.00	0.50
Gender	0.39*	0.25*	0.19	2.04	0.05	
Equation 4.4: Prevention						
Team Climate for Innovation	0.51*	0.64*	0.21	4.65	0.00	0.37
Gender	0.27	0.18	0.11	1.31	0.20	

* p<0.05

Figure 4. Simple Main Effects: Team Climate for Innovation and Collective Regulatory Focus.



*p<0.05, **p<0.01, Standardized Coefficients, n=40

Predictors of Team Innovation Performance

Team climate for innovation was theorized to positively predict team innovation performance (Hypothesis 2), as was collective promotion regulatory focus (Hypothesis 6). However, collective prevention regulatory focus was theorized to negatively predict team innovation performance (Hypothesis 8). Results of these hypothesized relationships are summarized in Table 5.

Table 5.
Predictors of Team Innovation Performance

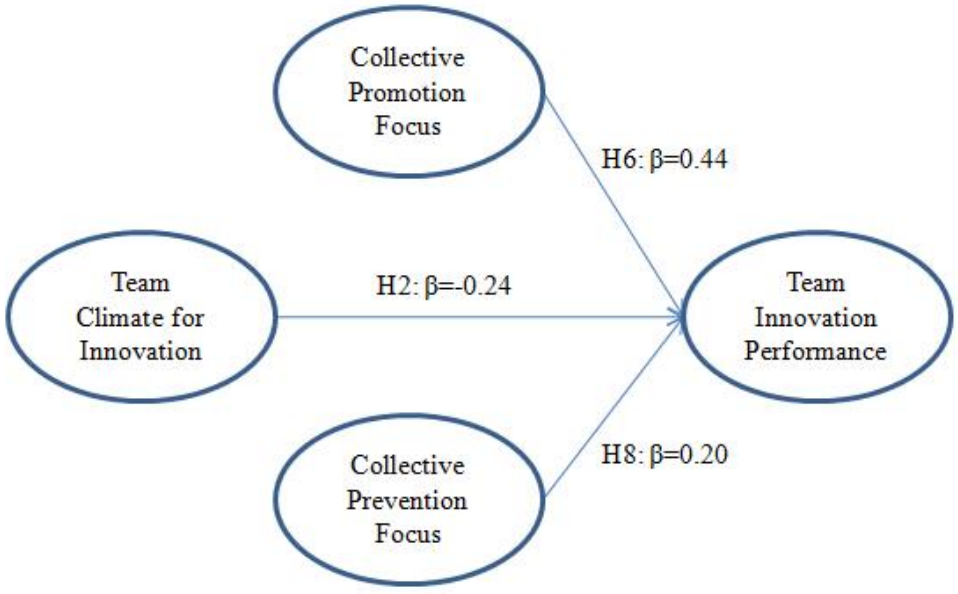
	b	β	t	R^2	ΔR^2	F
Step 1						
Gender	0.18	0.09	0.51			
Team Climate for Innovation	0.25	0.22	1.28	0.04		0.83
Step 2						
Gender	0.04	0.02	0.12			
Collective Prevention Focus (A)	0.25	0.18	0.71			
Collective Promotion Focus (B)	0.41	0.30	1.20	0.20	0.16	3.04*
Step 3						
Gender	-0.12	-0.06	-0.35			
Team Climate for Innovation	-0.27	-0.24	-1.05			
Collective Prevention Focus (A)	0.29	0.20	0.81			
Collective Promotion Focus (B)	0.60	0.44	1.56	0.23	0.19	2.56
Step 4						
Gender	-0.11	-0.06	-0.31			
Team Climate for Innovation	-0.28	-0.24	-1.09			
Collective Prevention Focus (A)	0.32	0.22	0.90			
Collective Promotion Focus (B)	0.39	0.29	0.90			
AxB	-0.36	-0.20	-1.01	0.25	0.02	2.26

* $p<0.05$

In step 1, the regression included the control variable, gender ($\beta=0.09$, $p > .05$), as well as team climate for innovation ($\beta=0.22$, $p > .05$). The next step in analyzing the

model was to test the regulatory focus and team innovation performance relationships. Although the model itself was significant, neither facet significantly predicted team innovation performance (Prevention: β=0.18, $p > .05$; Promotion: β=0.30, $p > .05$). Step 3 includes team climate for innovation in addition to the regulatory focus facets, which resulted in no significant relationships (TCI: β=-0.24, $p > .05$; Prevention: β=0.20, $p > .05$; Promotion: β=0.44, $p > .05$). Each of these was non-significant with team innovation performance leaving Hypothesis 2, Hypothesis 6 and Hypothesis 8 unsupported. Indirect effects and the moderating interaction were tested in later stages. Figure 5 shows a summary of these results. Step 4 estimates the full model, which was used in analysis of interactions, indirect and totals effects.

Figure 5. Summary of Simple Main Effects: Predictors of Team Innovation Performance



*p<0.05, **p<0.01 , Standardized Coefficients $R^2=0.23; F_{(5,34)}=2.56$, n=40

Predictors of Entrepreneurial Success

Team innovation performance was also theorized to be a mediating variable in the broader model of entrepreneurial success. Thus, a series of regressions were run with entrepreneurial success as the dependent variable on team climate for innovation, collective regulatory focus and team innovation performance. Team innovation performance was theorized to positively relate to entrepreneurial success (Hypothesis 1a), as was team climate for innovation (Hypothesis 3), and collective promotion regulatory focus (Hypothesis 7). As it did with team innovation performance though, collective prevention regulatory focus was predicted to have a significant negative relationship with entrepreneurial success (Hypothesis 9), with the facets of collective regulatory focus interacting such that which each is high, the overall success of the team is higher than if each or both is low. Results are found in Table 6.

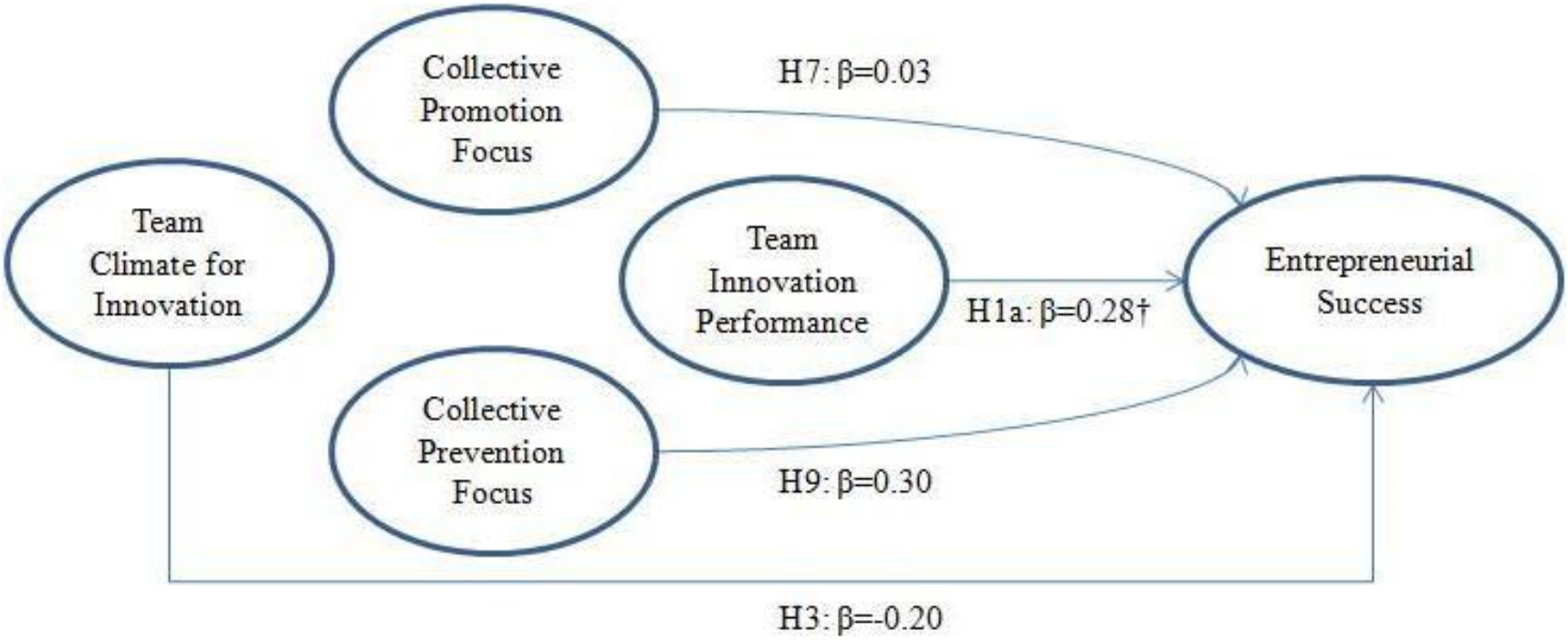
Again controlling for gender through, step 1 entailed regressing team innovation performance (TIP) on entrepreneurial success, which was found to be significant and positive (β=0.38, $p < .05$) as predicted in Hypothesis 1a. Step 2 adds the facets of regulatory focus to the regression on entrepreneurial success, which renders Hypothesis 7 (Promotion: β=-0.10, $p > .05$) and Hypothesis 9 (Prevention: β=0.27, $p > .05$) unsupported. Team climate for innovation is added to the model in step 3 resulting in a lack of support for Hypothesis 3 (TCI: β=-0.20, $p > .05$). Figure 6 summarizes this model of simple main effects. Step 4 estimates the full model, which serves as the basis for analysis of interactions, indirect and totals effects.

Table 6.
Predictors of Entrereneurial Success

	b	β	t	R^2	ΔR^2	F
Step 1						
Gender	-2.78	-0.26†	-1.77			
Team Innovation Performance	1.88*	0.38*	2.56	0.21		4.78*
Step 2						
Gender	-2.69	-0.25	0.10			
Team Innovation Performance	1.53	0.30	0.07			
Collective Prevention Focus (A)	1.96	0.27	0.28			
Collective Promotion Focus (B)	-0.66	-0.10	0.71	0.17	-0.04	2.43
Step 3						
Gender	-3.35	-0.31†	-1.91			
Team Innovation Performance	1.40	0.28†	1.66			
Team Climate for Innovation	-1.11	-0.20	1.20			
Collective Prevention Focus (A)	2.14	0.30	0.09			
Collective Promotion Focus (B)	0.19	0.03	-0.87	0.26	0.05	2.37
Step 4						
Gender	-3.33	-0.31†	-1.87			
Team Innovation Performance	1.33	0.26	1.53			
Team Climate for Innovation	-1.15	-0.20	1.24			
Collective Prevention Focus (A)	2.25	0.31	-0.14			
Collective Promotion Focus (B)	-0.30	-0.04	-0.90			
AxB	-0.94	-0.11	-0.51	0.26	0.00	1.98

* $p<0.05$, †$p<0.10$

Figure 6. Summary of Simple Main Effects: Predictors of Entrepreneurial Success



†p<0.10, R^2=0.26; $F_{(5,34)}$=2.37 , Standardized Coefficients , n=40

Indirect and Conditional Indirect Effects

The regressions conducted in the above section provide the foundation for analyzing the product of coefficients among the study variables using moderated path analysis. Findings above are summarized in Table 7.

Table 7.
Summary of Coefficient Estimates

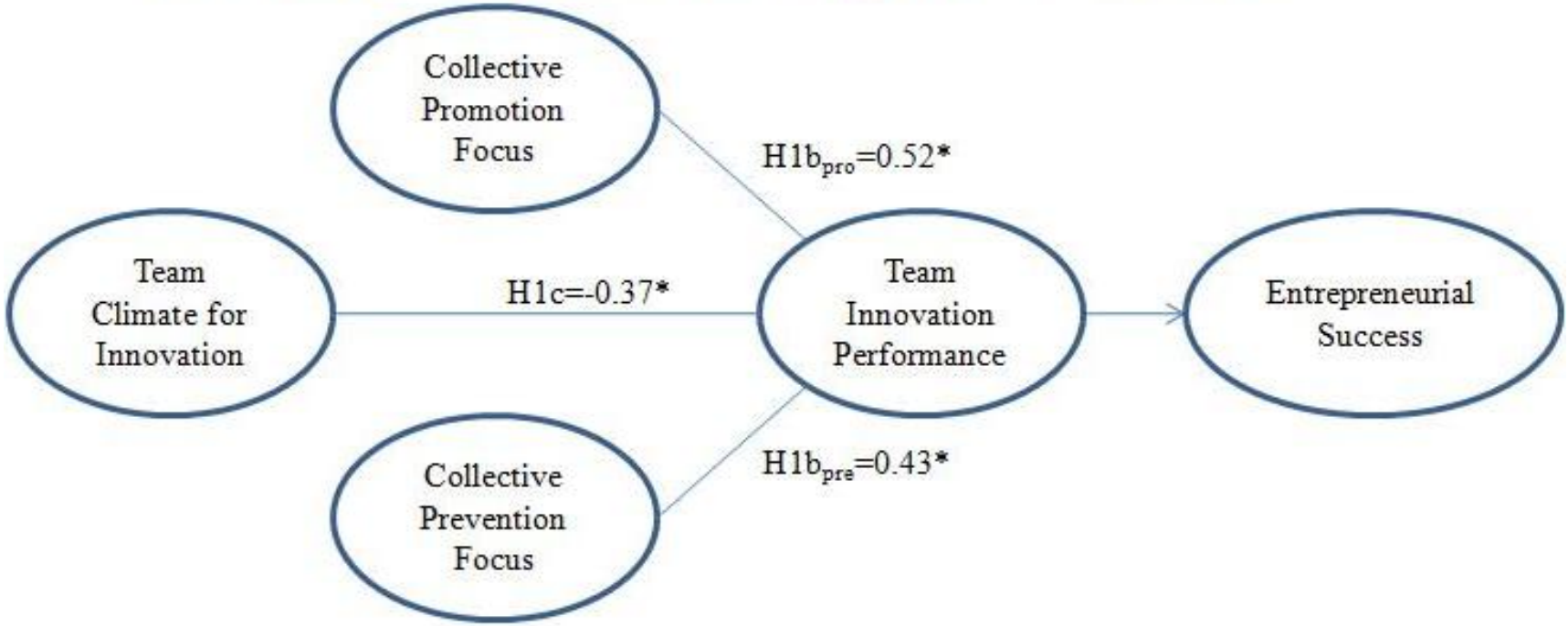
	b	β	t	sig.	R^2
Equation 4.1					0.26
a1 (TCI)	-1.15	-0.20	-0.08	0.94	
a2 (PRO)	-0.30	-0.04	-0.14	0.89	
a3 (PRE)	2.25	0.31	1.24	0.23	
a4 (PROPRE)	-0.94	-0.11	-0.55	0.59	
a5 (TIP)	1.33	0.26	1.53	0.14	
Equation 4.2					0.25
b1 (TCI)	-0.28	-0.24	-1.09	0.28	
b2 (PRO)	0.39	0.29	0.90	0.37	
b3 (PRE)	0.32	0.22	0.90	0.38	
b4 (PROPRE)	-0.36	-0.20	-1.01	0.32	
Equation 4.3					0.50
c1 (PRO)	0.61*	0.75*	6.11	0.00	
Equation 4.4					0.37
d1 (PRE)	0.51*	0.64*	4.65	0.00	

