Chapter 8
Exploring the Relationships Between Problem-Solving Style and Creative Psychological Climate

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Richard Florida (2002), a popular U.S. economist, argues that place is the key economic and social organizing unit of modern times and asserts that future models for economic growth need to focus on technology, talent, and tolerance. Technology includes innovation and concentration of high-tech industry. Talent is the number of people in creative occupations—creative capital. Tolerance is about places that are open and accepting and that have an edge in attracting different kinds of people. Implied in these three areas is the interaction of people and place, or person–environment fit.

The purpose of this chapter is to approach the issue of person–environment fit through an operational framework of creativity and innovation. The concept that behavior is a function of both the person and the environment has its roots in the work of Lewin (1936, 1951). A more recent perspective is that taken by Sternberg and Vroom (2002), who discuss the importance of the person–environment issue within the context of leadership.

The person–environment issue has a strong basis in the current ecological approach to creativity research (Isaksen et al., 1993). An ecological approach to creativity research must include consideration of not just the methods and results involved but also the people and context. The practical application of this research program focuses on taking a systemic approach to organizational innovation and transformation (Isaksen & Tidd, 2006).

There is a great variety of approaches to understanding the characteristics of creative people. A current trend is to investigate style and level of creativity. Drawing on research conducted within the Cognitive Styles Project (Isaksen, 2004), Selby, Treffinger, Isaksen, and Lauer (2004) have offered a new way to assess problem-solving style. It is a tool that is used in this study to inquire into people's preferences for how they process information, deal with change, and make decisions. The environment (i.e., context, situation) is examined here with a second assessment tool, one that has grown out of the Creative Climate Project (Isaksen & Ekvall, 2007).

This chapter also presents a review of previous research within both the Cognitive Styles Project and the Creative Climate Project, with a particular focus

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on previous comparisons of the relation between cognitive style and individual perceptions of the climate for creativity. In addition to sharing new and preliminary results obtained by the two new measurement instruments, this chapter identifies tentative implications for future research and practice.

An Ecological Approach Includes People and Environment

An ecological, or systemic, approach to fathoming creativity offers the greatest likelihood of productive research and practice (Harrington, 1990; Isaksen & Tidd, 2006; Isaksen & Treffinger, 2004). It is concerned with the interaction of several variables within a specific context, much like the ecologist who explores the interactions among living and nonliving components within an ecosystem (Rodgers & Kerstetter, 1974). An explicit goal of the ecological approach to creativity research is to deepen the understanding of and build effectively *on* the multifaceted nature of creativity rather than consider creativity a monolithic construct. The hope is to comprehend the natural interactions among the sources that lead to creative productivity. An ecological approach to creativity research rests simply on the idea that the whole may be greater than the sum of its parts.

Creative productivity and performance can be viewed through at least four major independent lenses. Rhodes (1961) described them as person, product, process, and press. Numerous other scholars have described them similarly (MacKinnon, 1978; Mooney, 1963; Raven, 1984; Stein, 1968). The interactionist approach used in this chapter includes five categories of contingencies that build upon these early frameworks. The categories are personal orientation, situational outlook, task, creative problem-solving process, and outcomes.

Personal orientation includes an emphasis on understanding the style preferences, competencies, motivation, personality traits, characteristics, and knowledge or expertise of the people involved in creative problem-solving. This contingency subsumes all aspects relating to cognitive, affective, motivational, and individual difference. My colleagues and I have focused on the individual differences that affect the learning and application of creative problem-solving.

Situational outlook encompasses many elements surrounding the context within which creative problem-solving will be learned or applied. They are culture, climate, organizational structure, physical environment, resources, constraints, and systems, to name a few. Situational outlook is the contingency that provides the opportunity to improve the understanding of the place or press aspect of the creativity system.

The third category of contingency is what I call task. It encompasses the content domain within which creative problem-solving will be applied. The preliminary analysis of task includes an understanding of the nature of the intended outcomes and the factors influencing success. This category of contingency includes the task's importance, kind, and degree of ownership; the degree of ambiguity, novelty, or complexity; and the vision of the desired future state, among other elements. The

task is the immediate focus of attention for the integration of the other contingencies. It is the work that needs to be done.

The contingency category referred to as the creative problem-solving process has to do with the balance required between generating (or divergence) and focusing (or convergence), the tools and techniques to be deployed, and a descriptive framework of problem-solving components. This category of contingency has a 50-year tradition of research and development and now includes a variety of tools and techniques; guidelines for generating and focusing; and an open, descriptive, process framework. It now also includes a metacognitive component to appraise the task and design the specific application of the process (Isaksen & Treffinger, 2004).

