Perceptions of the Best and Worst Climates for Creativity: Preliminary Validation Evidence for the Situational Outlook Questionnaire

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ABSTRACT: This article reports the results of 2 studies conducted to examine the ability of the Situational Outlook Questionnaire™ (SOQ) to effectively discern climates that either encourage or discourage creativity and the ability to initiate change. The purpose of the studies is to examine the concurrent criterion-related validity of the SOQ. The climate for creativity and change is defined, and the context for the use of the measure in organizational settings is established through the development of a model for organizational change. The article presents the history of the SOQ's development and gives a description of the SOQ. The methodology and results of both studies, including 3 groups, are reported. The results of both studies show that when individuals complete the SOQ based on their recollection of a best- and worst-case work experience, the measure is able to consistently and significantly discriminate between the 2 types of experiences. Conclusions, implications, and areas for future research to further examine the validity of the SOQ are explored.

The Situational Outlook Questionnaire™ (SOQ) is designed to measure perceptions of the character of life within an organization. Its particular emphasis is on how attitudes, feelings, and behaviors support creativity and change (Ekvall, 1996; Isaksen, Lauer, Murdock, Dorval, & Puccio, 1995; Lauer, 1994). The purpose of this article is to share the results of two recent studies that examine the concurrent criterion-related validity of the SOQ.

The focus of these studies is on how people respond to the SOQ when they are asked to think of the best climate for creativity and change they have ever experienced, and then to do the same for the worst climate they have experienced. Participants filled out the SOQ twice, once for each of the situations they clearly remembered. The first study was derived from the work of Britz (1995), who analyzed data from a group of graduate students and a group of managers. The second study used a revised version of the SOQ on a larger sample of undergraduate students. This article provides initial evidence that the SOQ does discriminate among different perceptions of the climate for creativity and change.

Before describing the measure, the definition of climate for creativity and change is explored. These concepts are then placed within the context of organi-

zations. To document the validity of the measure, it is necessary to define the concepts and the domain within which the instrument is expected to operate.

Climate is defined as the recurring patterns of behavior, attitudes, and feelings that characterize life in the organization. At the individual level of analysis, the concept is called *psychological climate.* At this level, the concept of climate refers to the individual perceptions of the patterns of behavior. When aggregated, the concept is called *organizational climate.* These are the objectively shared perceptions that characterize life in the organization. Although climate is perceived by individuals within the workplace, it exists independently of these perceptions and is considered an attribute of the organization (Ekvall, 1987). Climate is distinct from culture in that it is more directly observable within the organization. Culture refers to the deeper and more enduring values, norms, and beliefs within the organization (Ekvall, 1996; Schneider, Brief, & Guzzo, 1996).

The climate for creativity and change is that which promotes the generation, consideration, and use of new products, services, and ways of working. This climate supports the development, assimilation, and utilization of new and different approaches and concepts. Because the level of analysis for our inquiry into the climate for creativity and change is the organization, it is necessary to define the relevant constructs under investigation.

A variety of models have been put forward to explore the relation and role of climate in organizational research and theory (Burke & Litwin, 1992; Ekvall, 1996; Litwin & Stringer, 1968; Nadler & Tushman, 1977; Payne & Pugh, 1976; Tagiuri & Litwin, 1968; Weisbord, 1976; Woodman, Sawyer, & Griffin, 1993). Considering these models and our own field work and action research with organizations engaged in change initiatives, we have developed a revision and reintegration of these works as shown in Figure 1.

Organizational climate is seen as an intervening variable that affects individual and organizational performance due to its modifying effect on organizational and psychological processes. The climate is influenced by many factors within the organization and, in turn, affects organizational and psychological processes. Organizational processes include group problem solving, decision making, communication, and coordination. Psychological processes include learning,
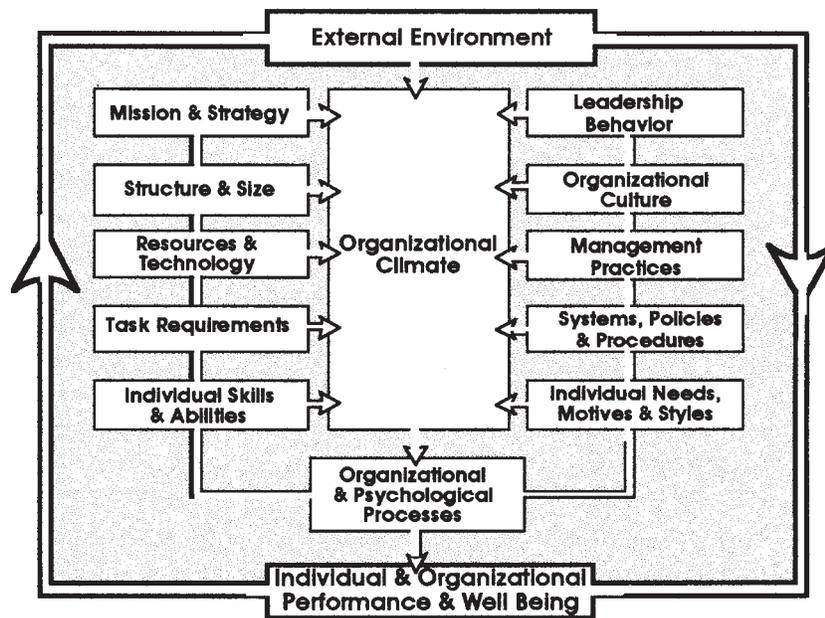
© The Creative Problem Solving Group - Buffalo, 1998. Based on the work of Burke-Litwin (1992) & Ekvall (1996).