* $p<0.05$

The remaining untested aspects of Hypothesis 1 propose that team innovation performance will partially mediate the relationship between entrepreneurial success and both collective regulatory focus and team climate for innovation. Although neither facet of collective regulatory focus nor team climate for innovation had significant direct effects on entrepreneurial success, indirect effects may have been present. Results associated with hypothesis 1b indicate that team innovation performance mediates the

relationship between entrepreneurial success, collective promotion regulatory focus (indirect effect=0.52, CI=0.69-1.72) and collective prevention regulatory focus (indirect effect=0.43, CI=0.45-1.76). In addition, Hypothesis 1c is supported with a significant indirect effect of team climate for innovation through team innovation performance (indirect effect=-0.37, CI=-0.76-(-)0.70). Figure 7 summarizes the indirect effects through team innovation performance.

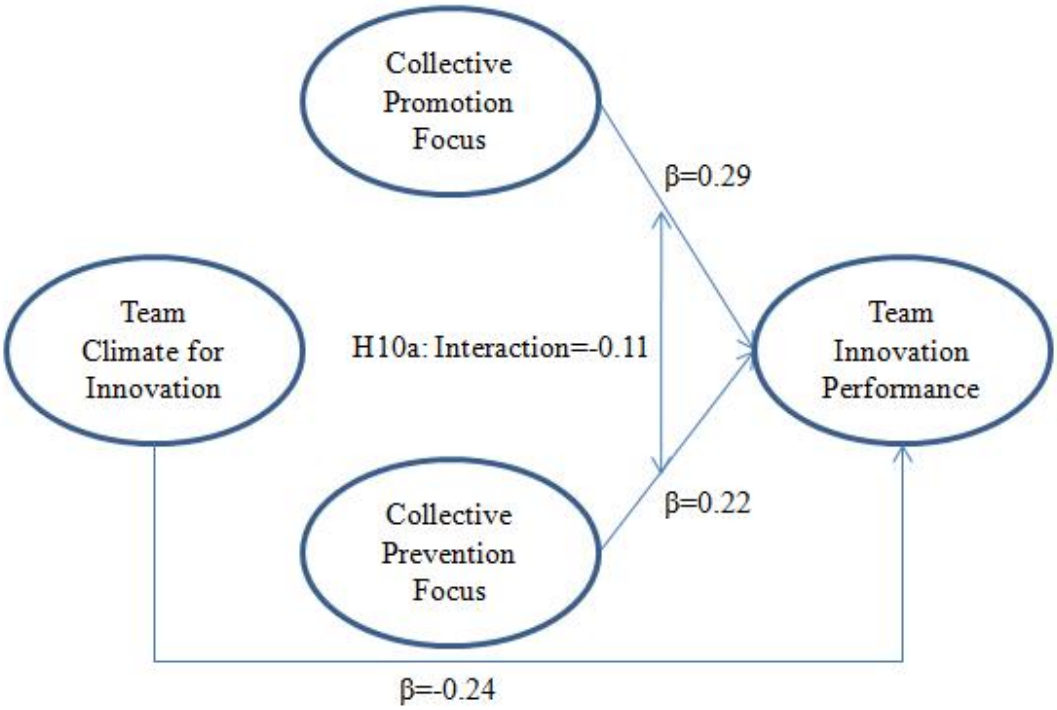
Figure 7. Summary of Indirect Effects: Team Innovation Performance as a Mediator



*p<0.05 , Standardized Coefficients , n=40

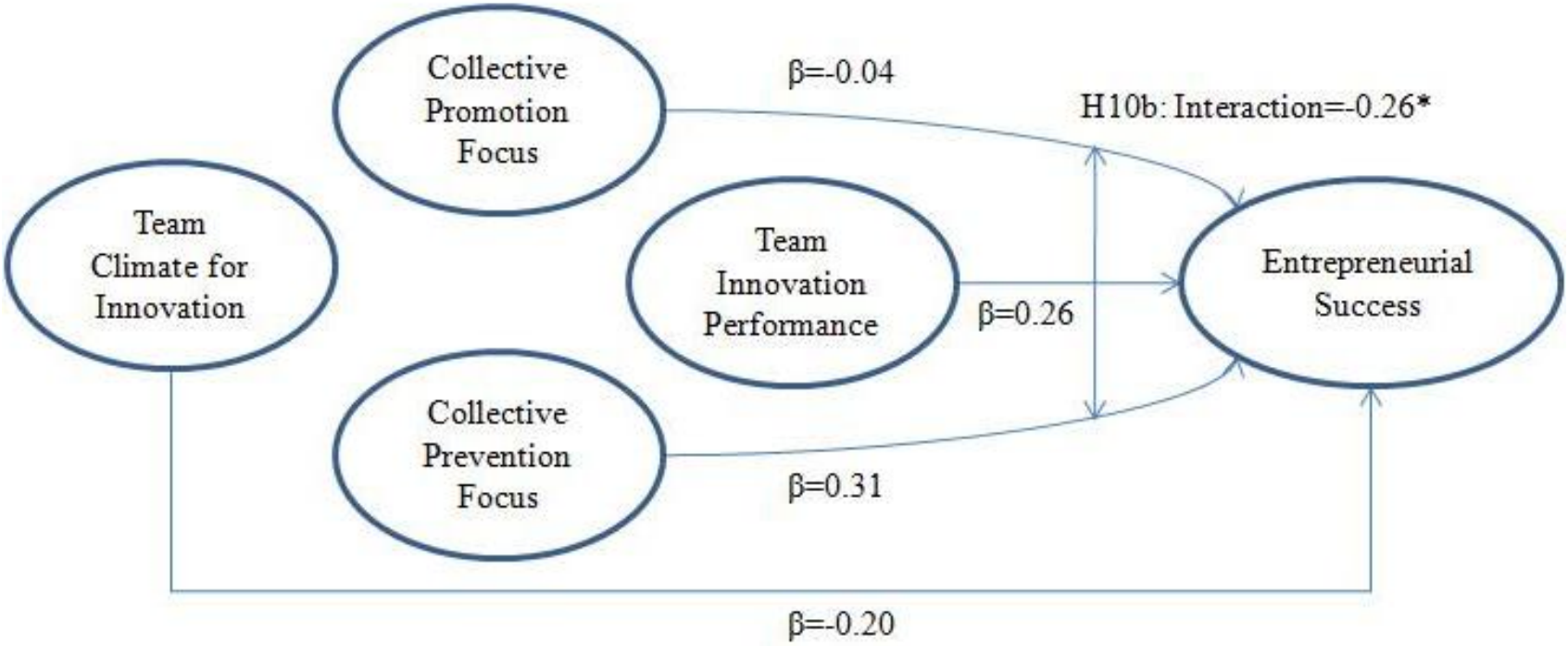
The interactions between the facets of collective regulatory focus as they relate to outcomes were theorized in Hypothesis 10. Specifically, Hypothesis 10a proposed that high level of each facet would lead to higher levels of team innovation performance, which was found to be unsupported (interaction effect=-0.11, CI=-0.31-0.02). Hypothesis 10b, which proposed a similar interaction with entrepreneurial success as an outcome, found no support despite a significant result. Contrary to my predictions, the interaction was significant but in a negative direction rather than positive (interaction effect=-0.26, CI=-0.68-(-)0.40). Figure 8 summarizes the effect of the interaction on team innovation performance, while Figure 9 does so for entrepreneurial success. The effect of these interactions can be seen in figures 10 and 11, which substitutes values one standard deviation from the mean for both collective prevention and collective promotion regulatory focus.

Figure 8. Summary of Interaction Effect: Predictors of Team Innovation Performance



Standardized Coefficients , n=40

Figure 9. Summary of Interaction Effect: Predictors of Entrepreneurial Success



*p<0.05 , Standardized Coefficients , n=40

Figure 10. Innovation Performance: Interaction of Collective Regulatory Focus Facets

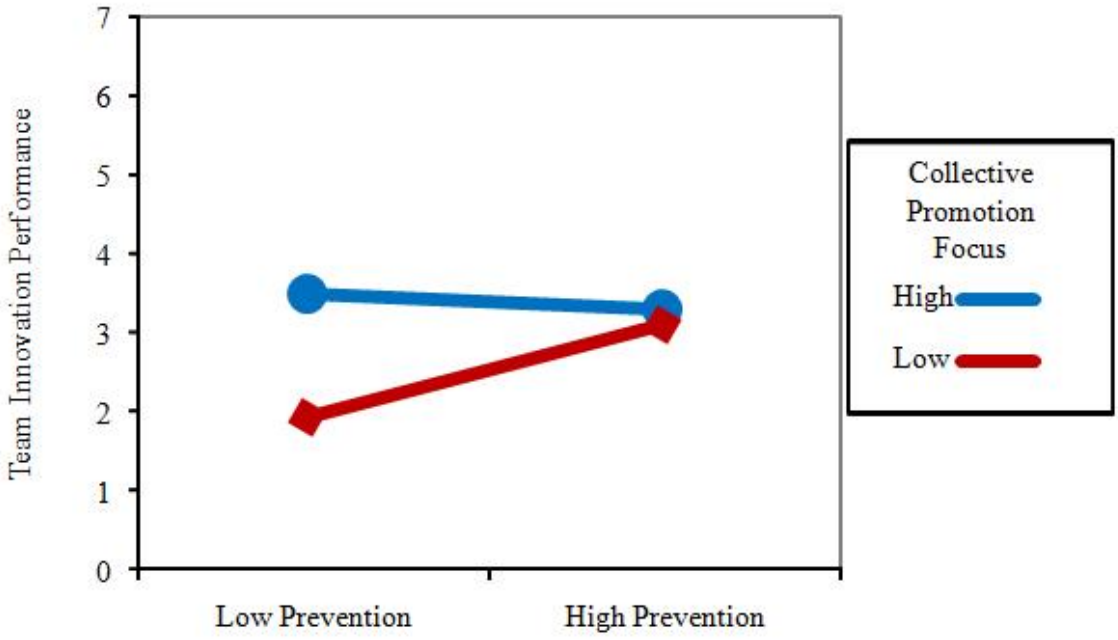
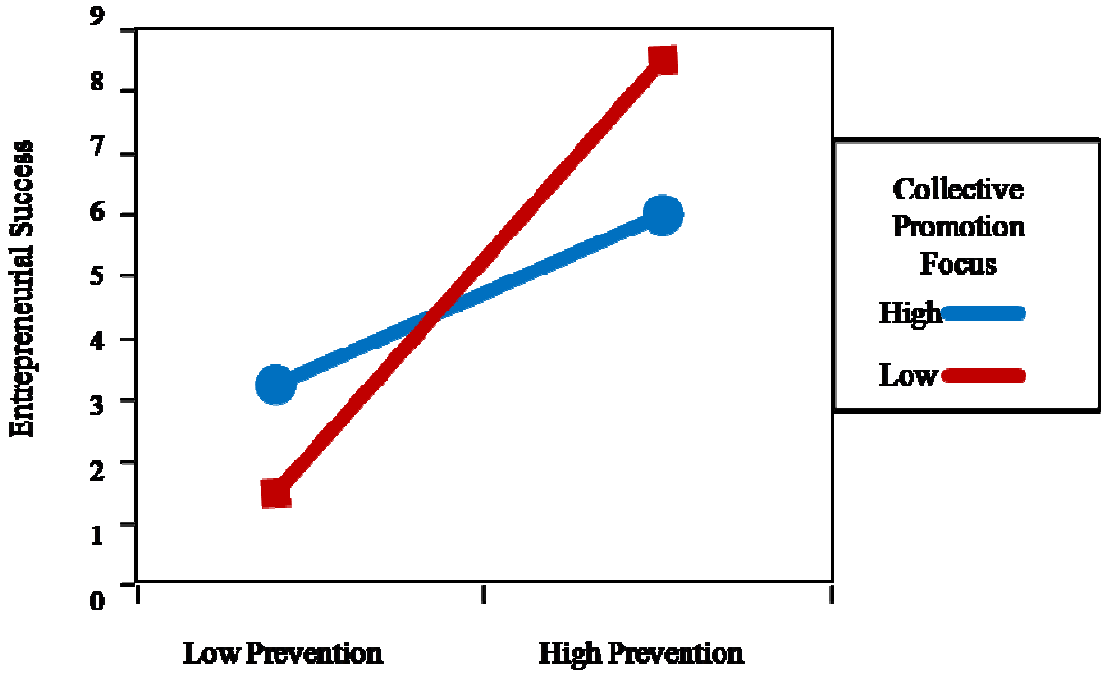