The final contingency category, outcomes, focuses on the degree of diffusion required; the blend of novelty, usefulness, and resolution in the outcome itself; and the degree of satisfaction and enjoyment that is necessary. The task contingency is the more local focus of attention, whereas the outcomes contingency addresses the characteristics of what results from the application of creative problem-solving.

The ecological or interactionist approach to creativity research describes a rather broad design to guide inquiry (Puccio & Murdock, 1999; Woodman & Schoenfeldt, 1999). The aim has been to increase the understanding of which creative problem approaches work best for whom and under what circumstances. Within this broad design, attention has concentrated particularly on two of the contingencies: (a) people and personal orientation, and (b) place, or situational outlook.

Problem-Solving Style Is a Way to Understand People

The endeavor to understand creative people has a rather long and substantial history. The terms creativity and imagination appear in writings as early as those of the ancient Greeks and Romans. Modern interest in creativity among educators and psychologists is widely thought to have been kindled in the mid-twentieth century partly by J. P. Guilford's presidential address to the American Psychological Association in 1950 (Guilford, 1987).

The major historical approach to understanding creativity in people has centered on identifying the traits, characteristics, and other personal attributes that distinguish eminently creative people from their less creative counterparts. Much of this work includes an emphasis on the cognitive characteristics or intellectual patterns and mechanisms that guide and direct the person's intellectual processes or activities (Boden, 1992; Dacey, 1989; Guilford, 1967; Runco, 1991; Torrance, 1987). Other work explores personality traits, values, temperament, and motivational dispositions that influence the ends to which people direct their thinking (Amabile, 1983; Barron, 1969; MacKinnon, 1978). A third realm of work comprises the study of biographical events and life experiences leading to creative achievement (Csikszentmihalyi, 1996; Davis, 1998; Gardner, 1993; Simonton, 1987).

Much of the research into the characteristics of creative people has focused on high-level creativity (Albert, 1983; Cox & Terman, 1926; Goertzel et al., 1978). These efforts have included a focus on understanding genius (Galton, 1869) and differentiating between varying levels of creativity. Stein (1983) uses a lower-case "c" to refer to generally distributed creativity and an uppercase "C" to refer to the ex nihilo level. Boden (1994) drew a similar distinction, suggesting *H-creativity* to denote creativity of a historically significant level and *P-creativity* to denote new and meaningful creativity of the more general type.

A more recent line of inquiry has added a complementary, but distinct, perspective on the pursuit of understanding creativity in people. Offering the sharpest distinction yet between level and style of creativity, Kirton (1994) asserts that level focuses on capacity or degree and on the question "How creative are you?" Style focuses on preference or modality and answers the question "How are you creative?" This emerging line of inquiry has its proponents (Isaksen, 2004) and its opponents (Kaufmann, 2004).

The Cognitive Styles Project, major research initiated at the Center for Studies in Creativity in the 1980s, investigated the relationship of psychological type, cognitive styles, and learning styles of those engaged in creative problem-solving. The main thrust was to sharpen insight into individual differences in the ways people learn and apply creative problem-solving. Previous research has already established that the level of creativity can be enhanced through deliberate instruction (Parnes, 1987; Torrance, 1987). Some interesting individual differences were found between participants who stayed with the experimental program and those who dropped out. Various assessments were used, and meaningful and significant differences were found in a range of studies (Isaksen, 2004).

One of the most recent outgrowths of this research project has been the development of a new measurement tool, *VIEW: An Assessment of Problem Solving Style*™ (hereafter referred to as VIEW).[1] For its development Selby, Treffinger, Isaksen, and Lauer (2004) 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. VIEW assesses three independent dimensions of problem-solving style.

Orientation to Change

The first dimension in VIEW is the orientation to change (OC). It addresses three questions: "How do I prefer to deal with boundaries and parameters?" "How do I feel about and react to structure?" and "How do I prefer to respond to novel

[1] Conflict of interest: The author derives monetary benefit from the distribution of *View: An Assessment of Problem Solving Style*™ and the *Situational Outlook Questionnaire*® described in this chapter.

challenges?" Scores below the mean in this dimension indicate an explorer style. In ordinary language an explorer is an individual who thrives on venturing in uncharted directions, seeks to break new ground, and follows adventurous or promising new possibilities wherever they may lead. Scores above the mean on the OC scale indicate a developer style. In ordinary language a developer is an individual who brings tasks to fulfillment. It is a person who begins with the basic elements or ingredients and then organizes, synthesizes, refines, and enhances them, forming or shaping them into a more complete, functional, useful condition or outcome.

