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Linking Problem-Solving Style and Creative Organizational Climate: An Exploratory Interactionist Study

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People, organizations, and societies benefit when there is an appropriate fit between individuals and their environments (e.g. Chatman, 1989; Kristof, 1996; Shalley, Zhou & Oldham, 2004). This is particularly true for producing organizational innovation. Little is known about the relationship between style preferences (as the people aspect) and climates for creativity. This study aims to tie these two constructs together by taking an interactionist approach. Two assessment approaches were taken. Best and worst-case climates were assessed by administering two short forms of the Situational Outlook Questionnaire in which 213 individuals identified specific best and worst-case work experiences and then responded to the nine dimensions of creative climate. Problem-solving style was measured by VIEW: An Assessment of Problem Solving Style. The findings of this research confirmed that significant differences between best (most desired/most likely to fit) and worst (least desired/a most likely misfit) workplace climates exist. It also suggests that problem-solving styles make a difference for some of the dimensions of creative climate. A number of implications were presented for those who lead and manage for innovation.

INTRODUCTION

Scholars and practitioners are increasingly recognizing the need for deliberately developing and managing creativity, as well as the demand for organizational innovation as a means for survival and growth (Gilson, 2008; Zhou & Shalley, 2008). Although creativity and innovation are distinct constructs (Shalley & Gilson, 2004), there is an emerging consensus that creativity has to do with generating and communicating meaningful new ideas and connections, and innovation has more to do with the use and implementation of them (Isaksen & Treffinger, 2004). Designing, inventing, developing and/or implementing new ideas would have its foundation in the creative process (Isaksen & Tidd, 2006; Woodman, Sawyer, & Griffin, 1993), and some would assert that creativity precedes innovation (West, 2002).

Creativity is a complex and multi-faceted phenomenon. A general framework that approaches the more comprehensive understanding of creativity has been the classic four P's (Person, Process, Product and Place). For example, the most comprehensive picture of the creative person can be drawn by considering not only the characteristics or traits of the person, but also the kind of environment or context in which the person

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works, the kinds of mental operations used, as well as the nature of the desired outcomes or products. Similar conceptual approaches have been identified by a number of other scholars (Gowan, 1972; Hallman, 1963; Isaksen, 1987; MacKinnon, 1978; Mooney, 1963; Rhodes, 1961; Runco, 2004).

Some scholars have called for an interactionist approach to research given the complexity and multi-faceted nature of creativity (Woodman & Schoenfeldt, 1989; 1990). They argue that researchers from diverse disciplines and theoretical perspectives have emphasized different aspects of creativity - amounting to many blind men describing an elephant. An interactionist approach allows for the development of frameworks that are sufficiently complex to incorporate and integrate diverse streams of creativity inquiry. Some have referred to the interactionist approach as ecological (Harrington, 1990; Isaksen, Puccio & Treffinger, 1993; Murdock & Puccio, 1999) or as taking a systemic approach to creativity research (Csikszentmihalyi, 1999).

This study took an interactionist or ecological approach to creativity research in that it sought an improved understanding of how people with diverse problem-solving preferences may have differing needs and perceptions of their best and worst-case working environments. Although earlier research uncovered meaningful qualitative climate differences for people of diverse styles, few quantitative differences have been found when examining the current climate. Focusing on both best and worst-case working environments allows for a clear contrast and comparison in examining differences (Choi, Anderson, & Veillette, 2009). This point will be explained further below.

The basic thesis of the interactionist approach is that creativity is the complex product of a person's behavior or engagement in a creative problem solving process and the context within which this activity occurs (Isaksen, 2010). Another keystone of an interactionist approach to creativity research is to deliberately link across levels of analysis and singular facets of inquiry. For example, this study seeks to examine problem solving style as an intrapersonal psychological phenomenon and climate for creativity as a social-psychological and interpersonal construct, in hopes of better understanding the relationship and interaction between them.

Problem Solving Style and Creativity

A problem represents a gap between where we are or what we have, and a desired location or outcome. Johnson (1972) indicated that "… a problem arises when a person is motivated toward a goal and his first attempt to reach it is unrewarding." (p. 133) Problems can also be understood more broadly as questions for inquiry. Problem solving is the thinking and behavior we engage in to obtain the desired outcome we seek. The outcome could be attaining a certain goal or finding a satisfactory answer to a question.

Many writers have attempted to outline conceptual and operational distinctions and relationships between problem solving and creativity (e.g., Guilford, 1977; Rugg, 1963; Runco, 2007). Newell, Shaw and Simon (1962) described the relationship by stating: "Creative activity appears . . . simply to be a special class of problem solving activity characterized by novelty, unconventionality, persistence, and difficulty in problem formulation." (p. 63)

Isaksen (1995) provided three continua that outlined the distinctions and relationships between creativity and problem solving. A problem area or task definition can be clearly defined and structured or it can be fuzzy, ill defined, and ambiguous. The

former is served by problem solving, the latter by a creative kind of problem solving or problem finding (Carson & Runco, 1999; Getzels & Csikszent-mihalyi, 1976). The way to obtain the solution or the solution method can be known, predetermined, and relatively simple, or it can be unknown, complex and non-deter-mined. The former is more a function of memory, expertise and knowledge. The latter requires creativity of thought (Geary, 2005; Kirton, 2003). The desired outcome can already exist or be readily available, or might not exist or be available. The former situation calls for focused inquiry. The latter calls for creativity and inventiveness (Beer & Nohria, 2000; Bossidy & Charan, 2002).

The preponderance of creativity literature focuses on inquiring and developing level or capacity – and particularly from a person-centered view (Ford, 1995; O'Shea & Buckley, 2007). For example, when studying the characteristics of creative individuals, the literature tends to focus on the degree to which people possess certain traits or abilities (Guilford, 1977; MacKinnon, 1978). Perhaps the focus on level, capability, and degree of creativity was influenced by the early focus within the creativity domain on genius and giftedness (see Getzels, 1987 for an argument to this effect). A more recent stream of creativity research distinguishes level, capacity, or ability from style, preference, or modality, and is referred to as the level-style issue (Kirton, 2003; Isaksen, 2004). Clearly separating "How creative am I?" from "How am I creative?" has its critics (see Kaufmann, 2003; 2004) and its proponents (Kirton, 1987; Isaksen & Dorval, 1993a). Either way, understanding style of creativity represents an important avenue for research and practice.

Treffinger, Selby, and Isaksen (2008) defined problem-solving styles as consistent individual differences in the ways people prefer to plan and carry out generating and focusing activities, in order to gain clarity, produce ideas, and prepare for action. This definition is anchored within an individual or intrapersonal level of analysis as it encompasses a person's consistent predilection from a psychological point of view. Further, it includes both divergent (generating) and convergent (focusing) kinds of problem solving aimed at gaining clarity when facing ambiguous or ill-structured situational demands, generating new ideas and alternatives, and building and developing options and plans to implement novel insights. As such, there is a strong conceptual link between problem-solving styles and a creative approach to problem solving (Isaksen, Dorval, & Treffinger, 2011) or a sense-making perspective of creativity (Drazin, Glynn, & Kazanjian, 1999).