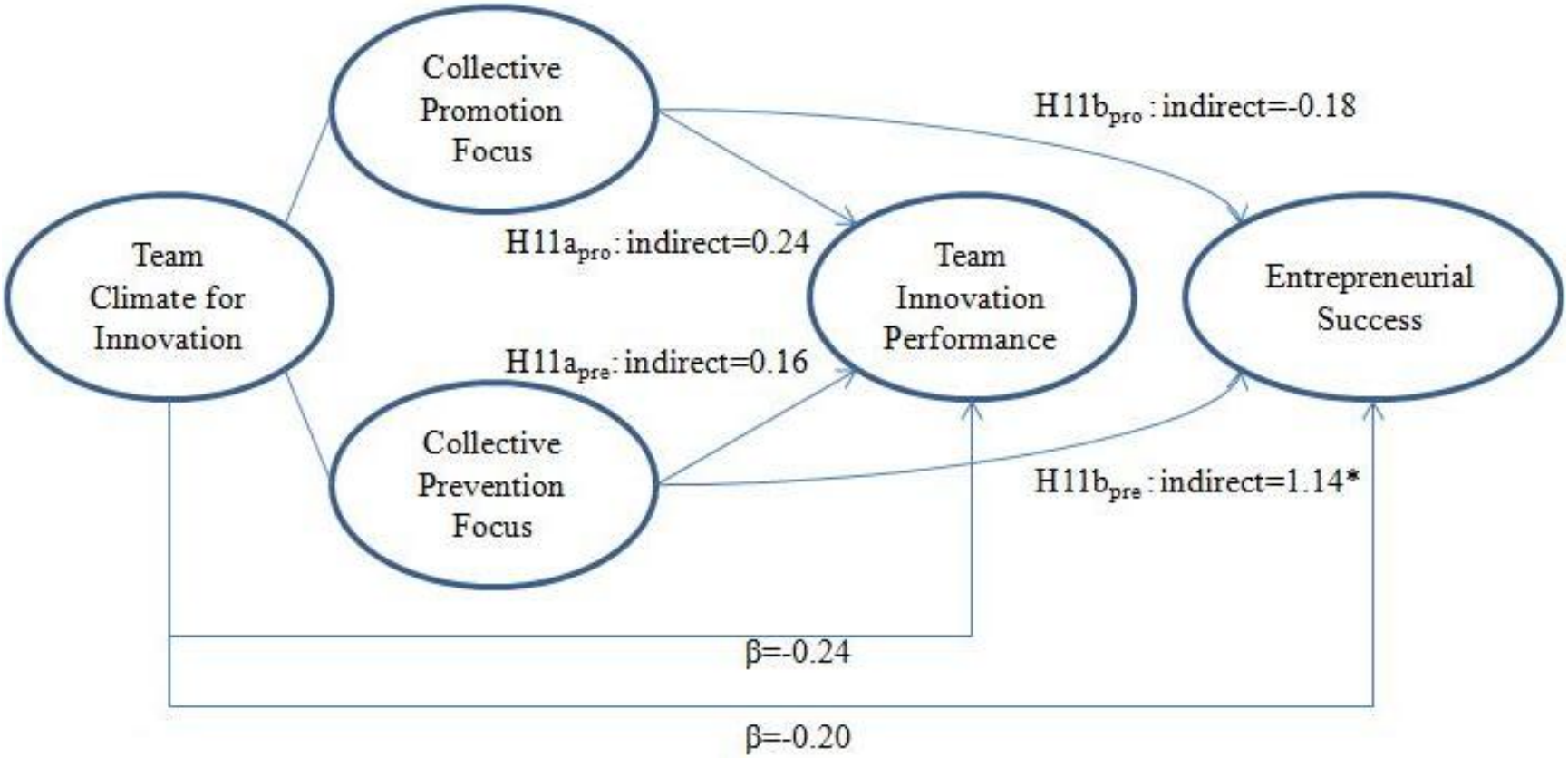
Figure 11. Entrepreneurial Success: Interaction of Collective Regulatory Focus Facets



Finally, Hypothesis 11 contends that collective regulatory focus facets fully mediate the relationship between team climate for innovation and both outcome variables of interest (Hypotheses 2 and 3). For the relationship between TCI and TIP, neither

collective promotion focus (indirect effect=0.24, CI=-0.03-0.72), nor collective prevention focus (indirect effect=0.16, CI=-0.05-0.61) were full mediators. In a similar fashion, collective promotion focus (indirect effect=-0.18, CI=-3.78-0.70) did not mediate the team climate for innovation and entrepreneurial success relationship. However, collective prevention focus (indirect effect=1.14, CI=2.63-2.65) fully mediated the relationship between team climate for innovation and entrepreneurial success. Figure 12 summarizes these results.

Figure 12. Summary of Indirect Effects: Mediation by Collective Regulatory Focus



*p<0.05 , Standardized Coefficients except for indirect effects , n=40

SUPPLEMENTARY ANALYSIS

A concerning limitation of the primary analysis of the study is the high degree of collinearity between collective prevention regulatory focus and collective promotion regulatory focus. These effects are reflected by the high bivariate correlations, the valence changes in coefficients between models and the lack of significant t-values despite significant F tests of the model. A possible cause of collinearity is the incidence of aggregation bias in the measurement of collective regulatory focus (Bliese, 2000). The act of aggregating data across multiple individuals may cause the associated variance within each construct to decrease resulting in data with a central tendency. On the other hand, it stands to reason that there may be a theoretical cause of the collinearity. In my theoretical model, a collective regulatory focus is the result of the contextual influence of team climate for innovation. Although an opposite relationship with TCI was predicted for collective promotion regulatory focus (positive) and collective prevention regulatory focus (negative), each is subjected to identical situational influences and each is a form of approach oriented behavior. That is, each form of collective regulatory focus is oriented on goal realization, but they act through the engagement of different behavioral strategies in pursuit of those goals. Thus, it is possible that the collinearity associated with the facets of collective regulatory focus is due to the common motivational foundation and the strong situational influence, which resulted in a larger than normal shared variance. In this supplementary section, I conduct an alternative method of analysis in order to explore the implications of this concern.

Method

One method of lessening the effects of common method bias involves the use of individual group member responses to represent each underlying construct. By allowing each group member to act as a defacto indicator of the underlying group level construct, the incidence of common method variance is lessened. Given the results of the aggregation analysis, there is evidence which suggests that each individual within a group is substitutable for any other individual in the group. In particular, ICC(1) has been characterized as a measure of the extent to which each group member is interchangeable which justifies aggregation when the associated F-test is significant (James, 1982). A group sample with a large ICC(1) can be represented by a single individual rating because it provides a relatively reliable rating of the group mean; when ICC(1) is small however, multiple individual ratings are needed to provide reliable estimates (Bliese, 2000, p. 356). Because the F-test is significant in this study and individual group members are interchangeable, I randomly assigned each group member to serve as the "indicator" for one of three constructs: team climate for innovation, collective promotion regulatory focus, or collective prevention regulatory focus. In groups with two members, the aggregate value was used for team climate for innovation with each member randomly assigned to a facet of collective regulatory focus. In groups with more than three members, the extra individuals were assigned to one of the three constructs, which were then aggregated. Hofmann and Stetzer (1996) used a similar methodology when examining common method effects on group level unsafe behaviors, as did Wallace, Popp, & Mondore (2006) in their investigation of safety climate. The result of this process is that each facet of regulatory focus has at least one unique rater of the collective

construct which acts to control the collinearity found in the primary study. Descriptive data and zero-order correlations can be found in Table 8.

Results

The correlations in Table 8 hold to a similar pattern as that found in the primary study; however the values show some marked changes. Most importantly for this supplementary study, it seems that the collinearity between the facets of collective regulatory focus was ameliorated as shown by a change in correlation coefficients from 0.80 (Table 1) to 0.41 (Table 7). Through a reduction in collinearity, the relationships among constructs should be clearer than in the primary study. An interesting feature of this correlation matrix when compared to that in the primary study, the standard deviations in the supplementary study are markedly higher for some of the composite variables, which indicates that there may have been some aggregation bias introduced into the analysis which is reflected in the decreased variance (Bliese, 2000). This could be the cause of the collinearity among the primary studies measures. It should also be noted that Gender drops from significance in the supplementary study, thus it was excluded from hypothesis testing.

Hypothesis Testing

Team Climate for Innovation as a predictor of Collective Regulatory Focus. To reiterate, team climate for innovation is the primary predictor in the theoretical model as it is the foundation for the development of collective regulatory focus. Using Equations 4.3 (collective promotion regulatory focus) and 4.4 (collective prevention regulatory focus) to estimate the regression, Table 9 shows the results with a significant relationship between TCI and each of the facets of regulatory focus. Again team climate for

Table 8.

Descriptives and correlations among variables

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Team Innovation Climate	3.91	0.75	0.95							
2. Collective Prevention Focus	4.09	0.72	0.50**	0.80						
3. Collective Promotion Focus	4.08	0.52	0.47**	0.41**	0.74					
4. Team Innovation Performance	3.74	0.72	0.20	0.34*	0.46**	0.85				
5. Success	5.67	3.48	0.04	0.18	0.27	0.39*	-			
6. Age	24.09	3.38	-0.20	-0.03	0.18	0.02	0.10	-		
7. Gender	1.42	0.33	-0.31	-0.05	0.07	0.01	-0.25	0.12	-	
8. Previous Entrepreneur	1.80	0.30	-0.09	-0.20	-0.04	-0.20	-0.09	-0.25	0.09	-

*p<.05; **p<.01 α reliabilities shown on the diagonal

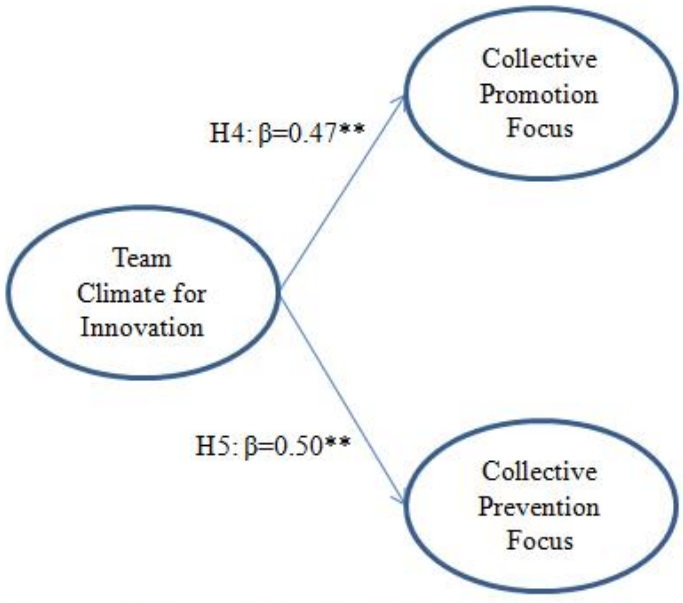
innovation was found to predict both facets of collective regulatory focus, however only the relationship with collective promotion focus (Hypothesis 4) was actually supported (β=.47, $p < .01$). The predicted negative relationship between TCI and collective prevention focus (Hypothesis 5) was disconfirmed by the resulting significant and positive relationship (β=.50, $p < .01$). Table 9 summarizes these results, which are also shown in Figure 13.

Table 9.
Team Climate for Innovation as a predictor of Collective Regulatory Focus.

Variable	b	β	SE	t	p	R^2
Equation 4.3: Promotion						
Team Climate for Innovation	0.33*	0.47*	0.10	3.29	0.00	.22
Equation 4.4: Prevention						
Team Climate for Innovation	0.48*	0.50*	.134	3.57	0.00	.25

* p<0.05

Figure 13. Simple Main Effects: Team Climate for Innovation and Collective Regulatory Focus.



*p<0.05, **p<0.01, Standardized Coefficients , n=40

Predictors of Team Innovation Performance

Team innovation performance was proposed to have been driven by team climate for innovation (Hypothesis 2) and collective promotion regulatory focus (Hypothesis 6). Collective prevention regulatory focus however was thought to detract from team innovation performance (Hypothesis 8). Table 10 shows the results of these propositions.