Figure 1. *A model for organizational change.*

individual problem solving, creating, motivating, and committing. These components exert a direct influence on the performance and outcomes in individuals, working groups, and the organization (Amabile & Gryskiewicz, 1989; Service & Boockholdt, 1998; Witt & Beorkrem, 1989). The model outlines a few of the more important organizational factors that affect climate, which in turn, impact the results and outcomes of the organization.

The model for organizational change (MOC) emphasizes the factors that are important to consider when introducing, managing, or understanding change within an organizational context. The 14 elements in the MOC describe the key levers for change within organizations. Information and interaction are the content that flows through this larger system. Information is the data and knowledge that are exchanged. It includes formal and informal news and represents the collective wisdom within the organization. Interactions are the relations and interplay between and among people. This includes patterns of communication and focuses on how the information is exchanged and transmitted.

The organization exists in a context, is affected by its external environment, and affects its environment by producing both individual and organizational output or performance. This is consistent with the thinking of the general systems theory (Katz & Kahn, 1978) and the findings of Burke and Litwin (1992).

The external environment is any condition or situation that is outside the organization itself (e.g., the market, global financial conditions, government, the larger political and social system, technological and scientific developments) but can exert an influence on the organization's performance. Individual and organizational performance and well-being includes the actual outcomes or results. The outcomes or results function as indicators of the achievements and efforts of the organization and the people within it. The MOC displays the organization as a system within this larger context. Both the external environment and the organization's operations and performance have an impact on the climate within the organization.

The four factors at the "top" of the model are leadership behavior, mission and strategy, structure and size, and organizational culture. These have been referred to as the *transformational variables for organizational change* because any alteration within them is likely to be caused by an interaction with the external environ-ment and will require new behaviors within the organization (Bass, 1985; Burke & Litwin, 1992; Burns, 1978; Kouzes & Posner, 1987).

Leadership behavior includes any actions initiated by leaders aimed at the transformative aspects of the organization. Acts of leadership occur whenever strategic problems are solved, decisions are made, or information exchanges result in actions. Leadership behavior is very visible to individuals in the organization, especially during times of change. Leaders may be senior managers, supervisors, and others who hold formal positions of influence or those who demonstrate an informal influence on others. Leadership behavior has a major influence on the perceptions people have about the climate for creativity and change (Ekvall, 1997; Ekvall & Arvonen, 1984).

Organizational culture includes the values, beliefs, history, and traditions that reflect the deeper foundations of the organization. Culture is the cement that holds an organization together. Over time, organizations develop a culture based on deeply entrenched norms and assumptions. These embedded principles and ethics influence patterns of interaction as well as choices and decisions people make. The culture determines the worldview or mindset for those who belong. It influences the way people behave, particularly how they respond to surprise, ambiguity, creativity, and change.

Mission and strategy define what the business is going to do and subsequently how it will achieve its aim. The mission is the basic purpose of the organization, stated explicitly or implicitly. The strategy defines for them how this purpose will be achieved. The mission and strategy provide insight into the vision for the organization's desired future state. Mission and strategy also influence patterns of behavior, attitudes, and feelings of those who develop the direction as well as those who take initiative and implement it.

Structure refers to the way people and functions are arranged. It deals with levels of responsibility, decision-making authority, and formal reporting relations with others in the organization. Structures are usually designed to assure that the mission and strategy of the organization are effectively implemented. The structure and the size of the organization, and its working units, influence the use of power in making decisions and the scope of participation. It creates the pathways for the flow of information and guides the assumptions people make regarding relations and interactions. Ekvall (1997) showed

that the type of structure within departments of an organization (i.e., hierarchical and bureaucratic vs. flat and empowered) has an impact on employees' perceptions of the climate in those departments.

The remaining elements of the MOC are generally referred to as *transactional variables* in that they are aimed at preserving and implementing that which has been decided at the transformative level of the organization. Some might call these more tactical elements rather than strategic factors.

Resources and technology are the basic tools an organization has at its disposal to complete business. These include the people, capital, machines, equipment, materials, patents, and copyrights that the organization has acquired for use in its operations. The quantity of intellectual assets available to the organization is also a key resource. Resources and technology can impact the feelings and attitudes of people in the organization by either facilitating or inhibiting appropriate behaviors. A lack of key resources can often frustrate and provide barriers to creative thinking and limit initiative. Having and effectively using resources and technology can be a stimulant for the climate for creativity and change.

Task requirements are the mixture of skills, knowledge, and capabilities needed by the organization to perform assignments effectively. The kinds of tasks to be accomplished, and their corresponding demands, influence the selection of who needs to work on what jobs. Certain tasks may require cross-functional work; others may require cooperation across divisions. The demands made by these tasks influence the behaviors required by the organization to accomplish its purpose, and in turn, affects the climate.