Manner of Processing

The second dimension in VIEW is called manner of processing (MP). It, too, addresses three questions: "How do I prefer to manage information and its flow when problem-solving?" "When do I share my thinking?" and "Does interacting with others build or spend energy?" Scores below the mean indicate a preference for an external style of processing. Individuals who exhibit a well-developed preference for this style draw their energy from interaction with others, discussing possibilities, and building from the ideas of others. Scores above the mean reflect a preference for an internal style of processing. Those with a well-developed internal style look first reflectively to their own inner resources and draw energy from their reflection.

Ways of Deciding

The third dimension within VIEW is called ways of deciding (WD) and addresses such questions as "What factors get first priority when I focus or decide?" "Where do I start?" and "How do I make trade-offs?" Scores on this scale indicate whether one's primary focus in decision-making is on "people" or "task." Individuals with scores below the mean tend to adopt a people style as their primary emphasis when deciding. They consider first the impact that choices and decisions have on people's feelings and support and on the need for harmony and positive relationships. Scores above the mean indicate a focus on a task style. Individuals with a task style tend to look first at choices and decisions that are logical, sensible, and objectively justifiable. They prefer making impersonal judgments resting on well-reasoned conclusions.

VIEW has strong conceptual foundations, has demonstrated acceptable psychometric properties (Selby et al., 2007), and offers high potential for future research and practical applications. It has already been applied in order to improve understanding of how style preferences of the people involved in creative problem-solving affect the learning and application of creative problem-solving tools, guidelines, and process (Isaksen & Geuens, 2007).

Psychological Climate Is a Way to Understand Context

Context can be taken to mean something as broad as society, zeitgeist, or national culture and something very limited, such as the working climate within a team. When interpreting context in its broad sense of culture, writers have offered various definitions (Hofstede, 2001; Trompenaars & Hampden-Turner, 2004). There are consistent themes within that diversity, however. In general, culture is seen as something that all or most of the members of some social group share and that older members usually try to pass on to younger members. It is usually regarded as something that shapes behavior and structures perceptions of the world.

Organizational culture is a concept different from that of culture in its generic sense. Most people have exercised a choice to join a place of work, whereas people are born into particular societies. People employed in organizations usually have limits on how much time they spend at work and have other discretionary time available. They are generally free to leave an organization and may do so more easily than they can leave a society. As a concept, organizational culture describes the shared mental programming of people within the same organization, particularly if they share the same nationality. Organizational cultures can differ in meaningful ways, and they are formed by founding leaders, learning experiences of members, and new beliefs and values brought into the organization by new members and leaders (Schein, 1992).

Organizational climate is the recurring patterns of behavior, attitudes, and feelings that characterize life in the organization. Climate exists objectively in the organization and can be observed and studied in a number of different ways. Climate is a manifestation of culture and can be viewed as an intervening variable. As such, climate is affected by numerous other variables within the organization such as the people, resources, concepts, and the physical environment. Climate exerts a direct affect on a variety of organizational and psychological processes such as problem-solving and communication, which, in turn, affect the quality, profitability, and productivity of the organization.

As a rather broad and inclusive concept, culture in its generic sense subsumes climate (Denison, 1996). Culture is usually considered within the discipline of anthropology; climate, within the discipline of social psychology. Cultural dimensions have remained relatively descriptive, meaning that one set of assumptions or values is neither better nor worse than another. Climate is usually normative in that people generally look for environments that are not just different but better for certain things than for others. Lastly, culture is such a deep and stable concept that climate is more easily observed and influenced than culture.

Within the ecological research framework described above, the contingency of situational outlook has been approached through use of the *Situational Outlook Questionnaire*® (SOQ). The translation, validation, and development of the SOQ have been major tasks within the Creative Climate Project initiated at the Center for Studies in Creativity and currently being undertaken by the Creative Problem Solving Group.

The SOQ has grown out of more than 50 years of research and development and currently has nine dimensions (Isaksen, 2007b; Isaksen & Ekvall, 2007).

Challenge and Involvement

The dimension of challenge and involvement refers to the degree to which people are involved in daily operations, long-term goals, and visions. High levels of challenge and involvement mean that people are intrinsically motivated and committed to contributing to the success of the organization. People find joy and meaning in their work, and therefore invest a great deal energy. In the opposite situation people are not engaged and feelings of alienation and indifference are present. The common sentiment and attitude is apathy and lack of interest in that work and interaction are both dull and listless.

Freedom

Freedom is defined as the independence of behavior exhibited by the people in the organization. In a climate with a high level of freedom, people are given autonomy to define much of their own work. People are able to exercise discretion in their day-to-day activities. People take the initiative to acquire and share information and to make plans and decisions about their work. In the opposite climate people work within strict guidelines and roles. People carry out their work in prescribed ways with little room to redefine their tasks.