Table 10.
Predictors of Team Innovation Performance

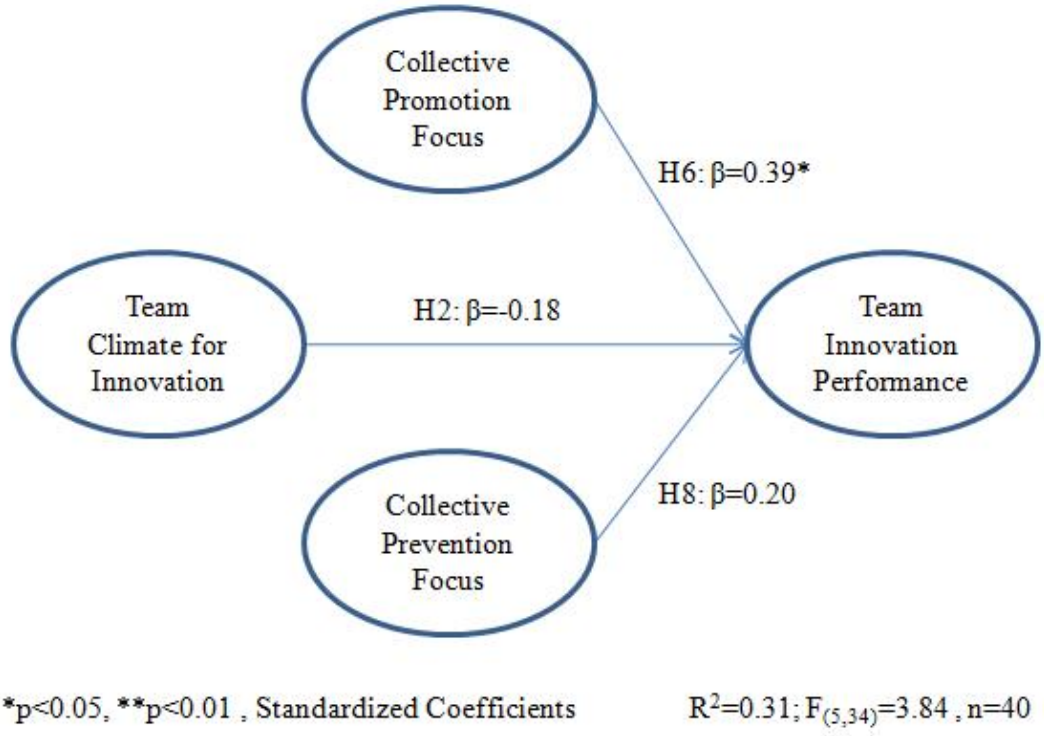
	b	β	t	R^2	ΔR^2	F
Step 1						
Team Climate for Innovation	0.19	0.20	1.25	0.04		1.55
Step 2						
Collective Prevention Focus (A)	0.19	0.19	1.20			
Collective Promotion Focus (B)	0.53*	0.38*	2.43	0.24	0.20	5.81*
Step 3						
Team Climate for Innovation	-0.11	-0.12	-0.65			
Collective Prevention Focus (A)	0.23	0.23	1.35			
Collective Promotion Focus (B)	0.58	0.42*	2.48	0.25	0.01	3.95*
Step 4						
Team Climate for Innovation	-0.18	-0.18	1.02			
Collective Prevention Focus (A)	0.21	0.20	1.21			
Collective Promotion Focus (B)	0.54*	0.39*	2.33			
AxB	-0.44	-0.26†	-1.70	0.31	0.06	3.84*

* $p<0.05$, †$p<0.10$

The first step of the regression included team climate for innovation as a predictor, which was found to be non-significant (β=0.20, $p > .05$). The facets of collective regulatory focus examined independently from TCI resulting in a significant relationship between collective promotion regulatory focus and team innovation performance (β=0.38, $p < .05$). Collective prevention regulatory focus however did not have a similar significant relationship (β=0.19, $p > .05$). All three predictors of team innovation performance were included in the third step of the regression with the patterns

from the first two steps holding (TCI: β=-0.12, $p > .05$; Prevention: β=0.23, $p > .05$; Promotion: β=0.42, $p < .05$). These results provide support for Hypothesis 6, however Hypothesis 2 and Hypothesis 8 are rejected. The final step of the regression estimates the full model which will later be used to analyze the interactions, indirect effects and total effects of the full theoretical model. Figure 14 summarizes these results.

Figure 14. Summary of Simple Main Effects: Predictors of Team Innovation Performance



Predictors of Entrepreneurial Success

The full theoretical model uses entrepreneurial success as the outcome of interest with the positive direct and indirect predictors of team innovation performance (Hypothesis 1a), team climate for innovation (Hypothesis 3), and collective promotion regulatory focus (Hypothesis 7). As with team innovation performance though,

collective prevention regulatory focus was predicted to negatively relate to entrepreneurial success (Hypothesis 9). Results of these predicted relationships are found in Table 11.

Table 11.
Predictors of Entrereneurial Success

	b	β	t	R^2	ΔR^2	F
Step 1						
Team Innovation Performance	1.90	0.39*	2.64	0.16		6.95*
Step 2						
Team Innovation Performance	1.63	0.34†	1.92			
Collective Prevention Focus (A)	0.08	0.02	0.09			
Collective Promotion Focus (B)	0.75	0.11	0.62	0.17	0.01	2.38
Step 3						
Team Innovation Performance	1.57	0.32†	1.83			
Team Climate for Innovation	-0.60	-0.13	-0.68			
Collective Prevention Focus (A)	0.32	0.07	0.35			
Collective Promotion Focus (B)	1.06	0.16	0.82	0.18	0.01	1.88
Step 4						
Team Innovation Performance	1.54	0.32†	1.71			
Team Climate for Innovation	-0.62	-0.13	0.35			
Collective Prevention Focus (A)	0.32	0.07	0.81			
Collective Promotion Focus (B)	1.06	0.16	-0.68			
AxB	-0.14	-0.02	-0.10	0.18	0.00	1.46

* $p<0.05$, †$p<0.10$

Beginning with team innovation performance, I found a significant relationship with entrepreneurial success which supports Hypothesis 1a (β=0.39, $p < .05$). However, this was the last significant simple predictor of success found in the supplementary study. Once the collective regulatory focus facets are added in the next step, team innovation performance drops from significance (β=0.32, $p > .05$) along with non-significance of collective promotion regulatory focus (β=0.11, $p > .05$) and collective prevention regulatory focus (β=0.02, $p > .05$). Step 3 adds team climate for innovation resulting

again in non-significant coefficients (TIP: β=0.32, $p > .05$; TCI: β=-0.13, $p > .05$; Prevention: β=0.07, $p > .05$; Promotion: β=0.16, $p > .05$). These results allow Hypothesis 3, Hypothesis 7, and Hypothesis 9 to be rejected. The final step estimates the full model which was used in further hypothesis testing. Figure 15 summarizes these results.

Indirect and Conditional Indirect Effects

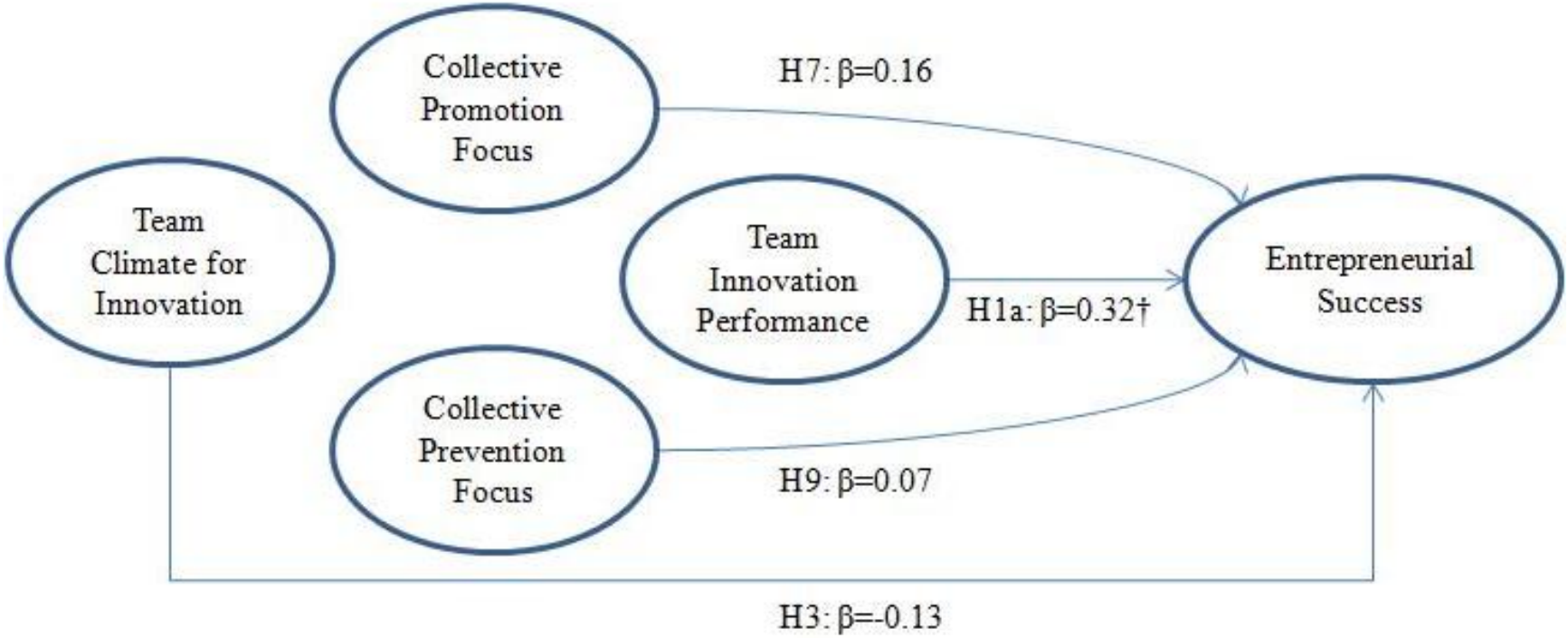
The regressions conducted above provide the basis of analysis for the product of coefficients among the study variables using moderated path analysis. Findings above are summarized in Table 12.

Table 12.
Summary of Coefficient Estimates

	b	β	t	sig.	R^2
Equation 4.1					0.18
a1 (TCI)	-0.62	-0.13	0.35	0.51	
a2 (PRO)	1.06	0.16	0.81	0.43	
a3 (PRE)	0.32	0.07	-0.68	0.73	
a4 (PROPRE)	-0.14	-0.02	-0.10	0.92	
a5 (TIP)	1.54	0.32†	1.71	0.10	
Equation 4.2					0.31
b1 (TCI)	-0.18	-0.18	1.02	0.31	
b2 (PRO)	0.54*	0.39*	2.33	0.03	
b3 (PRE)	0.21	0.20	1.21	0.23	
b4 (PROPRE)	-0.44	-0.26†	-1.70	0.10	
Equation 4.3					0.22
c1 (PRO)	0.33*	0.47*	3.29	0.00	
Equation 4.4					0.25
d1 (PRE)	0.48*	0.50*	3.57	0.00	

* $p<0.05$, †$p<0.10$

Figure 15. Summary of Simple Main Effects: Predictors of Entrepreneurial Success

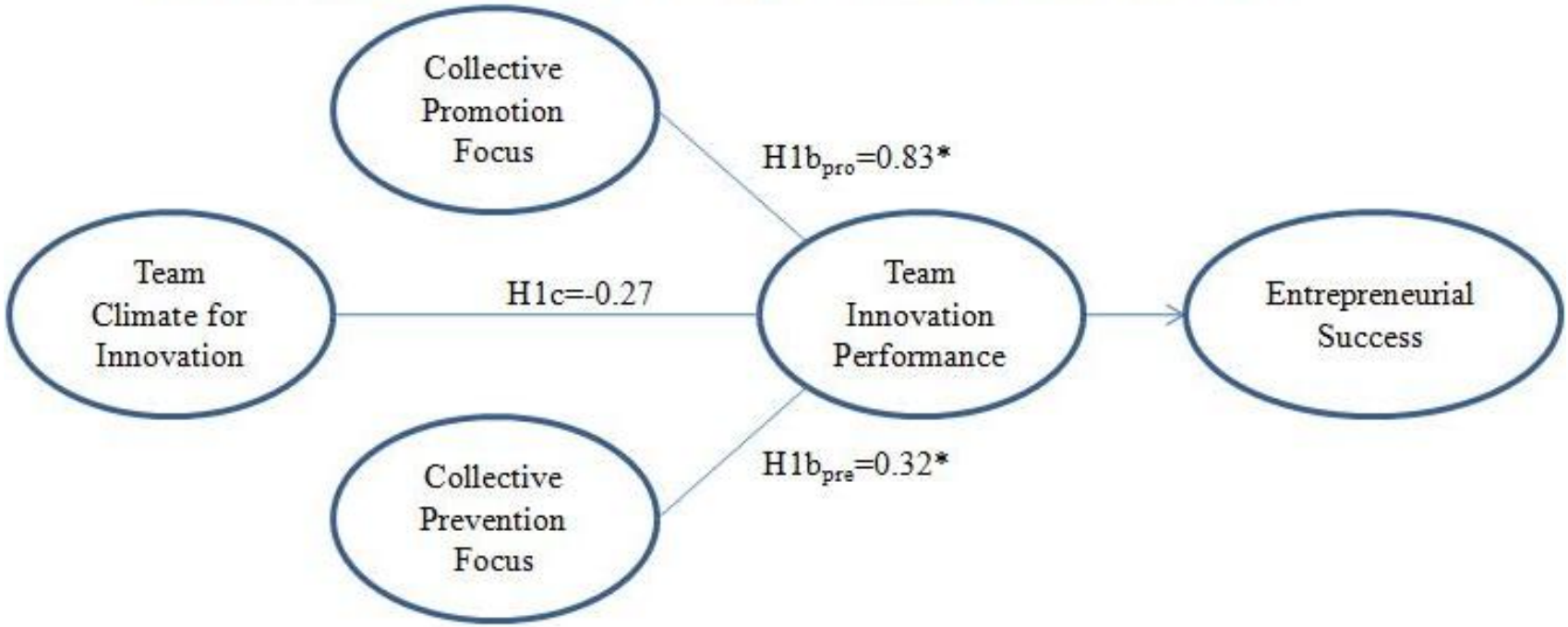


†p<0.10, R^2=0.18; $F_{(5,34)}$=1.46 , Standardized Coefficients , n=40

Hypothesis 1b and Hypothesis 1c proposed team innovation performance as a mediator between entrepreneurial success and both team climate for innovation and the facets of collective regulatory focus. Again using moderated path analysis, results indicate that team innovation performance does mediate the relationship between both forms of collective regulatory focus and entrepreneurial success (Prevention: indirect effect=0.32, CI=0.03-1.11; Promotion: indirect effect =0.83, CI=.11-2.23), thus supporting Hypothesis 1b. Team innovation performance did not however mediate the relationship between team climate for innovation and entrepreneurial success (indirect effect=-0.27, CI=-1.14-0.01), which allows Hypothesis 1c to be rejected. Figure 16 summarizes the role of team innovation performance as a mediator between the other predictors and entrepreneurial success.