At the deepest level, the conceptual foundations for problem-solving style (see Figure 1) are based on the theories and research regarding the understanding of characteristics or personalities of creative individuals and the general literature on the deliberate development of creative abilities. There is a great deal of creativity literature aimed at improving our understanding of the psychological attributes (cognitive and personality) of creative individuals (Barron, 1963; Guilford, 1977; MacKinnon, 1978; Sternberg, 1988). There are also many programs, courses, tools, and methods aimed at the deliberate development of creative abilities. For example, Osborn's (1953) work on creative problem solving led to the development of the Creative Studies Program (Parnes, 1987) and was one of the few such programs to be extensively described and evaluated in the literature (Mansfield, Busse, & Krepelka, 1978; Noller & Parnes, 1972; Parnes & Noller, 1972, 1973a, 1973b, 1974; Puccio, Firestien, Coyle, & Masucci, 2006; Reese, Parnes, Treffinger, & Kaltsounis, 1976; Rose & Lin, 1984; Torrance, 1987).

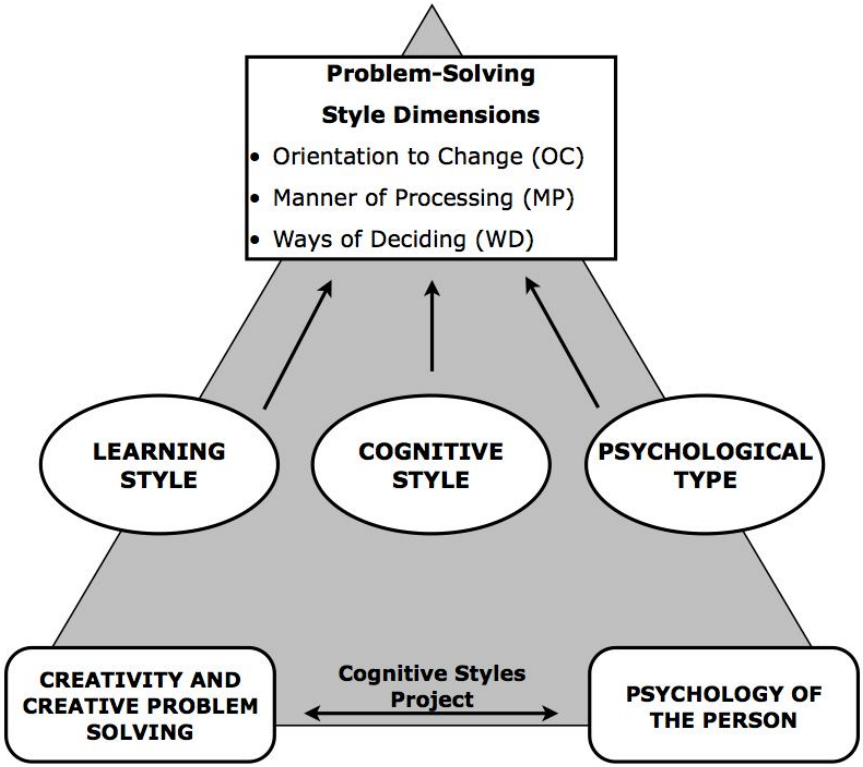

Figure 1. A Model of Problem Solving Style

One of the findings from the Creative Studies Program related to differences between experimental and control group subjects who dropped out of the eclectic program. Those who left the experiment possessed characteristics such as: more directed toward deviancy or culturally disapproved behavior, in closer contact with their primary processes, freer, more impulsive, more likely to drop out of college, less responsible and more anxious (Parnes, 1987). Dropouts seemed to be more interested in artistic forms of creativity and withdrew because of their disappointment in the nature of the course. The implications and a more extensive description of the findings of the dropouts are reported in Parnes & Noller (1973a) and Parnes (1987). This link to individual differences and characteristics of the creative personality formed the basis for the Cognitive Styles Project.

The Cognitive Styles Project explored the individual differences associated with learning and applying creative approaches to problem solving (Isaksen, 2004; Puccio, Murdock, & Mance, 2005). It obtained insights into how different individuals approached learning and applying creative problem solving (Isaksen, 1987; 2004; Isaksen & Dorval, 1993b; Isaksen & Geuens, 2007; Puccio, Wheeler, & Cassandro, 2004) further underpinning the potential value of assessing problem-solving styles.

The investigators involved in the Cognitive Styles Project studied numerous models and measures of assessing individual differences. The three major constructs

within the project included psychological type and temperament theory (Jung, 1923; Kretschmer, 1925; Myers & McCaulley, 1985; Sheldon, 1942; Vernon, 1933; 1973), learning style theory (Dunn & Dunn, 1978; Gregorc, 1985; Hilgersom-Volk, 1987; Kolb, 1981) and cognitive style theory (Guilford, 1986; Kirton 1976; Martinsen & Kaufmann, 1999; Witkin & Goodenough, 1981).

A new model of problem-solving styles was formed based on these theoretical and conceptual foundations (Selby, Treffinger, & Isaksen, 2007a; Selby, Treffinger, Isaksen, & Lauer, 2004; Treffinger, Selby & Isaksen, 2008). This model included three dimensions of problem-solving style. Each dimension includes a continuum with clear descriptions of styles at each end (these are described in Table 1). The Orientation to Change dimension encompasses individual preferences for responding to and managing structure, authority, and novelty when dealing with change or solving problems and is anchored by Explorer and Developer styles. The Manner of Processing dimension focuses on preferences for how and when individuals use their inner energy and resources (and those of others or from the environment) when processing information when managing change or solving problems and is anchored by External and Internal styles. The Ways of Deciding dimension refers to dispositions of individuals in balancing concerns for tasks and interpersonal needs when focusing, making decisions or taking action and is anchored by Person and Task styles. This model of problem solving styles, and its assessment, provided the approach we took for this study.

The Climate for Creativity and Innovation

Similar to other organizational psychologists (Denison, 1996; Glisson & James, 2002; Pettigrew, 1990; Schein, 2004; Schneider & Gunnarson, 1991), Ekvall has differentiated the concepts of climate and culture. Ekvall (1991) defined climate as the observed and recurring patterns of behavior, attitudes, and feelings that characterize life in the organization. Culture reflects the deeper foundations of the organization and includes values, beliefs, deeply held assumptions, history, traditions, symbols and rituals. According to this distinction, culture provides the foundation for patterns of behavior that are more readily observed, described, and changed. These patterns of observed behavior along with many other variables help to establish the climate within the organization. Climate is what members of the organization experience, while culture reflects what the organization values.

The climate construct can also be approached by different theoretical perspectives (Ekvall, 1987; Kuenzi & Schminke, 2009) and on different levels, depending on the unit of analysis and the aggregation of individual perceptions utilized (James, Choi, Ko, McNeil, Minton, Wright, & Kim, 2007; James, James, & Ashe, 1990). Psychological climate is the cognitive appraisal by an individual of environmental attributes in terms of their acquired meaning and personal value to the individual. When individual appraisals are aggregated, based on the belief that individuals in an organization have a sense of shared meaning, the results are often referred to as either team (at the group level) or organizational climate (at the social system level). As an attribute of an organization, organizational climate for innovation has been identified as a productive construct to utilize in preliminary and sustained organizational diagnosis for development or improvement efforts (Ekvall, 1987; 1996; Isaksen & Ekvall, 2007; 2010; Schneider, Brief, & Guzzo, 1996).