Trust and Openness

The dimension of trust and openness refers to emotional safety in relationships. When there is a high degree of trust, individuals can be genuinely open and frank with one another. People sincerely respect one another and can count on each other for personal support. Where trust is missing, people are suspicious of each other and therefore closely guard themselves and their ideas. People in that situation also find it extremely difficult to communicate openly with each other.

Idea Time

The dimension of idea time is defined as the amount of time people can use (and do use) for elaborating new ideas. In situations with a great amount of idea time,

there are possibilities to discuss and test sudden insights and fresh suggestions that are not planned or included in the task assignment. There are opportunities to take the time to explore and develop new ideas. Flexible timelines permit people to explore new avenues and alternatives. In the reverse case every minute is booked and specified. The time pressure makes thinking outside the instructions and planned routines impossible.

Playfulness and Humor

Playfulness and humor refer to the level of spontaneity and ease displayed within the workplace. A relaxed atmosphere where good-natured jokes and laughter often occur is indicative of this dimension. People can be seen having fun at work. The atmosphere is seen as easy-going and light-hearted. The opposite climate is characterized by gravity and seriousness. The atmosphere is stiff, gloomy, and cumbrous. Jokes and laughter are regarded as improper and intolerable.

Conflict

Conflict is defined as the presence of personal and emotional tensions in the organization. When the level of conflict is high, groups and individuals dislike and may even hate each other. The climate can be characterized by interpersonal warfare. Plots, traps, and struggles for power and territory are usual elements in the life of the organization. Personal differences spawn gossip and slander. In the opposite case people behave in a more mature manner. They have psychological insight and control over their impulses. People accept and deal effectively with diversity.

Idea Support

Idea support refers to the ways in which new ideas are treated. In the supportive climate ideas and suggestions are received in an attentive and professional way by bosses, peers, and subordinates. People listen to each other and encourage initiatives. Possibilities for trying out new ideas are created. The atmosphere is constructive and positive when new ideas are considered. When idea support is low, the automatic "no" prevails. Every suggestion is immediately refuted with a destructive counterargument. Fault-finding and obstacle-raising are the usual styles of responding to ideas.

Debate

Debate is the occurrence of encounters and disagreements between viewpoints, ideas, and differing experiences and knowledge. In the debating organization many

voices are heard and people are keen on putting forward their ideas for consideration and review. People can often be seen discussing opposing opinions and sharing diverse perspectives. Where debates are missing, people follow authoritarian patterns without question.

Risk-Taking

The dimension of risk-taking is defined as the tolerance of uncertainty and ambiguity exposed in the workplace. In the high risk-taking case bold new initiatives can be taken even when the outcomes are unknown. People feel as though they can take a gamble on some of their ideas. People will often go out on a limb and put an idea forward. In a risk-avoiding climate there is a cautious, hesitant mentality. People try to be on the safe side. They decide to sleep on the matter. They set up committees and cover themselves in many ways before making a decision.

Previous Research on Linkages Between Organizational Climate and Problem-Solving Style

Organizational climate has been the subject of vast research and inquiry, as has cognitive and problem-solving style. There has been much less inquiry that seeks to examine the potential conceptual and empirical linkages between these two domains.

The person–environment fit is a domain that stems from the basic argument that human behavior is attributable either to characteristics of the person or to the environment (Lewin, 1936, 1951; Murray, 1938). The keystone of this domain is the notion that behavior is influenced by both intrapersonal characteristics *and* the environment (Caplan, 1983; Choi, 2004; Edwards et al., 2006; Holland, 1966; Pervin, 1987; Puccio et al., 1995; Schneider, 1987a). The ecological approach to creativity research has strong conceptual linkages to the domain of person–environment fit and suggests the need to explore the relationships between personal orientation and situational outlook.

Until recently, these two contingencies had remained largely independent in the creativity literature. Exceptions are the few sources dealing with cognitive climate (e.g., Kirton & McCarthy, 1988) and a series of articles reporting the results of investigation into the relationship of cognitive style and individual psychological climate (Clapp & Kirton, 1994; Isaksen & Kaufmann, 1990; Isaksen & Lauer, 1999).

The original study (Isaksen & Kaufmann, 1990) used the Kirton Adaption–Innovation Inventory (Kirton, 1976)—KAI—and an early version of the SOQ as the measures of cognitive style and psychological climate, respectively. KAI, a measure of cognitive style, assesses one principal continuum with two styles: an adaptive preference (i.e., the individual stays within boundaries and endeavors to improve performance) and an innovative preference (which implies ease of thinking across paradigms and of doing things differently). The findings arrived at through

correlation analysis did not reveal any strong significant relationships between the KAI and the SOQ. Discriminant function analysis performed on findings related to rather extreme scores on the KAI revealed that adaptors perceived more challenge than innovators and that innovators perceived more conflict than adaptors.