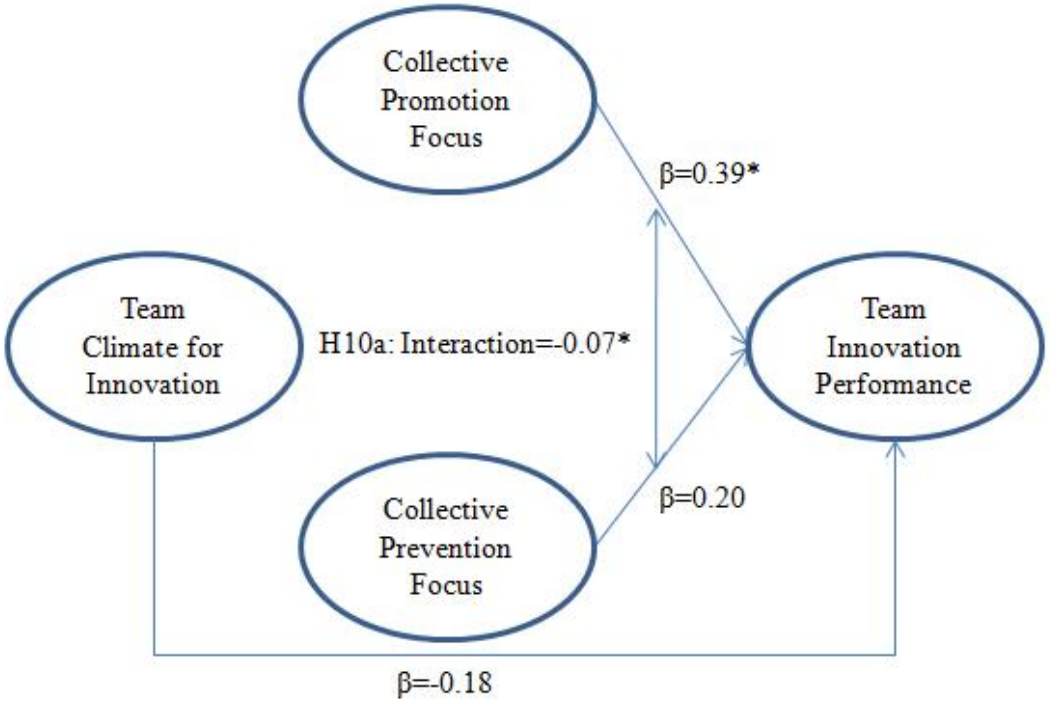
Hypothesis 10 proposes that the facets of collective regulatory focus interact such that high level of each will augment both team innovation performance (10a) and entrepreneurial success (10b). When predicting team innovation performance, the forms of collective regulatory focus interacted to influence innovation significantly and negatively (interaction effect=-0.07, CI=-.21-(-).01). The interaction between the facets also interacted significantly and negatively in predicting entrepreneurial success (interaction effect=-0.18, CI=-0.67-(-)0.02). Thus, despite significant results, both Hypothesis 10a (team innovation performance) and Hypothesis 10b (entrepreneurial success) are rejected. Figure 17 and Figure 18 summarize the results. The interaction effects are shown in Figure 19 and Figure 20.

Figure 16. Summary of Indirect Effects: Team Innovation Performance as a Mediator



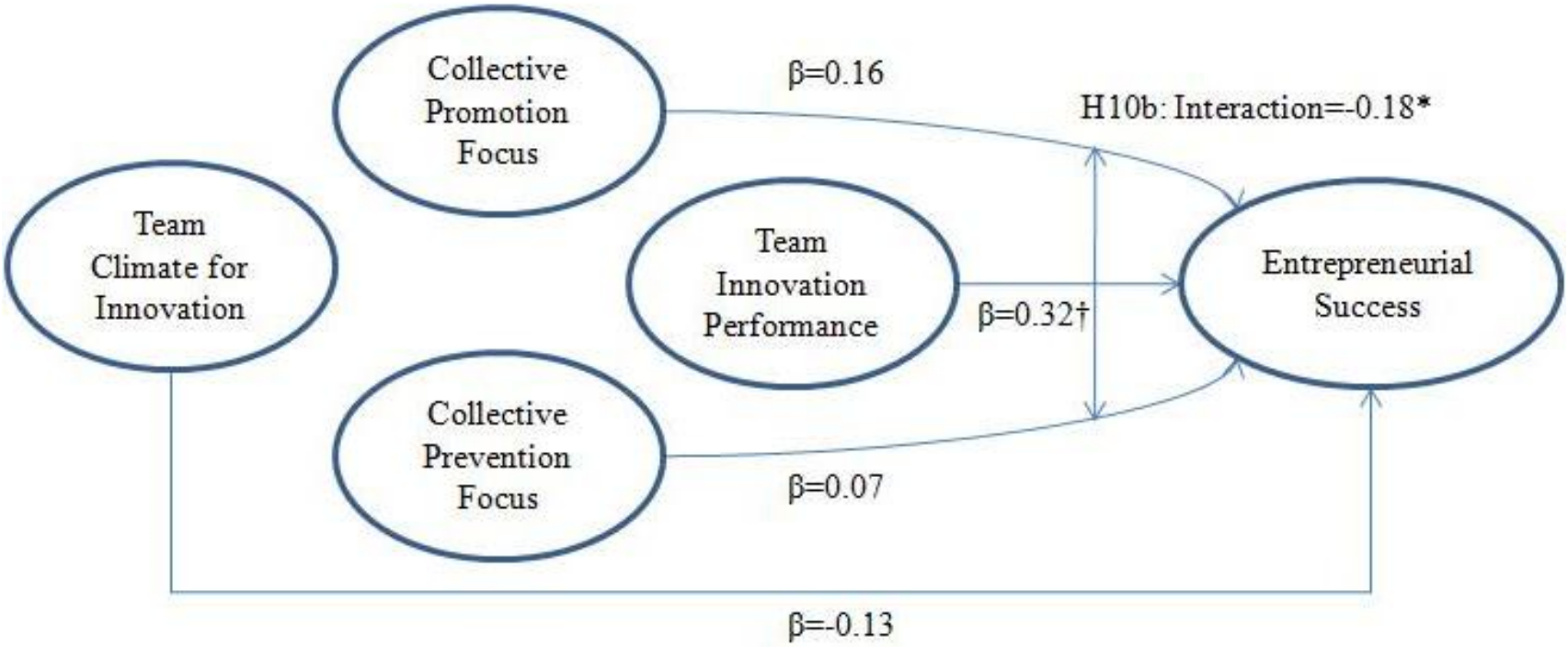
*p<0.05 , Standardized Coefficients , n=40

Figure 17. Summary of Interaction Effect: Predictors of Team Innovation Performance



*p<0.05 , Standardized Coefficients , n=40

Figure 18. Summary of Interaction Effect: Predictors of Entrepreneurial Success



*p<0.05, †p<0.10 , Standardized Coefficients , n=40

Figure 19. Innovation Performance: Interaction of Collective Regulatory Focus Facets

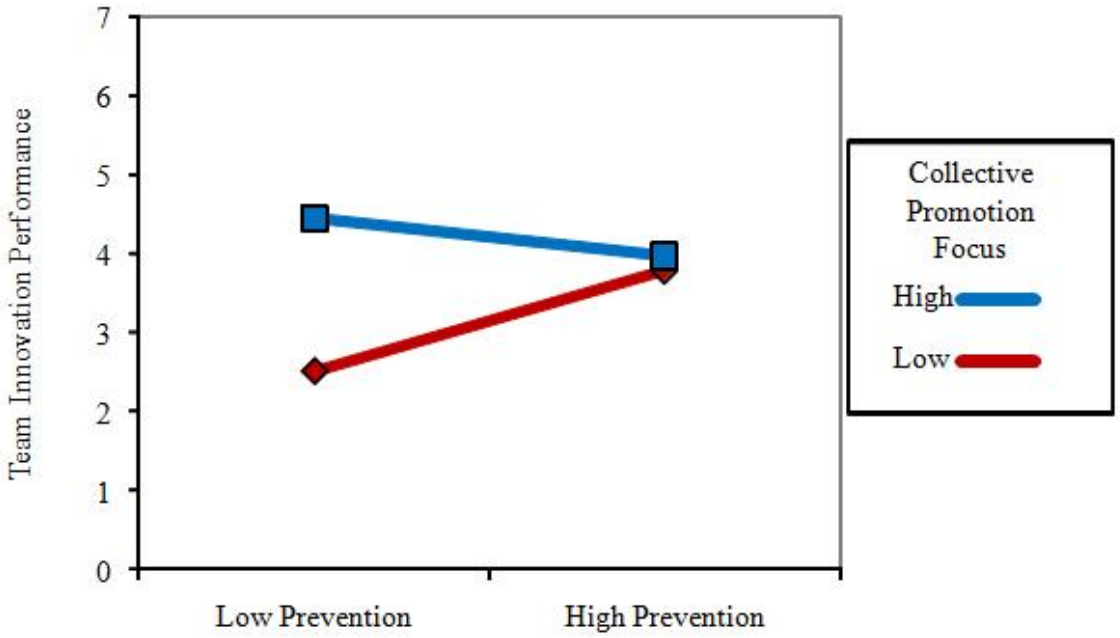
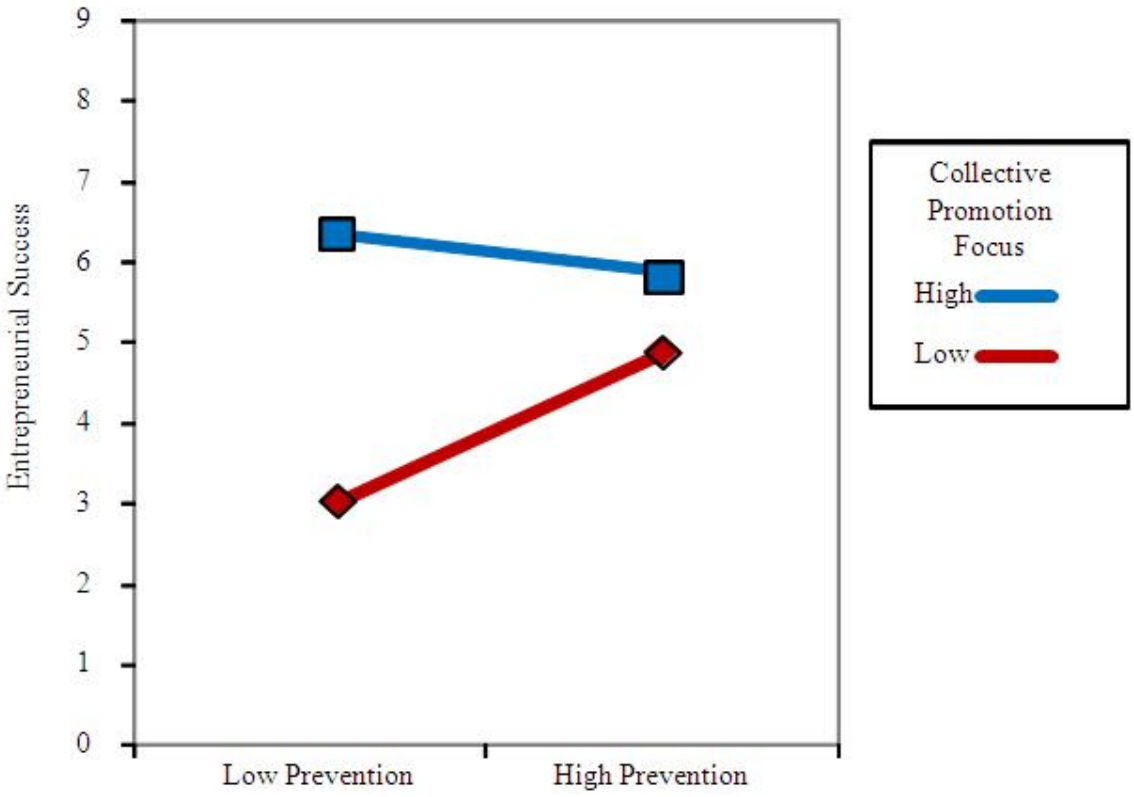