Table 1
The Dimensions of VIEW

Orientation to Change - How people prefer to manage change or solve problems, to develop existing pathways or explore different pathways. (α = .87)	
Explorers tend to: Work well without structure and authority. Maintain energy by working on a wide array of tasks. Gain energy from envisioning the big picture. Welcome the freedom to create and follow one's own rules and guidelines. See deadlines as fluid and flexible. Prefer to work away from guidance or direct supervision.	**Developers tend to:** Be enabled by structure and authority. Maintain energy through persistence in working on a task. Gain energy from the details of follow-through and implementation. Welcome rules and guidelines for how to complete a task. Seek, accept, and meet given deadlines. Prefer to work with close guidance or direct supervision.
Manner of Processing - Where people prefer to process information, internally or externally. (α = .86)	
Externals tend to: Draw energy from interaction with other people, discussing possibilities, and building one person's thinking on another's. Share their thinking early, seeking input from others to refine and strengthen their thoughts before reaching closure. Also, they may press to move quickly from ideas to action.	**Internals tend to:** Draw energy from opportunities for quiet reflection. Look to their own inner thoughts, considering ideas themselves before they are ready to share them with others. Also may prefer action that follows careful study.
Ways of Deciding - What people prefer to focus on when making decisions, the people or tasks at hand. (α = .84)	
Person-oriented individuals tend to: Consider first the effect or impact of choices and decisions on people's feelings and support, and on the need for harmony and positive relationships. They may give the greatest weight to judgments about people and relationships when making decisions.	**Task-oriented individuals tend to:** Look first at choices and decisions that are logical, sensible, and that can be justified objectively. They tend to "let the chips fall where they may" in the interest of standards and quality issues. They may give the greatest weight to results and outcomes when making decisions.

* Source for Cronbach's Alphas: Treffinger, 2009.

Positive engagement and well-being, at an individual and organizational level of analysis, affect creativity and innovation. It has been argued that setting appropriate conditions for creativity and innovation results in higher levels of organizational creativity and innovation, as well as better individual psychological well-being (Rasulzada & Dackert, 2009). When people experience positive interaction, lower levels of stress, and feel valued, they are more likely to engage in creative behaviors, generate creative ideas, and solve problems creatively (Cohen-Meiter, Carmeli, & Waldman, 2009; Fredrickson, 2001). When employees feel a deeper sense of engagement and experience a climate conducive to creativity numerous business benefits result, including higher levels of innovation (Harter, Schmidt, & Hayes, 2002; Vincent, Bharadwaj, & Challagalla, 2004).

The question of climate in organizations and work-groups that support creativity and innovation, as one facet of the larger work environment literature, has been the subject of studies and theory construction for several decades (Johns, 2006). In a recently published meta-analysis and review of 42 such studies including data from 14,490 participants, climate assessments were found to evidence sizable, nontrivial relationships with creative achievement across studies (Hunter, Bedell, & Mumford, 2007). The study concluded that: "all the dimensions commonly examined in the climate studies produced sizeable effects with respect to measures of creativity and innovation (p.76)."

Organizational innovation depends on a climate that supports innovation. Ekvall (1983; 1987; 1996; 1997) has found that measures of creative climate have significantly differentiated innovative from stagnated organizations (number of patents obtained, technical and market originality, business strategy, success in developing and launching new products and services). Mumford and Gustafson (1988) argued that even when individuals have the capability to innovate, their willingness to do so depends on the climate. In their rather extensive literature review on creativity and innovation, Mumford and Gustafson (1988) summarized the importance of setting an appropriate climate and stated:

Taken as a whole, these studies suggest that a climate that facilitates innovation is one that provides a cognitive basis for idea generation and encourages the actions required for implementing these ideas while it demonstrates acceptance and recognition for the individual's creative efforts. (p. 37)

There are numerous models of elements or dimensions that affect the climate for creativity and innovation (Kuenzi & Schminke, 2009). One such model was proposed by Ekvall (1996) and places climate as an intervening variable influenced by several antecedent factors and influencing organizational and psychological processes with ultimate effects on organizational innovation and well-being. Nine key dimensions of a climate for creativity and innovation have been identified from more than 50 years of research and development (Isaksen & Ekvall, 2007). These are summarized in Table 2. Ekvall's model and the dimensions for its assessment were applied to assess the climate for creativity in this study.

Linking people and place

Most scholars would agree that behavior, therefore creative behavior, is a function of the person and his or her environment (Lewin, 1938). Some have asserted that the creativity literature has suffered from fundamental attribution error due to its emphasis on searching and measuring creativity solely within the individual and with little concern for situational influences (Walton, 2003). Organizational and work psychologists address the issue of understanding the interaction of people and their environments through the study of the person-environment (P-E) fit domain (Furnham, 2001). Understanding and creating congruence between characteristics of employees, such as their problem-solving styles and their work contexts, adds value within the interactionist framework and, more generally, the concept of fit has been linked to numerous workplace outcomes. For example, productive fit has been linked to higher levels of job satisfaction, organizational commitment, lower turnover, organization attraction, job choice, and creative task performance (Chapman, Uggerslev, Carroll, Piasentin & Jones, 2005; Chan, 1996; Hoffman & Woehr, 2006; Puccio, Talbot & Joniak, 2000; Schneider, 1975; Verquer, Beehr & Wagner, 2003).

Table 2
The SOQ Dimensions

SOQ Dimensions	High Level Definition
Challenge/Involvement	The degree to which people are involved in daily operations, long-term goals, and visions. (α = .86)
Freedom	The degree of independence and autonomy shown by the people in the organization. (α = .83)
Trust/Openness	The emotional safety in relationships. (α = .69)
Idea-Time	The amount of time people can, and do, use for elaborating new ideas. (α = .87)
Playfulness/Humor	The spontaneity and ease displayed within the workplace. (α = .88)
Conflict	The presence of personal and emotional tensions (a negative dimension – in contrast to the Debate dimension). (α = .86)
Idea-Support	The way new ideas are treated. (α = .89)
Debate	The occurrence of disagreement between viewpoints, ideas, experiences, and knowledge. (α = .88)
Risk-Taking	The tolerance of uncertainty and ambiguity. (α = .79)

* Source for Cronbach's Alphas: Isaksen & Ekvall, 2007.

Since this study examines the relationship between problem-solving style as a person-oriented construct and creative organizational climate as an environment-oriented construct, it falls within the domain of P-E fit. Further, this study is an attempt to respond to the recent calls to connect the creativity and management streams of research (O'Shea & Buckley, 2007; Xu and Rickards, 2007). Their assertion was that these two streams of literature have been rarely connected and that there is a high likelihood that they can better inform each other. Rather than examining fit through assessments of stress, coping, intention to leave, or degree of job satisfaction, this study applies a measure of both best and worst-case climate for creativity and innovation.

There are two dominant conceptual approaches to studying P-E fit (Edwards, 1996; French, Caplan & Harrison, 1982). These have been identified as supplies-values (S-V) and demands-abilities (D-A). S-V fit refers to the match between a person's values and qualities of the environmental attributes available to fulfill those values. The core process involved in S-V fit is a cognitive appraisal of the perceived and desired amount or quality of events experienced by the individual. D-A fit is concerned with the correspondence between environmental demands and an individual's abilities. The core mechanism within D-A fit is the comparison of perceived environmental demands with the individual's ability to meet those demands. Therefore, S-V fit has its initial focus on the individual and D-A fit is anchored first within the environment.