Clapp and Kirton (1994), however, challenged the theoretical relationship of the two instruments used in the original study. They called attention to key points, both theoretical and methodological, requiring further explanation and investigation. Their work prompted the second study by Isaksen and Lauer (1999), in which the authors used a sample of 646 subjects. They reported findings similar to those of their original study and were able to clarify the nature of the relationship between cognitive style and individual psychological climate.

Because Isaksen and Lauer had clearly different groups according to KAI theory, they subjected these two groups to discriminant analysis (Hair et al., 1987) to determine whether there were any statistically significant and meaningful differences in their orientation to individual psychological climate. (The discriminant function allows for analysis of both groups across all climate variables.) A difference in how the two groups view climate would mean that they are likely to remain distinctly separate with regard to any particular climate dimension. The results of the discriminant analysis showed that the classification of the participants into their respective groups was 58.8% correct. The dimension of challenge and involvement and that of conflict were found to be optimal predictor variables and were consistent with the original study. These results indicated that adaptors experienced more challenge and involvement and more risk-taking within their individual psychological climates than innovators did in their own. Innovators experienced more conflict within their climates than adaptors did in theirs.

Because previous research utilized only one main dimension of style to assess the personal orientation contingency against the nine dimensions of climate assessed by the SOQ, further research using a more robust measure of style is needed.

The Current Study

Participants

The sample for this exploratory study consisted of 144 participants who had completed both the VIEW and SOQ assessments. It was an aggregated group of samples of convenience including participants from six different organizations. A total of 70 participants came from a leadership program within a global communications and advertising company, 30 from a leadership program within a global electrical engineering company, and the remaining 44 from four other organizations involved in workshops on managing change. The average age of the participants was 33. The sample included 82 men, 43 women and 19 people who declined to indicate gender. These samples of convenience were selected because each of the

events included a diversity of participants drawn from North America, Europe, the Middle East, and Africa.

Materials

VIEW. The measure of problem-solving style used in this study was VIEW. VIEW is a 34-item instrument on which respondents are asked to indicate the degree to which two opposing descriptions reflect their answer to the following statement: "When I am solving problems, I am a person who prefers …" The items are scored on a 7-point scale ranging from 1 (*not at all applicable*) to 7 (*highly applicable*). The theoretical range of scores for the OC dimension is 18 for the strongest explorer style and 126 for the strongest developer style. The range for the MP dimension is 8 for the strongest external style and 56 for the internal style. The range for the WD dimension is 8 for the strongest people-oriented style and 56 for the task-oriented style. The theoretical mean for the OC scale is 72. The theoretical mean for the two other dimensions is 32. There is sound evidence of VIEW's test–retest and internal reliability, factor structure, and concurrent validity. For a more complete report regarding VIEW's psychometric properties, see Selby, Treffinger, and Isaksen (2007).

SOQ. The measure of creative climate was the SOQ, which is designed to assess situational conditions related to creativity, innovation, and change in such a way that it does not prescribe the perfect climate for all situations. Rather than providing a simplistic and ubiquitous normative goal toward which everyone should strive, this approach to measurement of climate provides a profile aimed at gauging the current situation for the purpose of developing and implementing organizational improvement initiatives.

The SOQ stems from research by Göran Ekvall, who studied the psychosocial aspects of the work environment and developed the Creative Climate Questionnaire (CCQ). The version of the SOQ used in this study contains 53 close-ended questions designed to measure the nine dimensions of climate described earlier. In addition, the SOQ contains three open-ended narrative questions for which the participants individually describe what is helping and hindering their creativity at work and what actions they would take to ameliorate these conditions. The 53 items are scored on a 4-point scale from 0 (*not at all applicable*) to 3 (*highly applicable*). Scores are reported on a scale ranging from 0 (*not at all applicable*) to 300 (*highly applicable*) for each of the nine dimensions. The narrative comments are subjected to qualitative analysis.

Studies of the SOQ's validity and reliability have been conducted (Isaksen & Ekvall, 2007). Some of them have indicated that organizations described as "innovative" in terms of productivity differ substantially from those described as "stagnant." Higher scores on the eight positive dimensions and a lower score on the negative dimension (conflict) indicate a climate that tends to be conducive to creativity. Scores have consistently discriminated between organizations that are

successful at developing new products or services from those that are not. The SOQ is, however, not a direct measure of organizational stagnation or progressiveness.

Isaksen, Lauer, Ekvall, and Britz (2001) found consistent patterns of response across work situations deemed by the respondents to be the "best case" or the "worst case" they have experienced. Across these studies, the researchers found that there was generally no "ideal" score for any of the dimensions of creative climate. A "perfect" score of 300 on the positive dimensions, combined with a perfect score of 0 on the negative dimension (conflict) did not necessarily indicate a best-case scenario.