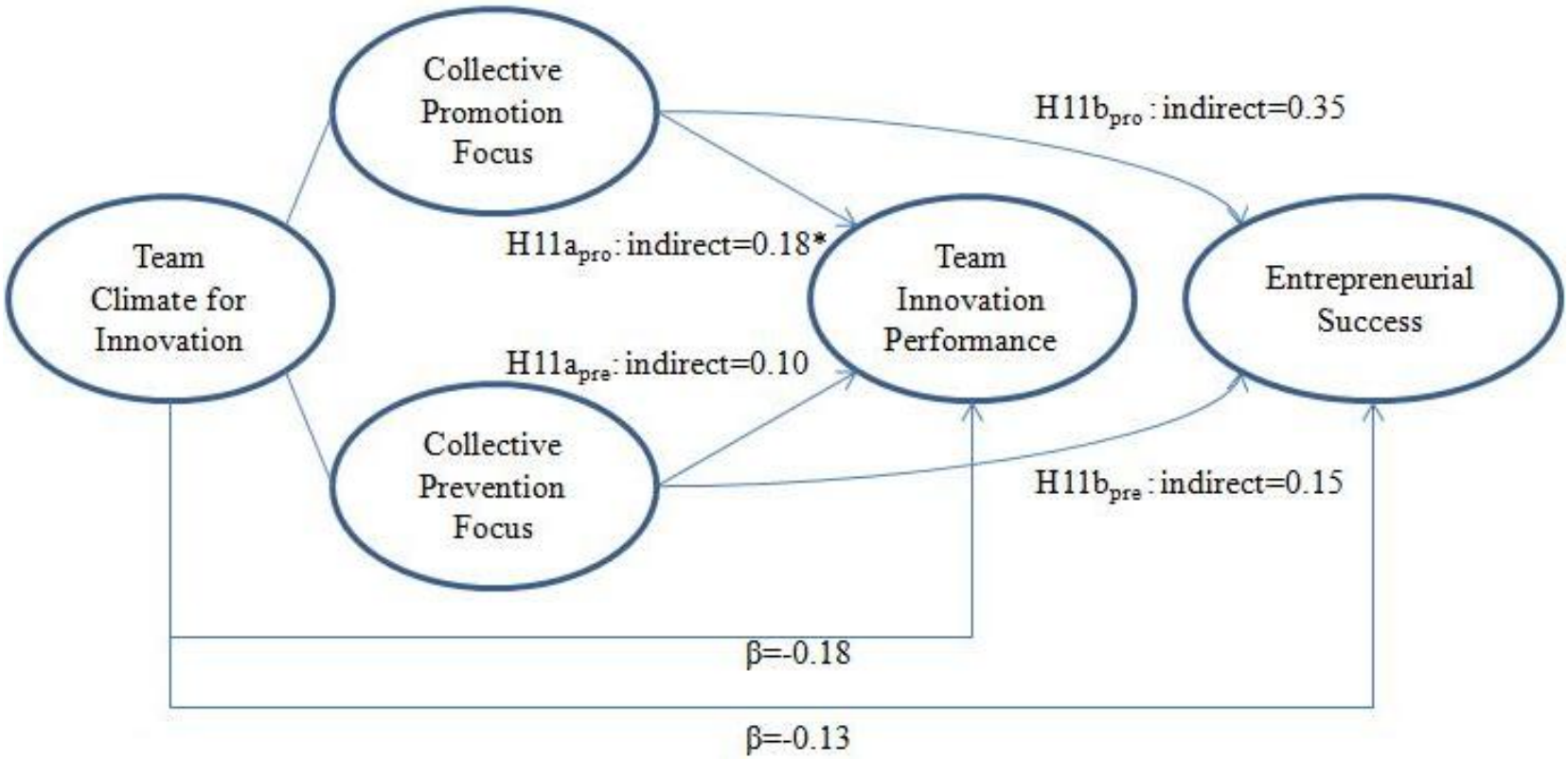
Figure 20. Entrepreneurial Success: Interaction of Collective Regulatory Focus Facets



The final hypothesis to be tested is Hypothesis 11 in which collective regulatory focus is theorized to mediate the relationship between team climate for innovation and both team innovation performance and entrepreneurial success. In the relationship between team climate for innovation and team innovation performance, collective promotion regulatory focus was found to mediate the relationship (indirect effect=0.18 CI=0.04-0.40), while collective prevention regulatory focus did not mediate the relationship (indirect effect=0.10 CI=-0.01-0.32). This result lends partial support to Hypothesis 11a. Hypothesis 11b however found no support with neither facet of collective regulatory focus mediating the relationship between team climate for innovation and entrepreneurial success (Promotion: indirect effect=0.35, CI=-0.42-1.10; Prevention: indirect effect=0.15 CI=-0.23-1.36). These results are summarized in Figure 21.

Given that this supplementary section is a form of replication of the primary study, it is important to examine the differences between the two studies to establish the replications usefulness. As noted earlier, the general pattern of correlations held between studies, although with a decrease in the magnitude of the correlation between the forms of collective regulatory focus ($\Delta\rho$=0.40). Other changes of interest include significant changes to some coefficients. These changes are summarized in Table 13.

Figure 21. Summary of Indirect Effects: Mediation by Collective Regulatory Focus



*p<0.05 , Standardized Coefficients except for indirect effects , n=40

Table 13.

Summary of Coefficient Estimate Differences

	Primary	R^2	Supplemental	R^2
Equation 4.1		0.26		0.18
a1 (TCI)	-0.20		-0.13	
a2 (PRO)	-0.04		0.16	
a3 (PRE)	0.31		0.07	
a4 (PROPRE)	-0.11		-0.02	
a5 (TIP)	0.26		0.32	
Equation 4.2		0.25		0.31
b1 (TCI)	-0.24		-0.18	
b2 (PRO)	0.29		0.39*	
b3 (PRE)	0.22		0.20	
b4 (PROPRE)	-0.20		-0.26	
Equation 4.3		0.50		0.22
c1 (PRO)	0.75*		0.47*	
Equation 4.4		0.37		0.25
d1 (PRE)	0.64*		0.50*	
Indirect Effects				
TCI-TIP-ES	'-0.37*		-0.27	
PRO-TIP-ES	0.52*		0.83*	
PRE-TIP-ES	0.43*		0.32*	
TCI-PRO-TIP	0.24		0.18*	
TCI-PRO-ES	-0.18		0.35	
TCI-PRE-TIP	0.16		0.10	
TCI-PRE-ES	1.14*		0.15	
Interactions				
CRF-TIP	-0.11		-0.07*	
CRF-ES	-0.26*		-0.18*	

* $p<0.05$

TCI: Team climate for innovation; PRO: Collective promotion regulatory focus; PRE: Collective prevention regulatory focus; TIP: Team innovation performance; ES: Entrepreneurial Success; CRF: Collective regulatory focus

Summary of Results

There are a number of differences between the primary analysis and the supplementary analysis. In explaining team innovation performance, collective promotion focus becomes significant. In addition, it becomes significant as a mediator between team climate for innovation and team innovation performance. Team innovation though loses significance as a mediator between team climate for innovation and entrepreneurial success as does collective prevention regulatory focus. It should also be noted that although the effects were not significant, the valence of some of the relationships in the supplementary analysis became more aligned with my predictions (e.g., Equation 4.2: promotion). Finally, the interaction between the facets of regulatory focus in predicting team innovation performance becomes significance. Although some significant relationships are lost, I believe that the supplemental analysis more accurately represents the theoretical model due the lower levels of collinearity between constructs and the lack of dramatic changes in valence. Table 14 summarizes the support or non-support for hypotheses across both the primary and supplementary study.

Table 14. *Summary of hypotheses*

Hypothesis		Primary Analysis	Supplementary Analysis
H1a	TIP>ES	Supported	Supported
H1b	RF>TIP>ES	Supported	Partially Supported
H1c	TCI>TIP>ES	Supported	Unsupported
H2	TCI>TIP	Unsupported	Unsupported
H3	TCI>ES	Unsupported	Unsupported
H4	TCI>PRO	Supported	Supported
H5	TCI>PRE	Unsupported	Unsupported
H6	PRO>TIP	Unsupported	Supported
H7	PRO>ES	Unsupported	Unsupported
H8	PRE>TIP	Unsupported	Unsupported
H9	PRE>ES	Unsupported	Unsupported
H10a	Interaction:TIP	Unsupported	Unsupported
H10b	Interaction:ES	Unsupported	Unsupported
H11a	TCI>RF>TIP	Unsupported	Supported
H11b	TCI>RF>ES	Supported	Unsupported

CHAPTER 6

DISCUSSION

Examining entrepreneurial innovation as an interactive process, this study found that the situation engendered by team climate for innovation is important in the development of a collective form of regulatory focus which translates to enhanced innovation performance and entrepreneurial success. In this chapter, I discuss the ramifications of the results for both theory and practice, explain some ways in which this study is limited, and illustrate extensions of this research to further refine the investigation of innovation climate and team motivation processes in entrepreneurship research.

Interpretation of Results and Theoretical Implications

In some aspects, the results of this study are both stimulating and theoretically unexpected. A main area of contribution for this research is the establishment of a team level measure of regulatory focus. Following the suggestions of Chen and Kanfer (2006), I found that a collective form of regulatory focus was the functional equivalent of the individual level of regulatory focus. Psychometric evidence suggests that the shared needs and values of team members regarding goal directed behaviors drove the development of team motivation processes which resulted in a collective regulatory focus. Tests of aggregation indicate that between and within group variation are sufficient to establish these shared phenomena. Other research on individual difference constructs such as self-efficacy (Bandura, 1997; Chen et al., 2002), achievement motivation (Zander

& Forward, 1968) and expertise (Tesluk & Jacobs, 1998) have been established at the team level and been found to be meaningful to our understanding of team dynamics. In this study, early research into a collective form of regulatory focus and a differential impact on proximal team outcomes has been started.

One characteristic of collective regulatory focus in this study which gives pause however is the high degree of collinearity between collective promotion regulatory focus and collective prevention regulatory focus in the primary study (ρ=0.80). Supplementary analysis showed a decrease in the levels of collinearity of regulatory focus in teams (ρ=0.41), which allowed for a clearer picture to develop among the theorized relationships. An aggregation bias introduced as a result of the combination of individual level estimates of perception to a group level construct is a possible cause of the collinearity (James, 1982; Bliese, 2000). The introduction of this bias may be seen in the decreased amount of variance in the measurement of collective regulatory focus in the primary study when compared to the supplementary study.

Given the methodological challenges associated with the primary analysis, I contend that the supplementary analysis reveals the relationships among study variables more accurately. The collinearity of the facets of collective regulatory focus in the primary analysis causes the model coefficients to be inflated/deflated beyond their actual values. The use of individual group members as independent raters of each facet is warranted by the generally acceptable aggregation assessment which establishes each group member as being interchangeable for any other. The resulting supplementary analysis dramatically decreased the levels of collinearity between collective promotion regulatory focus and collective prevention regulatory focus which resulted in differences

in significance and magnitude between the analyses. Consequently, I believe that the clarification of the measured model generated by the supplementary analysis leads me to put more stock in the supplemental results than those associated with the primary analysis. Despite this conviction, the findings of both studies will be examined further for theoretical and practical implications.

The hypotheses associated with the theoretical model found mixed results. Support for Hypothesis 1(a-c) and Hypothesis 4 was found, while Hypothesis 11 was partially supported. In Hypotheses 1a, 1b, and 1c, team innovation performance did predict entrepreneurial success in the business plan competition as well as completely mediate the indirect effect of team climate for innovation and both forms of collective regulatory focus on that success. I also found support for Hypothesis 4 in which collective promotion regulatory focus is positively predicted by team climate for innovation. Finally, support for hypothesis 11 was mixed across both studies. In the primary study, collective prevention regulatory focus as the mediator of the indirect effect between team climate for innovation and entrepreneurial success was sustained. When collinearity was controlled in the supplemental analysis however, this indirect effect changed from being mediated by collective prevention regulatory focus to being mediated by collective promotion regulatory focus. Additionally, the supplemental analysis gave support to Hypothesis 6, which suggested that collective promotion regulatory focus would be positively related to team innovation performance. Other than Hypothesis 1c, in which team innovation performance acts as a mediator in the team climate for innovation-entrepreneurial success indirect effect, all other significant results held true in the supplementary analysis.

Although support for my hypotheses is limited to those above, there are other interesting significant results in this study. For example, in both studies, team climate for innovation was found to positively predict collective prevention regulatory focus which is contrary to the theorized negative relationship in Hypothesis 5. While this result is unexpected on the whole, it is possible that some aspects of team climate for innovation actually positively generate collective prevention regulatory focus. For example, the task orientation factor of team climate for innovation is partially described by Anderson and West (1998) as, "…evidenced by emphasis on individual and team accountability…" This aspect of task orientation can be observed in the survey question, "Does the team critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome?" in the team climate inventory (Anderson & West, 1998). Both the description of the facet and the survey item to measure the facet speak to prevention regulatory focus and its associated goal directed behaviors, such as ensuring an absence of failure through the appraisal of team weaknesses.

While this positive relationship was not originally theorized, perhaps team climate for innovation solicits a collective prevention focus from team members through high levels of specific factors, such as task orientation or participative safety. These results indicate that team climate for innovation is more than just creativity and striving for positive outcomes, it also creates a need to ensure that innovation failures do not occur by holding team members accountable. That is, though a prevention focus itself may not promote creativity (Crowe & Higgins, 1997), it is possible that a broad climate, such as team climate for innovation, creates a situation in which behavioral strategies associated with a prevention focus are used to prevent failure in team activities because it is

psychologically safe to identify such issues. In lieu of a high level of collective promotion focus, a high level of collective prevention focus does an admirable job of enhancing both team innovation performance and entrepreneurial success (see Figure 10 and Figure 11). In sum, team climate for innovation functions quite broadly, thus it may have had unforeseen consequences in creating specific strategic behaviors which still resulted in a form of innovation performance.

The interaction between collective promotion regulatory focus and collective prevention regulatory focus is another interesting rejected hypothesis. Theorized to interact positively as high levels of a collective prevention focus act as a screening mechanism for the creative innovations generated by high levels of a promotion focus, Hypotheses 10a and 10b actually showed a negative relationship across both the primary study and the supplementary study. This negative interaction lead to a situation in which the level of promotion regulatory focus was almost irrelevant to team innovation performance when prevention regulatory focus was high. When plotted (see Figure 10 and Figure 11), the level of innovation performance when collective prevention focus was high is the same whether we look at high collective promotion focus or low collective promotion focus.

In practice, the best situation overall for team innovation performance seems to be when promotion is high and prevention is low. This result aligns with previous research which found that individuals with a promotion focus tend to be more creative and inventive while individuals with a prevention focus tend to be less so (Crowe & Higgins, 1997). At the group level found in this study, a similar process may be occurring as the team acts to attain its goals. Teams with a high level of promotion focus and with a low

level of prevention do not seem to exhibit the strategic, goal oriented behaviors which restrict the creative efficacy of the group. When collective prevention focus is high, the prevention oriented behavioral strategies seem to suppress the ability of the team to be creative and innovative. Although the pattern holds in the primary analysis, the interaction of the forms of collective regulatory focus with team innovation performance as the outcome is only significant in the supplementary analysis,.