There is no apparent consensus in the literature regarding which of these two approaches provides more insight into P-E fit, or their respective influence on creative outcomes. Choi (2004) investigated the relationship of S-V fit and D-A fit on creative behavior and context satisfaction. He found that personal characteristics (values and beliefs) where strong influencers of behavioral outcomes while environmental characteristics have a stronger impact on affective outcomes (context satisfaction). Livingstone, Nelson and Barr (1997) studied both approaches to P-E fit by applying a work environment measure for S-V fit and style assessments for D-A fit, along with measures of job satisfaction, commitment and strain. They found that the environmental influencers had impressive effects on job satisfaction, performance, strain, and commitment. They suggested that the importance of the environment should not be neglected in future research and recommended that both the positive and negative effects on creativity should be explored more fully.

The aim of this study is to better understand how people of differing problem-solving styles may have diverse perceptions of both their best-case and worst-case climates for creativity. Other scholars have pursued similar lines of inquiry and these will be reviewed below.

Oldham & Cummings (1996) assessed the contributions of creativity-relevant personal and contextual characteristics on creative performance. They used the Creative Personality Scale (Gough, 1979) as a style measure. The Job Diagnostic Survey (Hackman & Oldham, 1980) and a measure for supervisory style were distributed amongst participants in order to have context data. The outcome of the study suggested that employees who were working under conditions that would foster intrinsic motivation and had appropriate creativity-relevant personal characteristics demonstrated the highest creative performance. Their research indicated that both personal and contextual factors should be considered by management in order to increase creativity in organizations.

Oldham & Cummings (1996) provided support for the importance of taking an interactionist approach to creativity research. Some scholars who have examined style and climate have used the concept of cognitive climate (Kirton & McCarthy, 1988; Tierney, 1997). The approach is based on the observation that individuals within the same functional unit share certain stylistic preferences. When these individuals are within close proximity of the mean of their group, they are considered the "in" group.

Chan (1996) investigated the occurrence of cognitive misfit of problem-solving styles in their relationship to performance and turnover. Individuals joining an organization completed Kirton's Adaption-Innovation Inventory (KAI, Kirton, 2003) and were examined longitudinally as these incumbents were then assigned to a more adaptive versus more innovative work environment. The results indicated that when there was a higher degree of cognitive misfit between individuals' cognitive style and the predominant style demanded from the work context there was a higher probability of turnover.

Cools, Van den Broeck & Bouckenooghe (2008) applied a three-dimensional cognitive style assessment along with measures of work attitudes, job satisfaction and intention to leave using two large databases (N = 26,449). They found some support for the notion of cognitive climate in that there were some similarities in preferred ways of working within the occupational groupings they identified. When it came to people's work attitudes, cognitive styles and cognitive climate demonstrated clear independent influence. They concluded that although the concept of cognitive climate

as the collective preferred style of a group's majority is a convenient and generally accepted method, a more useful approach is to directly measure environment instead of assuming or subjectively assigning it.

Puccio, et. al. (2000) used an altered version of the KAI, the Kirton Adaption-Innovation Adjustment Scale, to identify cognitive style and asked the respondents to describe the type of person the respondent was required to be at work, the type of person he or she currently is at work, and how their behavior would be in an ideal job. These three questions served as commensurate scales to assess P-E fit. Puccio, et al. (2000) concluded that a better fit between personal preferences and situational demands led to an increase in creative performance.

While the use of commensurate scales, using identical dimensions for assessing both environment and person offers some advantages; it may overestimate the interaction between these variables (Caplan, 1987). Taking an intrapersonal psychological construct like style, which is often based on personality theory (Furnham, 1992), and stretching its application into a social psychological domain may also limit the consideration of other variables important in understanding interaction (Edwards, 1994). Furthermore, research has indicated that contextual factors can often be more important than individual psychological factors (D'Amato & Zijlstra, 2007). An alternative is to use a direct assessment of creative climate and examine its relationship to an intrapersonal construct like problem-solving style.

Our own venture into examining the relationships between personal and climate characteristics has indeed focused on using independent measures for each construct. Given our interest in creativity and innovation, the measure of style had to be related to problem solving of a creative kind. The measure of climate had to relate directly to creativity and innovation. In this way we established conceptual congruence.

Our initial study (Isaksen & Kaufmann, 1990) to deliberately examine the link between creative organizational climate and personal style used the KAI as a single-dimensional measure of style and the Situational Outlook Questionnaire (SOQ) as an assessment of organizational climate. The aim of the study was to see if there were relationships between cognitive style and creative climate using an aggregated sample of convenience (N = 634). The results indicated a few significant differences between the KAI and two dimensions of creative climate assessed by the SOQ. Kirton's adaptors reported significantly more Challenge and Involvement, and innovators reported significantly more Conflict (personal tension).

Following a critique of Isaksen and Kaufmann (1990) offered by Clapp and Kirton (1994), Grivas (1996) conducted a multi-method study to further explore the extent to which there were relationships between cognitive style, as assessed by the KAI, and the creative climate, as assessed by the SOQ. The sample included 147 research and development professionals within one global consumer products organization. The quantitative results using a smaller, but more homogeneous sample, showed few low, but significant, correlations. Further, the ANOVA and discriminant function analysis (DFA) did not yield any significant climate differences for strong adaptors or innovators. The qualitative analysis did, however, produce some meaningful differences.

Those with a stronger adaptive preference require deliberate validation and encouragement from their managers to express more Freedom and Risk-Taking, while those with a stronger innovator orientation seemed to innately assume that they can and should engage in these dimensions. When it came to structure and rules, adaptors were less likely to push against or violate them, while innovators perceived structure

and rules as confining. When considering how people of differing styles relate to the social aspects of the organization, strong adaptors saw a cohesive and well-structured group as supportive of their creativity. Strong innovators preferred not to be "bogged down" by needing to conform to a group.

In order to further respond to the critique offered by Clapp and Kirton (1994), Isaksen and Lauer (1999) reanalyzed their data from the 1990 study with an expanded data set (N = 646) using the same two measures. Their earlier findings on Challenge and Involvement and Conflict were replicated. In addition, Kirton's adaptors were more likely to perceive more Risk-Taking in their work environments than innovators.

The previous studies used the KAI to assess the cognitive style of those completing the SOQ. The KAI is a single-dimensional assessment that provides a continuous score ranging from most adaptive to most innovative. Isaksen (2009) conducted a fourth study to examine the relationship between problem solving style and climate, but used a multi-dimensional approach to assess style preferences. Using the three dimensions of style allowed for a deeper examination of the style construct. Since Grivas (1996) found such meaningful qualitative differences, a multi-method approach was taken. The study included 144 participants drawn from six different organizations with different professional positions.

Two small, but significant, correlations were found out of the 27 coefficients computed. Explorers perceived more Challenge and Involvement and Externals perceived more Idea-Support. Further, DFA with more extreme style preferences found no significant differences. Once again, some clear and meaningful differences were found from the qualitative analysis and were somewhat consistent with the previous studies.

These previous studies examined the relationship between cognitive or problem-solving style and the existing perceptions of the current working climate. In general, only modest (if any) quantitative relationships were identified, but meaningful qualitative differences were consistently found. Rather than assessing patterns of behavior that are observed currently, this study aimed at examining best and worst-case climates to provide more contrast and to respond to the call from Livingstone, et. al. (1997) and Choi, et. al. (2009) to examine both positive or supporting and negative or limiting characteristics of the environment. This allows a stronger link to the concept of organizational fit in that best-case working climates are more likely to reflect a desired or fit situation. Conversely, worst-case working climates are more likely to reflect a least desired or misfit situation. For this study, we continued to use a multi-dimensional assessment of problem-solving style.