Therefore, results of the SOQ are not designed to indicate a theoretical or cross-situational ideal. Rather, they act as a barometer, gauging the general perception of how these dimensions are perceived within a given climate. Nor are the results to be treated as though the dimensions all fall on a single continuum. Factor analysis has repeatedly revealed multiple independent dimensions associated with the climate conducive to change and creativity (Isaksen & Ekvall, 2007). The scores on the SOQ are best used as a profile and can help identify strengths and potential weaknesses within any specific working situation (Isaksen, 2007a).

At an organizational level of analysis, the dimensions of the SOQ have significantly discriminated between organizations that were innovative in terms of their ability to develop and commercialize new products and those that were stagnant (Isaksen & Ekvall, 2007; Nyström & Edvardsson, 1980; see Table 8.1).

The SOQ is used primarily to assess an organizational level attribute of climate. For the purposes of this study, the SOQ results were used at an individual level of analysis. The SOQ was thus applied as a measure of individual psychological climate in order to keep the results conceptually parallel with the individual measure of problem-solving style (Brown & Leigh, 1996).

Climate researchers have drawn a distinction between organizational climate and psychological climate. In reviewing organizational climate research and theory, James and Jones (1974) identified the term psychological climate to be consistent with the measurement approach in which individuals are asked to report their perceptions of the work environment and their preferred term when these perceptions

Table 8.1 Mean SOQ[a] scores achieved by innovative and stagnant organizations

Climate	Innovative $N = 10$ (630)[a]	Stagnant $N = 5$ (275)	Difference
Challenge	238 (237)	163 (164)	75 (73***)
Freedom	210 (209)	153 (155)	57 (54**)
Idea support	183 (182)	108 (111)	75 (71***)
Trust	178 (180)	128 (130)	50 (50*)
Dynamism	220 (224)	140 (141)	80 (83***)
Playfulness	230 (233)	140 (139)	90 (94***)
Debates	158 (156)	105 (104)	53 (52**)
Conflicts	78 (79)	140 (140)	−62 (61***)
Risk-taking	195 (194)	53 (55)	142 (139***)

[a] *Situational outlook questionnaire*.

[b] Parentheses enclose means expressed at the level of the individual respondent

$^{*}p = < .05$, $^{**}p < 01$, $^{***}p < .001$.

are used as the unit of analysis. The researchers suggested that the term organizational climate be used to refer to the organizational attribute and that the term psychological climate be used to refer to the individual characteristic. James and Sells (1981) defined psychological climate as:

> individuals' cognitive representations of relatively proximal situational events, expressed in terms that reflect the psychological meaning and significance of the situation to the individual. A central postulate of psychological-climate theory is that individuals tend to interpret situations in psychological terms; that is, to assign psychological meaning to environmental attributes and events. Psychological climate is regarded as an attribute of the individual. (p. 275)

By applying the SOQ results as indicators of individual psychological climate and by investigating individual differences of problem-solving style, I am considering two concepts at the same level of analysis.

Results and Discussion

This study represents the first attempt to examine problem-solving style and individual psychological climate by using VIEW and the SOQ. The design of the analysis followed a procedure similar to that in previous studies on cognitive style and individual psychological climate. The descriptive statistics for both measures appear in Table 8.2. The sample was very close to the theoretical mean on OC, but was slightly more external on the MP dimension, and slightly more task-oriented on the WD dimension. Correlations were computed to determine the degree of relationship between the two sets of variables. Only two correlations reached the .05

Table 8.2 Descriptive statistics on the dimensions of VIEW[a] and SOQ[b] (N = 144)

	Range of scores			
Dimension	Minimum	Maximum	Mean	SD
		SOQ		
Challenge and involvement	71	300	211.51	48.71
Freedom	17	267	166.09	49.69
Trust and openness	80	280	181.67	47.92
Idea time	0	267	129.63	59.24
Playfulness and humor	17	300	179.05	60.36
Conflict	0	267	90.74	61.32
Idea support	20	300	188.19	55.94
Debate	33	300	200.93	55.01
Risk-taking	20	280	141.53	54.87
		VIEW		
Orientation to change	42	108	72.40	13.91
Manner of processing	12	45	26.09	7.45
Ways of deciding	20	55	36.11	7.83

[a] *View: an assessment of problem solving style*.
[b] *Situational outlook questionnaire*.

level of significance. Explorers had a low correlation with seeing more challenge and involvement in their climates ($r = .21$; $p \leq .01$). Externals had a low correlation with idea support ($r = -.18$; $p \leq .05$).