This influence may occur due to the unique nature of motivational energy associated with each form of regulatory focus. Idson, et al. (2000) found that the level of motivation in individuals with a promotion focus was increased with successful completion of a task and decreased when failure occurred, while individuals with a prevention focus experienced the opposite motivational effects. When failure occurred, motivation increased in prevention focused individuals while success decreased their level of motivation. Therefore, teams with a high level of prevention regulatory focus may engage in goal oriented behaviors which act to depress innovation by inducing failures. For example, the very act of screening ideas may be viewed as a failure on the part of the team resulting in motivational energy for a collective prevention focus and a lack of motivational energy for collective promotion focus. The result is a dutiful, but creatively restricted team.

A similar pattern is found with the interaction between the forms of collective regulatory focus when predicting entrepreneurial success in the supplemental analysis. Again, the best case scenario for entrepreneurial success is one in which the there is a high level of collective promotion regulatory focus and a low level of collective prevention regulatory focus present within the team. In the primary analysis however,

the collinearity of the forms of regulatory focus seems to inflate the role of prevention focus in determining entrepreneurial success. When this situation is plotted (see Figure 11), it seems that the ideal situation for entrepreneurial success is one in which there is a high level of prevention focus within the team and a low level of promotion focus. At either level of promotion focus though, high prevention focus is clearly important to a team's successful entrepreneurial venture as it even enhances. These results are as predicted in Hypothesis 10b where the effects of a high level of collective prevention regulatory focus on team entrepreneurial success are positive. Although I do feel the collinearity between the forms of collective regulatory focus biases the results of the primary study, it is entirely possible that prevention focus *is* critical to the entrepreneurial success of a venture team due to the complex nature of formulating a business plan. Making certain that all required tasks are completed and all stakeholders are satisfied is an important part of starting a business. A collective prevention regulatory focus could provide a motivational basis for ensuring that these necessary steps are completed which leads to enhanced success.

An interesting point to consider here is the possible importance of staging when pursuing behavioral strategies associated with regulatory focus. Brockner and colleagues (2004) detail a number of factors which lead to success in entrepreneurial ventures (e.g., idea conception, screening, and resource acquisition) that are differentially affected by the facets of regulatory focus. Although all of these factors may occur simultaneously, it is probable that each has a specific point in the process in which it is more important than others. Thus, as a result of this study occurring at the earliest stages of the entrepreneurial process, collective promotion regulatory focus may exert a high level of

influence due to the significance of creativity and innovation behaviors required before continuing to the next stage. Screening of ideas is useful at this stage, but it may not be as useful as developing a number of innovative entrepreneurial possibilities on which to screen. Practical implications of motivational staging are discussed below.

A surprising result from this study was the scarcity of significant, main effects as predicted among the variables. Of the possible relationships, only two of the possible eight direct effect hypotheses were supported (Hypothesis 1a and Hypothesis 4), with another relationship being significant but opposite of predictions (Hypothesis 5). Supplementary analysis results were better, with collective promotion regulatory focus providing another significant main effect with relation to team innovation performance (Hypothesis 6). However, in neither study did collective promotion focus predict entrepreneurial success directly (Hypothesis 7). Similarly, collective prevention regulatory focus did not exert a significant negative influence on either innovation (Hypothesis 8) or success (Hypothesis 9). Finally, team climate for innovation was not found to predict either team innovation performance or entrepreneurial success directly (Hypothesis 2 and Hypothesis 3 respectively).

Although the lack of supported hypotheses among main effects is unexpected, it does highlight the role that the shared motivational processes played as intermediaries between distal causes and outcomes. In this study, I was able to identify collective promotion regulatory focus (in the supplementary study) as a mechanism for the transmission of team climate for innovation's influence on team innovation performance. That is, collective promotion focus acted as a carrier of the influence of climate on the innovative outcomes that the team pursued in their entrepreneurial endeavors (Hypothesis

11a). In addition, by finding support for Hypothesis 1b and Hypothesis 1c, I was able to establish the function of team innovation as a mediator between both team climate for innovation and collective regulatory focus in entrepreneurial success. To my knowledge, this is the first time that the team innovation performance has been shown to both predict entrepreneurial success and act as a mediating mechanism for other, more distal characteristics and processes. These findings are particularly interesting as they establish team climates, behaviors and performance as critical precursors to the successful entrepreneurial venture which must linearly cascade as through the entrepreneurial process.

In order to explain the lack of main effects and the presence of indirect effects, one must recognize that the theoretical process by which innovative performance and entrepreneurial success are produced is not clearly delineated by researchers. Team climate for innovation is a distal, situational construct which relates to outcomes through collective regulatory focus, but there are also an indeterminate number of proximal processes similar to collective regulatory focus through which similar relationships may occur. Accordingly, while I have identified a specific motivational process by which the indirect effect of team climate for innovation is transformed into team innovation performance and entrepreneurial success, other omitted variables may play a role in this process which transfer a negative indirect effect. The total indirect effect across all proximal mediating variables then renders the main effect of team climate for innovation on team innovation performance and entrepreneurial success non-significant. The presence of indirect effects in the absence of a main effect does not render these finding as any less important. To the contrary, it highlights the lack of understanding of the role

innovation climate and innovation plays in entrepreneurial outcomes. Future research should focus on identifying and understanding the role of other omitted mediating processes which may act to transform team climate for innovation either positively or negatively into innovation performance and entrepreneurial success.

Team entrepreneurial processes provide an interesting theoretical basis for the investigation of entrepreneurial success. Entrepreneurial teams have been studied in light of their formation (Clarysse & Moray, 2004; Forbes, Borchert, Zellmer-Bruhn, & Sapienza, 2006), cognitions (West, 2007; Shepherd & Krueger, 2002), and their social interactions (Lechler, 2001; Francis & Sandberg, 2000), however little research into team processes and shared climates have been accomplished in an entrepreneurial setting. A study by Watson, Ponthieu, and Critelli (1995) examined leadership, interpersonal flexibility, team commitment, and helpfulness among venture dyads finding that partners tended to perceive these interpersonal processes as intertwined with successful ventures. Otherwise, the inner workings of entrepreneurial teams seem to be sparsely studied. At the individual level, significant differences have been identified which differentiate the entrepreneur from the manager. Research such as this begins to open up the entrepreneurial team to allow a comparison with managerial teams and the identification of differences similar to those at the individual level.

The final significant contribution of this study is the investigation of entrepreneurial innovation through an interactionist perspective by integrating both situational and psychological factors in an examination of entrepreneurial outcomes as a result of the formation of team motivational processes. Dimov (2007) discusses entrepreneurial opportunities as the result of a stream of ideas that are shaped by

situational interactions and creative action. The interactionist perspective of this process sums up the findings in this study rather well. In essence, I found that shared understandings and cognitions about a team's disposition toward positively predicted both forms of collective regulatory focus: promotion and prevention (Hypothesis 4 and Hypothesis 5). As a result, behavioral strategies associated with collective promotion regulatory focus were engaged to enhance the innovation performance of the team (Hypothesis 11a). Furthermore, because of these behavioral strategies and their efficacy, team innovation performance lead to enhanced entrepreneurial success by the entrepreneurial teams. Consequently, an interactive process of situational and psychological predictors driving innovation and entrepreneurial success is shown by this study.

Practical Implications

There are a number of practical implications which can be derived from the results of this study. First, Brockner, et al. (2004) proposed that entrepreneurial success could be enhanced by an interaction of high levels of promotion regulatory focus and prevention regulatory focus. In this study however, this proposed interaction is not beneficial to either innovation performance or entrepreneurial success. In fact, it seems that the ideal team composition to elicit enhanced innovation and entrepreneurial success is one in which there is a high level of collective promotion regulatory focus and a low level of prevention regulatory focus. Thus, from a practical perspective, it would behoove team leaders and venture capitalists to ensure that early stage entrepreneurial teams enact those behavioral strategies which are associated with a promotion regulatory focus (e.g., focus on success, try a number of solutions without regard to failure). The team leader,

often the founding entrepreneur, can encourage this sort of behavior by allowing people to fail without serious repercussions, establishing a vision for the venture, and supporting innovation. These are all aspects of team climate for innovation which this study shows to be positively related to collective promotion regulatory focus. In conjunction, the team leader should discourage team members from playing it safe and ensuring that failure does not occur. The hopeful outcome is a team in which promotion related behavioral strategies take precedence over prevention related. That said, this encouragement of a particular behavioral mix may not be ideal in all situations (as I will discuss in limitations).

In a similar fashion, when the active investor is working to compile a new venture team, there may be a desire to select individuals who would be likely to create an innovative climate themselves. Within the decision matrix, it could be worthwhile to identify individuals who display a promotion focus in their individual behaviors. By choosing individuals for a new venture that are homogenously promotion focus, it would be likely that the team itself would develop a collective promotion regulatory focus. In such a case, there is already a shared disposition in the individual regulatory focus construct which would form the seed of a collective promotion regulatory focus. Of course, this seed can be modified by a climate in which it develops to enhance or depress promotion oriented behavioral strategies, however it would still form a foundation on which the development of a collective motivational state is based. By selecting for such individual dispositions in combination with encouraging a team climate for innovation, the investor could maximize the chances that the new venture team would be innovative.

Although it would be possible for the two scenarios above to occur, it is important to note that failure to create a collective promotion regulatory focus absent a collective prevention regulatory focus resulted in the worst levels of team innovation performance and entrepreneurial success in this study. Thus, it seems to be an all or nothing gamble taken on the part of the team leader or the venture investor. Although maybe not as successful, a safer target for collective regulatory focus would be one with a high levels of prevention focus. The outcomes associated with a high collective prevention focus were not as positive in this study as those teams with a high collective promotion focus alone, but the difference between these teams was marginal. In general, teams with a high prevention focus performed almost as well as those with a high promotion focus regardless of the level of collective promotion focus. This situation likely occurred because, although promotion oriented behavioral strategies may or may not have contributed to the innovative capacity of the team, the work associated with success was ensured to be completed accurately as a result of the prevention behavioral strategies associated with fulfillment of responsibilities and avoidance of failure. Apparently, there is something to be said for accurate effort in lieu of inspired effort in entrepreneurial teams.

One valuable concern for both team leaders and investors to consider is the possible impact of motivational staging on the entrepreneurial team. The entrepreneurial process is composed of non-discreet stages in which either collective promotion focus or collective prevention focus may be more important to the tasks needed to impel a successful entrepreneurial venture. Stages which require more creativity and innovation need a higher level of collective promotion, while stages which require more

responsibility and attention to detail need a higher level of collective prevention focus. Rather than composing a team of a specific blend of dispositional regulatory focus, antecedents to collective regulatory focus (such as team climate for innovation) could be influenced to give the desired motivational outcomes associated with the task at hand. That is, if the team needs to be innovative at an early stage, the team leader or investor could emphasize the importance of creativity at that stage. If the stage of the process requires an attention to detail, the team leader should stress the importance of responsibility and duty when performing important tasks. The malleable nature of collective regulatory focus then becomes an asset to the venture as it progresses through the stages of entrepreneurship.

Study Limitations

Like all research, there are limitations and compromises which must be accepted in order to proceed efficiently in the testing of a theoretical model. As discussed in the practical implications above, the first limitation in this study is the sample which involved very early stage entrepreneurial teams. The data collection itself only covered from early team formation, when shared understanding of team processes was being developed, to the presentation of the business plan to potential investors. The entrepreneurial process extends well beyond the solicitation of investors in a new venture, thus the implications of these results may be limited in what they can tell researchers and practitioners about the full range of entrepreneurial team experiences. Once investment capital is obtained, team climate for innovation, collective regulatory focus or team innovation performance may have a different impact on entrepreneurial

success than was found in this study. Implementation of the business plan likely has very different demands on team motivational processes than the creation of the plan itself.

As this research was a field study, causality in the theoretical relationships must be evaluated with caution. Although time was allowed for team climate for innovation to develop and its measurement preceded the measurement of collective regulatory focus by several weeks, there was a lack of manipulation in study. Accordingly, causal inferences garnered from the results cannot be certain. The nature of entrepreneurial success precludes the replication of this study in a laboratory setting; however some form of replication on this study may be possible which would allow further exploration of these relationships.

Perhaps the most visible limitation in the study was the incidence of collinearity in the measurement of collective regulatory focus. Aggregation bias, a possible cause of the collinearity, seems to be difficult to avoid in multilevel research in which collective constructs must be aggregated in order to be included in the model (James, 1982; Bliese 2000). A resolution to the problem was introduced in the supplementary study however which seemed to decrease the level of collinearity between constructs. Although measures of aggregation indicated that there was sufficient evidence that each team member was sufficiently interchangeable to allow for the solution in the supplemental analysis, it would nevertheless be preferable to have multiple raters of team level constructs.

Finally, a significant limitation to this study was the size of the sample and the limitations imposed by a small number of participating teams on detecting significant results in the model relationships. Some of the coefficients in the results are rather large,

but also non-significant, which speaks to a lack of power in the statistical analysis. Small sample size can inhibit the detection of significant results due to low levels of statistical power (Cohen, 1988). In conjunction with the overall sample size, the size of the actual teams for which I received responses is somewhat small. Although dyads are adequate for team research, an ideal response would have larger pools for each team to aggregate from.

Future Research

Related to the end of the previous section, the first endeavor into future research should be aimed at increasing the sample size of the current study to allow a finer evaluation of some of the larger model coefficients. More teams included in the study may allow some of these nearly significant relationships to become supportive of the theoretical model.