The purpose of this study was to explore more deeply the relationships between people and place by assessing both style of problem solving and the nature of the climate for creativity. We used VIEW: An Assessment of Problem Solving Style (VIEW) to assess people's preferred problem-solving style and a short form of the SOQ to assess the work environments of both best and worst-case work environments.

METHOD

Sample

The sample for this study included 213 individuals and consisted of both professionals who worked in organizations and students. One hundred forty-three respondents were members of organizations who contracted with The Creative Problem

Solving Group for training in creative problem solving: 64% were directors, CEO's, board members or senior managers while 36% consisted of a group of mixed professionals. They came from one of the big five accounting firms, the largest non-profit provider of education, training, and career services and from a leadership conference hosted by the University of Great Falls in Montana. The other 70 participants came from educational institutions: 34% were master students enrolled in an MBA program at Wilkes University, Pennsylvania, or in the Norwegian School of Management and 66% were undergraduates from the University of Great Falls, Montana. All participants came from the United States of America or Norway. The sample consisted of 105 males, 107 females and 1 individual who declined to indicate gender. The mean age of the 201 respondents who reported their age was 34.34 years ranging from 17 to 69 years (SD = 11.92).

Measures

This study applied VIEW: An Assessment of Problem Solving Style to assess individuals' problem-solving style preferences. VIEW includes 34 items scored on a seven point Likert-type scale yielding results on three independent dimensions.

VIEW is based on clear and explicit conceptual foundations and demonstrates ample evidence of reliability and validity (Selby, Treffinger, Isaksen & Lauer, 2004; Selby, Treffinger & Isaksen, 2007a&b; Schraw, 2007; Staal, 2007; Treffinger, Selby & Isaksen, 2008). For example, confirmatory factor analysis on a large database sample (N = 19,065) resulted in a goodness-of-fit index (GFI) of .86, an adjusted goodness of fit index (AGFI) of .85, a normal fit index (NFI) of .82, and a root mean square error of approximation (RMSEA) of .06, indicating an adequate fit of the three-dimensional model. Given the relatively large and diverse sample, these results are likely a conservative estimate of fit (Cheung & Rensvold, 2002). The Cronbach's Coefficient Alphas for this sample on VIEW were .87 for Orientation to Change and .86 for both Manner of Processing and Ways of Deciding.

The dimensions of the Situational Outlook Questionnaire (SOQ) were used to assess best and worst-case climates. The SOQ is based on more than 50 years of continuous research and use. In their review of a variety of measures of organizational climate, Hunter, Bedell & Mumford (2007) identified the SOQ as well researched, standardized and validated. The SOQ assesses nine independent dimensions of the climate for creativity and innovation**.**

The dimensions of the SOQ have ample evidence regarding their reliability, validity, and usefulness (Isaksen & Ekvall, 2007; 2010; Porter, 2010; Sample, 2010). For example confirmatory factor analysis with 225 samples of convenience (N = 7,345) resulted in a GFI of 0.88, an AGFI of 0.87, an NFI of 0.89, and a RMSEA of .047, indicating an adequate fit of the nine-dimensional model.

The SOQ is usually applied as a multi-method measure. It includes three open-ended questions that provide additional insight regarding what is working well, what the barriers are, and what needs to be done to make the climate more supportive of creativity and innovation. For the purposes of this study, a short form of the SOQ was used to assess the nine dimensions of climate and the three open-ended questions were not utilized. The short form versions for both the best and worst-case climates consisted of nine questions, one for each of the nine dimensions. This approach has been utilized successfully in previous research (Isaksen, Lauer, Ekvall & Britz, 2001).

Procedure

Participants completed VIEW online and completed two short forms of the SOQ: one for best-case and one for worst-case. The data collection procedure for completing the best and worst-case climate assessments required participants to reflect on their previous work experiences. They were then given the following written instructions: "The purpose of this questionnaire is to examine your experience working in a situation you would consider to be the **most supportive** of your creativity. From your memory of that 'best case' situation, please rate that environment on the following statements by circling the appropriate number on the scale below the statement." Similar instructions phrased for "least supportive" and "worst case" were provided on another form. To ensure that the participants had a clear retrospective focus, they were asked to write down a description of the specific work situation before completing the climate assessments. This aspect of the data collection procedure was counter-balanced.

The 213 participants identified a wide variety of work experiences for their assessment. The best-case work situations they identified reflected both their current and previous employment and generally represented positive environments. The worst-case situations included part-time employment, jobs they felt they were required to take, or other examples of unsatisfactory work environments (some of which they currently held).

Since this study included assessment of 426 different situations, and the sample included both students and professionals, it was important to ensure that there was relative consensus in people's perceptions of both their best and worst-case climates. Any time climate scores were aggregated; r_{WG} values were computed (James, Demaree, & Wolf, 1984) to give an indication of the inter-rater reliability. In general, an r_{WG} value of .70 or above would indicate that the means of the SOQ are sufficiently homogeneous for within-group aggregation (George, 1990).

Since self-report measures were used for both style and climate, Harmon's Single Factor Test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) was performed to assess the extent to which the results were affected by common method variance. An unrotated exploratory factor analysis was performed resulting in 15 factors with Eigenvalues over 1.0 accounting for 67.32% of the total variance. The first factor had an Eigenvalue of 6.55 and explained 12.6% of the variance. It contained 21 items, 18 of which were derived from all the items from the Orientation to Change scale of VIEW. Since a single dominant factor was not found, the evidence supported a lack of common method variance (Malhotra, Kim, & Patil, 2006). Further, when we conducted a Varimax rotation and set parameters to derive five factors, the items clearly loaded on the three VIEW styles and two others explained by best and worst-case climates.

We sought to confirm the existence of clear contrast between best and worst-case climates to lay the foundation for further analyses. Correlation analysis was performed to examine the relationships between problem-solving style and creative climate. We created clear style groupings and applied discriminant function analysis (DFA) to explore the S-V approach to fit, and examined style's ability to predict climate. The D-A fit approach was explored via multiple regression using climate as the dependent variable and examining the amount of variance accounted for by style and other independent variables.

RESULTS

Table 3 depicts the descriptive statistics including the means, ranges, and standard deviations for both best and worst-case climates as well as for VIEW.

Table 3
Descriptive statistics SOQ (Best & Worst-Case) and VIEW

	Mean Score		Range		SD	
SOQ Dimensions	BC	WC	BC	WC	BC	WC
Challenge/Involvement	243	109	50-300	0-300	49.90	70.31
Freedom	218	103	50-300	0-300	60.56	71.75
Trust/Openness	234	88	0-300	0-300	63.35	62.73
Idea-Time	210	75	50-300	0-250	63.39	54.50
Playfulness/Humor	247	92	0-300	0-300	58.91	70.15
Conflict	59	156	0-250	0-300	57.29	94.22
Idea-Support	232	78	50-300	0-250	56.33	55.35
Debate	214	88	0-300	0-300	60.18	60.96
Risk-Taking	213	77	0-300	0-300	66.82	60.55
VIEW Dimensions						
Orientation to Change	75		23-120		15.45	
Manner of Processing	29		8-55		9.00	
Ways of Deciding	35		12-55		8.60	

N = 213
* Note: BC=best-case; WC=worst-case

The results on the nine SOQ dimensions, for both cases, follow a similar pattern to earlier research (Isaksen et al., 2001). VIEW scores were all similar to the observed means as reported in VIEW's technical manual and the most recent analysis of the VIEW database including over 20,000 subjects (Selby et al., 2007a; Treffinger, 2009).