Because only two significant correlations were found among the 27 possible relationships in the entire sample, further study was conducted to determine whether participants with pronounced problem-solving preferences produce more varied scores on the SOQ. To this end, tests of the equality of group means were administered to those individuals who scored outside the middle standard deviation on each of the three style dimensions (see Table 8.3). The results of 50 participants who scored within one standard deviation were removed from the statistics, so this sample had 48 with a fairly strong explorer style and 46 with a fairly strong developer style.

The next level of analysis was to test the equality of group means by comparing the two stronger preference groups on the OC dimension with the nine dimensions of the SOQ. With 63.8% of the groups correctly classified, no significant differences were found between strong explorers and developers and the nine dimensions of the SOQ.

Table 8.4 contains the descriptive statistics for the MP dimension of VIEW and the scores for the nine dimensions of the SOQ. Forty-six participants were excluded through elimination of those participants with MP scores within the middle standard deviation.

Again, the next level of analysis was to test the equality of group means by using the scores of the participants who were clearly internals and externals. With 67% of the two groups correctly classified, no significant differences were found. The one classification closest to reaching significance was the idea-support dimension of the SOQ, indicating that those with an external preference perceived more idea support in their climates.

Table 8.5 contains the descriptive statistics for the WD dimension of VIEW and the scores on the SOQ. Fifty-four participants were excluded in order to obtain clear preferences on the WD dimension.

Table 8.3 Descriptive statistics for the OC[a] dimension of VIEW[b] and scores on the nine climate dimensions of the SOQ[c]

	Fairly strong explorer ($n = 48$)		Fairly strong developer ($n = 46$)	
SOQ dimension	Mean	*SD*	*Mean*	*SD*
Challenge and involvement	215.77	41.49	200.62	51.90
Freedom	170.49	42.00	155.43	60.46
Trust and openness	175.42	49.38	185.22	48.89
Idea time	126.39	62.16	120.65	69.14
Playfulness and humor	182.29	55.27	180.80	67.40
Conflict	94.10	59.40	95.65	68.80
Idea support	192.92	51.78	181.74	57.94
Debate	197.57	52.59	193.12	57.26
Risk-taking	138.75	55.41	128.26	53.26

[a] Orientation to change.
[b] *View: an assessment of problem solving style*.
[c] *Situational outlook questionnaire*.

Table 8.4 Descriptive statistics for the MP[a] dimension of VIEW[b] and scores for the nine climate dimensions of the SOQ[c]

SOQ dimension	Fairly strong external manner of processing (n = 54)		Fairly strong internal manner of processing (n = 44)	
Challenge and involvement	213.49	51.58	201.95	52.16
Freedom	169.14	53.04	158.71	55.51
Trust and openness	181.11	41.56	180.00	52.30
Idea time	127.78	62.53	129.17	56.51
Playfulness and humor	187.04	61.91	175.00	58.79
Conflict	92.59	62.25	82.58	54.63
Idea support	196.67	49.72	176.36	59.65
Debate	203.09	50.89	184.09	59.93
Risk-taking	143.33	58.76	139.55	57.30

[a] Manner of processing.
[b] *View: an assessment of problem solving style*.
[c] *Situational outlook questionnaire*.

Table 8.5 Descriptive statistics for the WD[a] dimension of VIEW[b] and scores on the nine climate dimensions of the SOQ[c]

	Fairly strong people-oriented style (n = 37)		Fairly strong task-oriented style (n = 53)	
SOQ Dimension	Mean	*SD*	Mean	*SD*
Challenge and involvement	224.32	41.63	209.97	56.28
Freedom	172.52	41.61	170.13	54.83
Trust and openness	185.95	54.34	180.75	45.06
Idea time	127.48	60.12	132.08	56.22
Playfulness and humor	178.38	58.12	170.75	60.44
Conflict	89.64	60.90	85.85	63.75
Idea support	195.14	59.52	186.79	50.07
Debate	205.41	60.74	197.80	47.37
Risk-taking	150.27	54.29	140.00	55.61

[a] Ways of deciding.
[b] *View: an assessment of problem solving style*.
[c] *Situational outlook questionnaire*.

A test of the equality of group means was conducted with the participants who scored relatively high as people- or task-oriented deciders. With 60.5% of the two groups correctly classified, no significant differences were found.

Even with individuals with very clear problem-solving preferences, none of the 54 potential differences in the climate dimensions was significant. The first major implication from this exploratory study is that the two constructs of individual psychological climate and problem-solving style are distinct, from a quantitative perspective. Problem-solving style and individual perceptions of the climate may both certainly have an effect on behavior, but the two measures used in this study allow relatively independent treatment of the two concepts.