An important area of future research for the field of entrepreneurship would be to further study the participating entrepreneurial teams as their group processes continue to develop as the venture proceeds through other stages of entrepreneurship. Beyond the business plan presentation, it would be interesting to examine the impact of team climate for innovation, collective regulatory focus and team innovation performance in the later phases of the entrepreneurial process. Even to the point of harvesting, these team processes may play an important role in how the venture develops and succeeds.

An extension of this study into the laboratory would be another area of future research which could prove fruitful. As stated above, causality in this study is difficult to identify because of the number of individual, collective, and situational factors which may play a role in the success of the teams. A similar study in a controlled environment

in which manipulations can occur may enlighten the results of this study. Entrepreneurship outcomes though would be challenging due to the difficulty of accurately portraying the full range of action required to have a successful venture.

A final area of future research would be to further the understanding of collective regulatory focus as a team process, both in entrepreneurial teams and in teams established by an organization. There are a number of team situations (e.g., other forms of climate, team goal setting) as well as team outcomes (e.g., extra-role performance, in-role performance, citizenship behaviors) which may be illuminated through the application of collective regulatory focus to other theoretical frameworks.

Conclusion

This dissertation investigated team innovation and motivation processes within an entrepreneurship context. Research into new venture team processes is rare in the existing entrepreneurship literature and even rarer when investigating team innovation within that context. This study found that entrepreneurial teams did establish a shared form of regulatory focus (collective regulatory focus) which impacted team innovation and entrepreneurial success. Particularly interesting in this study was the cascade of relationships which lead from team climate for innovation to entrepreneurial success *only through indirect effects*. At each stage of the process (with a few noted exceptions), further influence of a construct on those further in the process only occurred through constructs which were most proximal. These results are important because it establishes a process chain as the new venture team acted to create their business plan, which helps enlighten our muddled understanding of team entrepreneurship process.

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APPENDIX

Team Climate Inventory (Anderson & West, 1998)

SECTION 1: Below are several statements about you at work with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by circling the appropriate number on the scale.

	to a very little extent			Agree Nor Disagree			to a very great extent
How clear are you about what your teams objectives are?	1	2	3	4	5	6	7
To what extent do you think your team's objective are useful and appropriate?	1	2	3	4	5	6	7
How far are you in agreement with these objectives?	1	2	3	4	5	6	7
To what extent do you think other team members agree with these objectives?	1	2	3	4	5	6	7
To what extent do you think your team's objectives are clearly understood by other members of the team?	1	2	3	4	5	6	7
To what extent do you think your team's objectives can actually be achieved?	1	2	3	4	5	6	7
How worthwhile do you think these objectives are to you?*	1	2	3	4	5	6	7
How worthwhile do you think these objectives are to i2E, AEAF, or NCET?*	1	2	3	4	5	6	7
How worthwhile do you think these objectives are to the wider society?	1	2	3	4	5	6	7
To what extent do you think these objectives are realistic and can be attained?	1	2	3	4	5	6	7
To what extent do you think members of your team are committed to these objectives?	1	2	3	4	5	6	7
How worthwhile do you think these objectives are to your team?	1	2	3	4	5	6	7
We share information generally in the team rather than keeping it to ourselves.	1	2	3	4	5	6	7
We have a 'we are in it together' attitude.	1	2	3	4	5	6	7

SECTION 1 (cont): Below are several statements about you at work with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by circling the appropriate number on the scale.

	to a very little extent			Agree Nor Disagree			to a very great extent
We all influence each other.*	1	2	3	4	5	6	7
People keep each other informed about work-related issues in the team.*	1	2	3	4	5	6	7
People feel understood and accepted by each other.*	1	2	3	4	5	6	7
Everyone's view is listened to even if it is in a minority.*	1	2	3	4	5	6	7
There are real attempts to share information throughout the team.*	1	2	3	4	5	6	7
There is a lot of give and take.*	1	2	3	4	5	6	7
How friendly or easy to approach are the people in your team?	1	2	3	4	5	6	7
How supportive are the other members of your team?*	1	2	3	4	5	6	7
Do other team members have a genuine concern over your personal well-being?	1	2	3	4	5	6	7
This team is always moving toward the development of new answers.	1	2	3	4	5	6	7
Assistance in developing new ideas is readily available.*	1	2	3	4	5	6	7
This team is open and responsive to change.*	1	2	3	4	5	6	7
People in this team are always searching for fresh, new ways of looking at problems.*	1	2	3	4	5	6	7
In this team we take the time needed to develop new ideas.*	1	2	3	4	5	6	7

SECTION 1 (cont): Below are several statements about you at work with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by circling the appropriate number on the scale.

	to a very little extent			Agree Nor Disagree			to a very great extent
People in the team co-operate in order to help develop and apply new ideas.*	1	2	3	4	5	6	7
Members of the team provide and share resources to help in the application of new ideas.	1	2	3	4	5	6	7
Team members provide practical support for new ideas and their application.	1	2	3	4	5	6	7
Do your colleagues provide useful ideas and practical help to enable you to do the job to the best of your ability?	1	2	3	4	5	6	7
Do you and your colleagues monitor each other so as to maintain a higher standard of work?	1	2	3	4	5	6	7
Are team members prepared to question the basis of what the team is doing?	1	2	3	4	5	6	7
Does the team critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome?	1	2	3	4	5	6	7
Do members of the team build on each other's ideas in order to achieve the best possible outcome?	1	2	3	4	5	6	7
Is there a real concern among team members that the team should achieve the highest standards of performance?	1	2	3	4	5	6	7
Does the team have clear criteria which members try to meet in order to achieve excellence as a team?	1	2	3	4	5	6	7
Does the team continually monitor its own performance in order to achieve the highest standards?	1	2	3	4	5	6	7
Does the team continuously evaluate its work in order to improve its effectiveness?	1	2	3	4	5	6	7
We keep in touch with each other as a team.	1	2	3	4	5	6	7
We keep in regular contact with each other.	1	2	3	4	5	6	7
Members of the team meet frequently to talk, both formally and informally.	1	2	3	4	5	6	7
We interact frequently.	1	2	3	4	5	6	7

Section 2: Please answer the following questions.

Age	18-29	30-39	40-49	50-59	60+
Gender	M	F			
Major	Marketing	Management	Entrepreneurshi	Finance	Other

Regulatory Focus at Work Scale (Wallace & Chen, 2006; Wallace, Johnson, & Frazier, 2009)

SECTION 1: The following items are examples of different approaches or concerns you might have when working. Using the scale below, please rate how often you focus on these thoughts and activities.

	Never	Rarely	Occasionally	Often	Constantly
Following rules and regulations in class	1	2	3	4	5
Completing work tasks correctly	1	2	3	4	5
Doing my duty at work	1	2	3	4	5
My work responsibilities	1	2	3	4	5
Fulfilling my work obligations	1	2	3	4	5
On the details of my work	1	2	3	4	5
Accomplishing a lot at work	1	2	3	4	5
Getting my work done no matter what	1	2	3	4	5
Getting a lot of work finished in a short amount of time	1	2	3	4	5
Work activities that allow me to get ahead at work	1	2	3	4	5
My work accomplishments	1	2	3	4	5
How many job tasks I can complete	1	2	3	4	5

Team Innovation Performance (Scott & Bruce, 1994)

Performance Evaluations: Innovation is a process involving both the generation and implementation of ideas. As such, it requires a wide variety of specific behaviors on the part of teams. While some teams might be expected to exhibit all the behaviors involved in innovation, others may exhibit only one or a few types of behavior. Please rate the team you're advising on the extent to which they:

	Not at all				To an exceptional degree
Search out new technologies, processes, techniques, and/or product ideas.	1	2	3	4	5
Generate creative ideas.	1	2	3	4	5
Promote and champion ideas to others	1	2	3	4	5
Investigate and secure resources needed to implement new ideas.	1	2	3	4	5
Develop adequate plans and schedule for the implementation of new ideas.	1	2	3	4	5
Are innovative.	1	2	3	4	5

2008 Donald W. Reynolds Governor's Cup

Collegiate Business Plan Competition

Evaluation Scorecard for the Written Business Plan

1. **Executive Summary (10 Points)**
Clear, exciting, and effective as a stand-alone overview of the plan; includes brief description of each succeeding section of the plan; can be read in 5 minutes.

2. **Company Overview (5 Points)**
Presents a vision, history, current status, strategy, goals, mission and objectives for the business.

3. **Products or Services (20 Points)**
Describes the key features and benefits, current stage of development, proprietary position, and competitive advantages of the product or service.

- Clearly solves customer problem
- Customer value proposition is significant
- Dramatic improvement over current offerings
- Clear development path to Introduction
- High Gross Margin
- Intellectual Property protection (Patent, copyright, or trade secret)
- Platform technology and/or multiple market opportunities
- Scalability
- Commercializes new technology or applies existing technology in a novel way. Technology, for purposes of this competition, means any one of the following:
- The commercialization of new technology focused in the following areas:
- Advanced Materials
- Agriculture, Food Production or Processing
- Life Sciences, Biotechnology and Bioengineering
- Environmental
- Manufacturing Systems
- Transportation and Logistics
- Information Technology
- Application of technology in the production or distribution of industrial or consumer goods.
- Application of technology in a retail or service business.

4. **Market and Competitive Analysis (20 Points)**
Presents the growth trends and key driving forces of the industry; identifies the key characteristics and needs of the target market(s); assesses the competitive environment; demonstrates market acceptance for the product or service.

- Large Aggregate Market Opportunity in $'s
- Specific Target Market Identified
- Identify Distribution Channel to Reach Target Market
- Rapid Sales Growth Opportunity
- Current and Projected Market Shares

2

5. **Management Team (10 Points)**
Backgrounds and roles of key individuals; history and ability to work as an effective team; personnel needs; organizational structure.

6. **Operating Strategies (10 Points)**
Addresses the marketing, production, research and development, personnel, administrative, and financial strategies for the proposed firm.

7. **Critical Risks (10 Points)**

Realistically identifies the major internal and external critical risks that could threaten the business and presents viable contingency plans to address these issues.

8. **Cash Flow Statement (3 Points)**

Presents a realistic assessment of cash requirements -inflows and outflows- over a projected 5-year period; cash flows are consistent with operating and marketing strategies outlined in the body of the plan; cash flow information is detailed for first 2 years, quarterly/annually for years 3-5.

9. **Income Statement (2 Points)**

Demonstrates realistic and attractive income potential of the business; the income statement is consistent with the operating and marketing strategies outlined in the body of the plan; income statement information is detailed for first 2 years, quarterly/annually for years 3-5.

10. **Balance Sheet (2 Points)**

Presents a realistic assessment of the working capital and fixed asset requirements of the business; appropriately reflects the projected capital structure of the business (long term debt and equity positions); balance sheet information is projected annually for 5 years.

11. **Funds Required/Used (3 Points)**

Clear and concise presentation of amount, timing, type and use of funds required for venture.

12. **Offering (5 Points)**

Clearly articulates the proposal/terms to investors; identifies what entrepreneur is seeking from investors; states how much equity will be given up in return for investment capital; presents a realistic assessment of ROI potential; presents an appropriate deal structure and possible exit scenarios.

Oklahoma State University Institutional Review Board

Date:	Thursday, January 17, 2008
IRB Application No	BU0720
Proposal Title:	Regulatory Focus and Entrepreneurial Success
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved **Protocol Expires: 1/16/2009**

Principal Investigator(s

Paul Johnson
320 Spears School of Busine
Stillwater, OK 74078

Debra L. Nelson
320 College of Business
Stillwater, OK 74078

Julian Craig Wallace
306 N. Hall 700 N. Greenwoo
Tulsa, OK 74106

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☑ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Shelia Kennison, Chair
Institutional Review Board

VITA

Paul D. Johnson

Candidate for the Degree of

Doctor of Philosophy

Dissertation: ENTREPRENEURIAL SUCCESS: AN INTEGRATIVE STUDY OF TEAM CLIMATE FOR INNOVATION, GROUP REGULATORY FOCUS, INNOVATION PERFORMANCE, AND SUCCESS

Major Field: Business

Biographical:

Education

Completed the Requirements for the Doctor of Philosophy in Business at Oklahoma State University, Stillwater, Oklahoma in May, 2010

Completed the Requirements for the *Master of Business Administration*; at M.F. Price College of Business, University of Oklahoma, Norman, OK in December 2004

Completed the Requirements for the *Bachelor of Science, Zoology;* at University of Oklahoma, Norman, OK in May 1999

Professional Affiliations

Collaborative Member, The Multilevel Organizational Effectiveness Collaborative http://www.themoec.com

Member, Academy of Management
Divisions: Organizational Behavior, Entrepreneurship, Research Methods

Member, Southern Management Association

Member, Society for Industrial and Organizational Psychology

Name: Paul D. Johnson Date of Degree: May, 2010

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: ENTREPRENEURIAL SUCCESS: AN INTEGRATIVE STUDY OF TEAM CLIMATE FOR INNOVATION, GROUP REGULATORY FOCUS, INNOVATION PERFORMANCE, AND SUCCESS

Pages in Study: 139 Candidate for the Degree of Doctor of Philosophy

Major Field: Business

Scope and Method of Study: This dissertation examines the role of collective regulatory focus as a mediating motivational process between team climate for innovation, team innovation performance, and entrepreneurial success. A field study of new venture entrepreneurial teams forms the basis of the research design.

Findings and Conclusions: Collective promotion regulatory focus mediated the relationship between team climate for innovation, team innovation performance and thereby entrepreneurial success. Contrary to predictions, the facets of collective regulatory focus did not positively interact to enhance either outcome.

ADVISOR'S APPROVAL: __J. Craig Wallace_____