In order to confirm the discriminating capability of the SOQ for these two different climates an ANOVA (see Table 4) was conducted on the means of both best and worst-case climate results for the entire sample.

After considering 426 different work environments, all nine dimensions of the SOQ showed significant differences between the best (n = 213) and worst-case (n = 213) climates. Despite the wide diversity of situations included, the r_{WG} intervals fell well above the accepted standards. These results are consistent with the findings from our previous studies (Isaksen et al., 2001). Eta-squared coefficients were also computed to calculate effect sizes. All variables demonstrated moderate to strong effect sizes (Cohen, 1992, Ellis, 2010; Olejnik & Algina, 2000). Given the clear and significant differences between best and worst-case climates, the next stage of analysis was to determine if relationships amongst style and climate variables existed. Correlations were computed for the two distinct situations and are presented in Table 5 below.

Only five significant relationships were found between the climate and style variables. When they considered their best-case situations Explorers preferred to work in an environment with more Freedom (-.24, $p \leq .01$) and Challenge/Involvement (-.14, $p \leq .05$) than Developers. Individuals with stronger Task preferences preferred

more Idea-Time (.14, $p \leq .01$) compared to Person-oriented preferences.

Table 4

Results for Best and Worst-Case Climates

SOQ Dimensions	Means		F*	η^2
	Best-Case[a]	Worst-Case[b]		
Challenge/Involvement	243	109	514.10	.11
Freedom	218	103	321.77	.08
Trust/Openness	234	88	574.44	.12
Idea-Time	210	75	552.90	.11
Playfulness/Humor	247	92	609.09	.15
Conflict	59	156	171.89	.06
Idea-Support	232	78	817.38	.15
Debate	214	88	464.88	.10
Risk-Taking	213	77	485.14	.11

* all $p < .0001$, $df = 1$, $n = 426$

[a] $r_{WG(9)} = .91$ [b] $r_{WG(9)} = .85$

Table 5

Correlations Best and Worst-Case Climates & VIEW

SOQ Dimensions	Orientation to Change	Manner of Processing	Ways of Deciding
	Best-Case Climate (N = 213)		
Challenge/Involvement	-.14(*)	-.01	.10
Freedom	-.24(**)	-.03	.07
Trust/Openness	-.07	-.10	.11
Idea-Time	-.09	-.04	.14(*)
Playfulness/Humor	-.08	-.11	-.03
Conflict	-.06	-.06	-.06
Idea-Support	-.09	-.00	.03
Debate	-.07	-.01	.12
Risk-Taking	-.11	.12	.12
	Worst-Case Climate (N = 213)		
Challenge/Involvement	.03	.08	-.01
Freedom	.05	.07	-.14(*)
Trust/Openness	.02	-.03	-.05
Idea-Time	.06	.05	-.02
Playfulness/Humor	.06	.03	-.13
Conflict	-.07	-.03	.00
Idea-Support	.10	.02	-.05
Debate	.04	.07	-.14(*)
Risk-Taking	.10	.06	-.08

* $p \leq .05$ level (2-tailed) ** $p \leq .01$ level (2-tailed)

In the worst-case situation there were no significant correlations for Orientation to Change or Manner of Processing. On Ways of Deciding, those with a stronger Person-oriented preference perceived lower amounts of Freedom (-.14, $p \leq .05$) and Debate (-.14, $p \leq .05$) than those with Task-oriented styles. Since the correlation results yielded only five significant correlations of 54 possible relationships, the next phase of analysis aimed at a deeper exploration of the potential links between style and climate variables.

More clear style groupings were created by including only those who scored one half standard deviation above or below the observed mean on all three VIEW dimensions. This procedure is consistent with the notion of a cognitive gap (Clapp & deCiantis, 1987; Kirton & deCiantis, 1994; Kirton & McCarthy, 1988). Since style clear groups were created across all three dimensions of VIEW, DFA was applied to determine if style classifications could be made utilizing climate results. The S-V approach to fit was examined in this manner. The results of this analysis are included in Table 6 below.

Manner of Processing did not yield any significant prediction on climate scores using DFA, so Table 6 only includes climate results for Orientation to Change and Ways of Deciding. The results indicated that Explorers perceived more Freedom ($\bar{x}$ = 231) in their best-case working climates than Developers ($\bar{x}$ = 202). Freedom was identified as an optimum predictor variable (Wilks' Λ = .984, F = 7.374, $p<.007$, 64.5% classification). This indicated that higher scores on the Freedom dimension of the SOQ predicted an Explorer preference when considering a best-case work situation.

The largest difference between Explorers and Developers in their worst-case situation was found on the Idea-Support dimension of the SOQ. Explorers tended to see less Idea-Support ($\bar{x}$ = 68) in their worst-case climates than Developers ($\bar{x}$ = 87). The DFA indicated that Idea-Support was an optimum predictor variable (Wilks' Λ = .972, F = 3.929, $p<.049$, 55.8% classification), suggesting that scores on Idea-Support can provide some prediction of scores on Orientation to Change in the worst-case situation.

Since Manner of Processing did not yield any significant predictions, Ways of Deciding was the next focus of this study. The largest differences between individuals with a Person-oriented preference and those with a Task-oriented preference in the best-case situation were found on Trust/Openness ($\bar{x}$ Person = 225.87 and $\bar{x}$ Task = 242.85) and Debate ($\bar{x}$ Person = 205.65 and $\bar{x}$ Task = 233.46). The results from our DFA, presented in Table 6, indicated that Trust/Openness (Wilks' Λ = .945, F=7.333, $p<.008$, 61.7% classification) and Debate (Wilks' Λ= .949, F=6.768, $p<.01$, 61.7% classification) showed significant discriminating power in identifying style preferences on the Ways of Deciding dimension.

In summary, the differences in climate scores between best and worst-case climates were able to identify and predict, to some extent, different problem-solving styles. Meaningful prediction was found for Orientation to Change and Ways of Deciding indicating that there are considerations from a S-V fit perspective.

Our next focus was to examine the problem-solving style dimensions as predictors of climate. This allowed for the exploration of the D-A fit approach as we started with climate as the dependent variable and then considered the predictive value of problem solving style and key demographic variables. We summed the scores on all the SOQ

Table 6

Test of Equality of Means for Orientation to Change and Ways of Deciding

Orientation to Change (n = 138)[a]	Best-Case				Worst-Case			
SOQ Dimensions	Wilks' λ	F	Explorer Mean	Developer Mean	Wilks' λ	F	Explorer Mean	Developer Mean
Challenge/Involvement	0.984	2.272	250.00	237.10	0.998	0.217	113.04	118.55
Freedom	0.949	7.374**	231.16	202.10	0.998	0.335	100.00	107.46
Trust/Openness	0.991	1.201	239.86	228.48	0.998	0.291	89.86	96.09
Idea-Time	0.985	2.112	222.83	206.88	0.998	0.310	73.91	79.13
Playfulness/Humor	0.985	2.093	252.54	237.61	0.985	2.061	81.88	98.19
Conflict	0.991	1.181	60.14	50.07	0.998	0.240	160.14	152.25
Idea-Support	0.989	1.470	236.23	224.06	0.972	3.929*	68.12	87.25
Debate	0.983	2.400	222.10	206.52	0.996	0.536	85.51	93.04
Risk-Taking	0.990	1.382	219.93	206.16	0.987	1.857	69.13	83.19
Ways of Deciding (n = 128)[b]	**Best-Case**				**Worst-Case**			
SOQ Dimensions	Wilks' λ	F	Person Mean	Task Mean	Wilks' λ	F	Person Mean	Task Mean
Challenge/Involvement	0.977	3.005	243.65	257.08	0.993	0.894	107.94	120.46
Freedom	0.987	1.613	214.29	228.38	0.982	2.375	114.29	93.31
Trust/Openness	0.945	7.333**	225.87	252.85	1.000	0.009	81.75	82.77
Idea-Time	0.972	3.644	206.35	227.92	0.999	0.170	70.63	74.77
Playfulness/Humor	1.000	0.005	255.56	254.92	0.987	1.649	94.44	78.85
Conflict	0.990	1.299	58.73	47.00	0.994	0.709	157.14	143.15
Idea-Support	0.995	0.632	229.37	237.85	1.000	0.048	79.37	77.08
Debate	0.949	6.768*	205.56	233.46	0.993	0.952	93.65	82.62
Risk-Taking	0.976	3.117	210.32	231.54	1.000	0.039	80.95	78.62