Access to qualitative data permitted further analysis, including constant comparison and open coding. Most topics cut across style differences, but there

were a few instances of divergence. Table 8.6 provides sample quotations from the qualitative analysis, which illustrate some meaningful differences in the way the three narrative questions were answered by participants with pronounced problem-solving style preferences.

Despite the lack of significant quantitative differences, clear and understandable *qualitative* differences emerge in all three of VIEW's dimensions when it comes to individual perceptions of psychological climate. At one level, this finding suggests that the SOQ can pick up on these differences because it is a multimethod assessment. From another point of view, these results suggest that situational outlook and personal orientation remain conceptually and empirically distinct from each other.

It is quite plausible that individuals within the same work group would not assign similar meaning to their work environment. These differences in perception could stem from a variety of variables, including different exposure to tasks, events, or other situational attributes; differences in social roles; or individual differences in personality (James & Sells, 1981). Clearly, further work remains to be done to deepen the understanding of the relationship between a measure of problem-solving style and psychological climate in order to sort out exactly how individuals of different styles may perceive their environments. Further research may also include multivariate assessment of some of the other variables within both situational outlook and personal orientation.

Differences within or between organizations are often attributed to traits and characteristics of the people involved or to the situation and aspects of the climate. However, some researchers (e.g., Schneider, 1987b) believe there has been too much emphasis on either the characteristics of the person or the situation as the fundamental determinant of organizational behavior. These researchers point to the domain of person–environment fit as a more useful approach to widening the understanding of the causes of organizational behavior (Caplan, 1987; Pervin, 1987). In addition, neither of the investigations into just the person or the environment will provide a satisfactory way to understand the origins of meaning within the social situation. The individual and the environment interact with each other, so sharp distinctions and entirely independent lines of inquiry may not be as fruitful as considering a rather holistic relationship between the two concepts (Epstein & O'Brien, 1985; Schneider & Reichers, 1983). In short, the issue of the person–environment fit is a joint function of what the individual has to offer and the situational factors that are relevant.

Although seeking to understand the climate for creativity can be seen as a productive line of inquiry, the situation or environment is clearly only part of the challenge. If researchers are to understand the conditions for creativity, they must go beyond the individual psychological perceptions of the social or work setting and consider the characteristics of the person as well. It is reasonable to assert that the perception of a given social setting or event may differ radically, depending on the orientations of the persons involved (Hennessey & Amabile, 1988). Further work must be done to identify and understand these differences. Future research should also inquire into the issue of the person–environment fit in relation to other contingencies within the ecological framework. In terms of situational outlook, it may also be beneficial to examine other levels of analysis like groups, teams, and organizations.

Table 8.6 Sample narrative responses to open-ended questions of the SOQ[a] (in terms of VIEW[b] problem-solving style)

VIEW style	What helps your creativity at work?	What hinders your creativity at work?	Suggestions for ameliorating the conditions
Developer	My managers' and peers' encouragement to focus more on creativity and innovation	Lack of clear goals and information. The level of uncertainty	More management support and planning to build deliberate time for creative thinking
Explorer	The high amount of leeway to make my own decisions and set my course in my work	Long delays in senior management decision-making and a stringent planning process	I am not sure about the action, but the result I want is to motivate people to become more curious and committed to do things they have not done before
Internal	My personal work ethic and right of self-determination—the opportunity to work outside the office to avoid interruptions by e-mail, phone calls, visitors, and meetings	Time and energy I have to spend negotiating, reporting, relating with different people and different times—often on the same issue	We need time and space to let our body–mind–soul connect—with the right level of energy—to projects and work in order for ideas to rise from within
External	Constant dialog—working and discussing possibilities with many diverse teams	Not having all the people I work with at the same location. It's easier to communicate and ask questions when you can interact with them in person	More space and social events to encourage everyone to interact more with each other
People-oriented	High levels of trust, openness, and support—people with open minds	Poor collaboration—no shared agendas and ideas not treated with respect	Stay truthful to my notions of how to behave towards each other as human beings—keep my optimistic energy to solve creative tasks with a free flow of ideas
Task-oriented	Clear understanding of all the requirements to provide a solution	Not enough time to do great things—medium effort for everything	Gather all the initiative sponsors in one room, list all the projects and initiatives, and decide once and for all what we can realistically accomplish

[a] *Situational outlook questionnaire*.
[b] *View: an assessment of problem solving style*.

There are many limitations to exploratory research of this kind. For example, the sample size of the present study was limited and did not reflect a strict normal distribution for either measure. The findings must be considered tentative until larger samples are used and the results replicated. Nevertheless, both the demonstrated lack of any meaningful individual differences in perceptions of climate based on varying problem-solving styles and the nuances identified in the narrative data indicate the benefits of taking a multimethod approach to creativity research. Researchers studying ecological creativity should keep these advantages clearly in mind.

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