* $p \leq .05$ level (2-tailed) ** $p \leq .01$ level (2-tailed) [a]df = 1, 136 [b]df = 1, 126

dimensions to create an overall climate score, reversing the scores on Conflict, so that the higher the overall score the better the climate. In addition to the three dimensions of VIEW, we included three demographic independent variables (gender, age, and employment status). These demographic variables accounted for a significant amount of the explained variance in previous research on climate (Lauer & Isaksen, 2001).

We applied multiple linear regression analysis to determine how much of the variance in climate scores could be accounted for by the independent variables. Gender (male = 1, female = 0) and employment status (employed = 1, student = 0) were included as dummy variables. The six variables were entered in the regression model using a backward stepwise elimination method allowing the elimination of those variables that did not significantly contribute to the prediction of climate. It took three steps to reach the final regression model for the best-case situation and five

steps to obtain the final model for the worst-case climate. Table 7 includes the results of both analyses.

For the best-case regression, the first independent variable to be removed at step two was Manner of Processing. For the third and final step, professional status was removed. Gender, age and Ways of Deciding were found to be predictors of best-case climates (Orientation to Change approached the .05-significance level). These results indicate that a style dimension explains additional variance beyond gender and age when predicting climate scores. Task-oriented deciders are more likely to score higher for their perceived best-case climate than People-oriented deciders. This best-case regression model only accounted for 7% (ΔR^2) of the variance. Although the predictor variables were significant, a great deal of the variance in climate scores remained unexplained indicating that many other factors may influence climate. This would be consistent with explanation of Isaksen, et. al. (2001) and others that there are likely to be many antecedent factors that influence climate.

For the worst-case climate regression, gender was eliminated at the second step, followed by age for the third step. Manner of Processing was dropped at the fourth step of the regression. At the fifth and final step, only Orientation to Change and Ways of Deciding predicted climate scores. These two variables explained a small (ΔR^2 = 3%) but significant amount of the total variance. Those with stronger Developer preferences perceive higher scores in their worst-case work experience than Explorers. Individuals with a People-oriented Ways of Deciding preference see a better work environment in their worst-case experience than Task-oriented deciders. Therefore, an individual with one or both of these preferences may see fewer of the negatives in a worst-case climate and more of the positives.

These results indicated consideration of different styles within the Orientation to Change and Ways of Deciding dimensions added some explanation of the variance when the focus was shifted to predicting best and worst-case climates. Given the small amount of variance accounted for, however, many other factors are likely to exert an influence on climate.

DISCUSSION

There are numerous benefits of independently assessing and understanding both style and climate. People who understand their problem-solving style preferences are in a much better position to know themselves better and contribute more to group and organizational challenges. Leaders and managers who deliberately assess their climate for innovation and change can build and support what's working well and address things needing attention (Isaksen, 2007).

This study did not intend to diminish the distinct benefits of examining either style or climate separately. The aim was to inquire into the relationship between them – taking an interactionist approach. Earlier research in this area had applied a single dimension of style and did not yield many significant relationships with a creative climate. This earlier research considered people's current perceptions of their working climate. For the purposes of this study, we asked participants to reflect on and assess their best and worst-case work situations, providing a more dramatic spectrum of climate scores.

Table 7
Regression for Best and Worst-case Climate

		Best-Case			Worst-Case		
	Variable	**R^2**	**F**	**ß**	**R^2**	**F**	**ß**
Step 1		.10	2.99**		.06	1.51	
	Gender			-.15*			-.01
	Age			.28**			-.03
	Employed/ Student			-.15			.12
	Orientation to Change			-.16*			.18*
	Manner of Processing			.05			.06
	Ways of Deciding			.21**			-.18*
Step 2		.10	3.53**		.06	1.81	
	Gender			-.15			
	Age			.28**			-.03
	Employed/ Student			.15			.12
	Orientation to Change			-.16			.18*
	Manner of Processing						.06
	Ways of Deciding			.21**			-.18*
Step 3		.09	3.89**		.06	2.27	
	Gender			-.16*			
	Age			.18*			
	Employed/ Student						.10
	Orientation to Change			-.15			.18*
	Manner of Processing						.06
	Ways of Deciding			.20**			-.18*
Step 4					.05	2.82*	
	Employed/ Student						.10
	Orientation to Change						.19*
	Ways of Deciding						-.18*
Step 5					.05	3.49*	
	Orientation to Change						.17*
	Ways of Deciding						-.18*

This study replicated and confirmed previous research indicating that people have clear, meaningful, and significant differences between their most preferred and least preferred work climates (Isaksen et al, 2001). Further, the nine dimensions of the SOQ are able to assess these differences. Higher scores on the eight positive dimensions and lower scores on the one negative dimension clearly illustrated the best-case climate – and the opposite condition for the worst-case. These differences held up even though there were a wide variety of specific climates considered.

Through the correlation analysis, DFA, and regression results it was clear that applying a multi-dimensional measure of style provided more insight into the relationships between style and climate than relying on a single dimension of style. By tackling the interaction effects in two different ways (i.e. climate predicting style and style predicting climate) we were able to move this research into the P-E fit domain. Creativity research has indicated that we need individual creative behavior in order to have innovative organizations, but equally, an innovative organization is required in order to allow individuals to apply their creativity (O'Shea & Buckley, 2007). This study has shed some preliminary light on how those with certain preferences for styles of creative problem solving behaviors need certain conditions within the organizational climate in order to express their creativity.

There are clear implications for those who aim to create the most desirable work setting. From the S-V fit perspective, those with clear Explorer preferences observed more Freedom than strong Developers in their best-case work situations. Explorers prefer to work away from guidance or direct supervision, they welcome freedom to create their own guidelines, they like to bend the rules and see structure as limiting and confining. The results of the current study are consistent with earlier qualitative findings that Explorers enjoy large amounts of leeway in making their own decisions and autonomy in establishing their own direction for work (Isaksen, 2009). They see stringent planning processes as a barrier to their creativity. Developers welcome authoritative guidelines and like working with close guidance or direct supervision in a well structured and organized environment. Again, previous qualitative findings indicate that Developers see ambiguity and a lack of clear goals and structure as a barrier to their creativity.

These results are consistent with a great deal of the creativity literature. Those individuals who have a clear preference for exploratory kinds of change are likely to perform better when they work within more fluid or permeable boundaries, and have a personal or intrinsic connection to the task (Amabile, 1996; Arieti, 1976; Koestler, 1964). Those with a clear preference for a more Developmental approach to change and problem solving are more likely to prefer an environment that provides an appropriate level of structure and access to those in authority. Further, the results indicated that Explorers perceive less Idea-Support in their worst-case climates. This is likely due to their tendency to generate alternatives that are highly novel and original. These options may seem to disrupt the accepted approach to change.

Task-oriented deciders tend to see more Trust/Openness and Debate in their best-case work environment. This may be explained by the tendency for them to assume that offering a different point of view to others is natural and prefer to assume that there is a suitable degree of emotional safety in doing so. Individuals with a Task preference are more focused on results and outcomes and prefer to separate people from their ideas when providing feedback. Previous qualitative findings indicated that having a clear understanding of all the requirements in order to provide a high-quality

solution helps Task-oriented deciders with their creativity. Therefore, Task-oriented deciders will more likely share many other viewpoints regarding the task – seeing more Trust and Debate. Person-oriented deciders tend to see people and their ideas as connected (or more holistically). As such, they are more focused on harmony and as a result they are more conscious about maintaining good relationships and about the possible tension they may create by sharing their ideas or feedback. Previous quailtative results indicated that Person-oriented deciders desire higher levels of Trust/ Openness and see a lack of respect in dealing with new ideas as a barrier to their creativity.

These results relate well to the general creativity literature. It has been fairly well established that creativity involves tension and its resolution (Rothenberg, 1976). From an epistemological perspective, creativity includes both novelty or newness and usefulness or resolution (Hausman, 1984). Climates that promote creativity generally have lower amounts of Conflict or personal tension and relatively higher levels of Debate or idea tension (Isaksen & Ekvall, 2010). As a result of seeing higher levels of Trust/Openness, Task-oriented deciders seem more able to engage in higher degrees of Debate. More recent psychological research has shown that individuals who have lower needs to be agreeable do better at divergent thinking tasks (Batey, Chamorro-Premuzic, Furnham, 2009) indicating that individual differences in the management of tension deserves further inquiry.

There are also clear implications for those who wish to avoid the least desired work setting. Explorers perceived less Idea-Support than Developers in their worst-case work situations. They prefer to explore possibilities broadly and generate original ideas. To do so they need the support from their peers and management. If they do not perceive enough support they may lose the needed energy to continue pursuing high degrees of novelty. For example, previous qualitative findings indicated that Explorers see long delays in senior management decision-making as a barrier to their creativity. Developers prefer to focus less on unique or daring ideas and more on generating alternatives that improve what exists. Therefore they would naturally see more Idea-Support than Explorers, even in a worst-case setting because it is easier for peers or managers to support ideas with lower perceived risk. Previous qualitative findings indicated that Developers focused on manager and peer support and encouragement as a stimulant for their creativity (Isaksen, 2009).

The DFA on Idea-Time approached significance (Wilks' Λ = .972, F=3.644, $p<.059$). Individuals with a Task-oriented deciding style see more Idea-Time in their best-case climates as they separate ideas from people and strive for efficiency when using time. Person-oriented deciding styles consider both people and their ideas. As a result they may have more dynamics and complexity to consider because they think about people and their ideas as a whole.

When predicting climate through style we moved from S-V to the D-A approach to P-E fit. The regression analyses provided significant results for predicting climate scores. Three out of six variables were identified as significant influencers in the best-case scenario: gender, age, and Ways of Deciding. These results indicated that women perceive a better best-case climate than men, more mature individuals experience a more positive working environment than their younger counterparts, and Task-oriented deciders were more likely to score higher for their perceived best-case climate than People-oriented deciders. Results for the Orientation to Change dimension approached the .05 level of significance. For worst-case work environments only Orientation

to Change and Ways of Deciding turned out to have a significant influence in predicting climate. Individuals with stronger Explorer preferences perceive lower scores in their worst-case work experience than Developers. Those with a Task-oriented focus on Ways of Deciding indicated a stronger negative perception of their work environment in their worst-case experience than People-oriented deciders.

In general, to maximize their contributions to creative work those with Explorer preferences may need to be given more discretion and Developers more guidance. Explorers may need to be challenged to strengthen their original ideas in order to achieve more Idea-Support. Those with strong Task-oriented deciding styles may need some help in engaging in productive Debate and building Trust when they face challenging work situations.

Since these differences exist, those who manage and lead others must rethink the notion that everyone should be treated exactly the same, particularly when the aim is to provide a climate that is conducive to creativity and innovation. Recent research indicated that leadership's most important role in obtaining innovation is creating the climate for creativity (Isaksen & Akkermans, In Press; Prokesch, 2009). This study underlines the importance of the leader's role and provides some concrete suggestions for how they may create more innovative workplaces. Managers and leaders must have a range of managerial strategies to get the best out of everyone, providing equal opportunities for people of all styles to contribute to meeting the innovation challenges. The results of this study confirm Oldham & Cummings (1996) assertion "that if creativity at work is to be enhanced, an individualized or selective approach to management may be warranted" (p. 626).

Problem-solving style and climate for creativity are independent constructs that are capable of assessment. This study illustrated that there are interactions between style (people) and climate (place). Practitioners who use both style and climate assessments in their interventions may have more information to consider while giving feedback. By linking the outcomes of this study on differences within the Orientation to Change and the Ways of Deciding dimensions, and the four climate dimensions with more impact on best and worst-case climates, deeper insights and interpretations will become more apparent for them. By analyzing the style preferences of the organization or team and the outcomes of the climate assessment, some target areas can be more easily identified; therefore the outcomes of an intervention can have a more significant impact.

Although the primary focus of this study was on person and place, there are likely implications for other elements of the broader interactionist and ecological perspective on creativity. When there is an appropriate fit between person and place, it is more likely that those with clear preferences for certain creative problem solving tools and methods will be able to better use them and engage in more effective creative thinking and problem solving behaviors. This general improvement is much more likely to provide innovative results within organizations.

This exploratory study had a number of limitations that should be addressed through further research. The first limitation was that all data was derived through self-report assessments. Future research should seek to acquire alternative and direct assessment of the variables to avoid potential common method variance. Further, although the short-form of the SOQ worked well for this study, the full form of the SOQ should be applied so that multiple items for each dimension are applied. The full form would also provide the narrative data that has proved insightful in previous

research. In addition, other independent measures of fit and creative productivity should be included.

One curious finding was that Manner of Processing, which has been correlated with extroversion-introversion (Selby, e.t al., 2007a), did not provide significant discrimination for either the S-V or D-A approaches to fit. Future inquiry is needed to better understand what additional dimensions of personality and style may have effects on workplace climate.

Given the small amount of variance accounted for by style in predicting climate, it is clear that many other variables must be involved in establishing a working environment that supports creativity. Future research should include additional relevant variables that would provide deeper insights into the nature of fit and misfit. Further, since climate is an intervening variable, it would be productive to include some independent outcome measures to allow more refined analysis of the contribution of the dependent variables effect.

This exploratory study did not confirm that either the S-V or D-A approaches to studying P-E fit were superior when examining the links between problem-solving style and climate. Both approaches provided some insight into the relationship. More research is needed to better understand which of these two approaches, or a combined approach, will be more fruitful.

Despite these limitations and needs for further research, this study clearly illustrates that to encourage creativity and innovation – one size does not fit all. Individual differences in problem-solving style have a clear impact for fit in the work environment and therefore, implications for developing and applying creativity. Those who are concerned with managing for creativity would do well to look beyond simple "off the shelf" solutions and carefully consider what works, for whom, under what circumstances.

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