Individuals' skills and abilities are the capabilities and knowledge held by individuals within the organization. The skills and abilities describe the level and kind of competence available to the organization. They determine how much talent is available within the organization to meet the requirements of the tasks. If a workplace is filled with highly qualified people, with more than sufficient talent to contribute to accomplishing the purpose of the organization, the climate will be positively affected.

Management practices refer to the behaviors managers use to run the day-to-day business. Management practices are aimed at maintaining the stability and order of the organization by coordinating, communicating, controlling, and planning the use of human, financial, and material resources. Typical management practices include conducting performance and business reviews, encouraging and monitoring individual and team goal setting, operational planning projects, and budgeting. How managers behave influences how others in the organization will behave and, therefore, the climate for creativity and change.

Systems, policies, and procedures are the mechanisms that facilitate work and provide structure for the organization. They include pay practices, rewards and recognition policies, management information systems, performance appraisal, budget and financial controls, and human-resource allocation procedures. Systems, policies, and procedures provide the checks and balances that keep things on track and prevent costly errors. They act as early warning systems and help establish repeatable processes, create stability, and prevent anarchy. How they are implemented and what people think about them has an influence on the climate. They can also prescribe certain kinds of behavior.

Individual needs, motives, and styles provide the basic drive and source of energy for the organization. They are psychological factors that provide a sense of worth or desire for peoples' actions and thoughts. Needs for affection, belonging, and recognition influence what a person does. Their motives determine the kinds of tasks for which they have energy and commitment. Their preferred styles dictate the way they might like to work, think, solve problems, and manage change. Needs, motives, and styles tell us how much energy people have for various kinds of work and will impact their behaviors, attitudes, and feelings.

The MOC provides the conceptual framework to help define climate and to see it as an intervening variable in influencing organizational change. The MOC outlines those organizational attributes that influence climate as well as those that climate influences. It also helps to frame the future for both research and practices. The model is applied here to help interpret quantitative and qualitative results from the SOQ.

Because climate can be defined and differentiated, it should be possible to measure it. The next section of this article describes the development of a measure of organizational climate for creativity and change.

Development of the Measure

The SOQ is based on a translation of an earlier measure resulting from the research and development of

Göran Ekvall. As an industrial psychologist working for Volvo in the 1950s and other large Swedish companies in the 1960s and 1970s, Ekvall observed differences in how the working atmosphere of different companies affected the degree of participation in idea suggestion schemes (Ekvall, 1974). He developed the Creative Climate Questionnaire (CCQ) from an international program of research conducted in the 1980s (Ekvall, 1983, 1991; Ekvall & Arvonen 1984; Ekvall, Arvonen, & Waldenstrom-Lindblad, 1983).

The CCQ includes 10 dimensions of creative climate. Lauer (1994) found theoretical support for the existence of these dimensions within the literature on creative climate. The 10 dimensions discovered by Ekvall (1983) and redefined as a result of Lauer's (1994) work provided the conceptual basis for the Climate for Innovation Questionnaire, which was an earlier version of the SOQ (see Table 1).

Each dimension of the SOQ includes five items. The respondents answer on a 4-point Likert-like scale, answering either 0 (*not at all applicable*), 1 (*applicable to some extent*), 2 (*fairly applicable*), or 3 (*applicable to a high degree*). The respondent's overall scores on the 10 dimensions of a complete SOQ are derived by taking the aggregated averages of the respondent's results for each dimension and multiplying this score by 100. All dimensions therefore have a theoretical range from 0 to 300. A cumulative score

Table 1. *Definitions of Climate Dimensions*

Dimensions of the Situational Outlook Questionnaire

Challenge and Involvement: Degree to which people are involved in daily operations, long-term goals, and visions. When there is a high degree of challenge and involvement, people feel motivated and committed to making contributions. The climate is dynamic, electric, and inspiring. People find joy and meaningfulness in their work. In the opposite situation, people are not engaged, and feelings of alienation and apathy are present. Individuals lack interest in their work and interpersonal interactions are dull and listless.

Freedom: Independence in behavior exerted by the people in the organization. In a climate with much freedom, people are given the autonomy and resources to define much of their work. They exercise discretion in their day-to-day activities. Individuals are provided the opportunity and take the initiative to acquire and share information about their work. In the opposite climate, people work within strict guidelines and roles. They carry out their work in prescribed ways with little room to redefine their tasks.

Trust/Openness: Emotional safety in relationships. When there is a high degree of trust, individuals can be genuinely open and frank with one another. People count on each other for professional and personal support. People have a sincere respect for one another and give credit where credit is due. Where trust is missing, people are suspicious of each other, and therefore, they closely guard themselves, their plans, and their ideas. In these situations, people find it extremely difficult to openly communicate with each other.

Idea Time: Amount of time people can use (and do use) for elaborating new ideas. In the high idea-time situation, possibilities exist to discuss and test suggestions not 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/Humor: Spontaneity and ease displayed within the workplace. A professional yet relaxed atmosphere where good-natured jokes and laughter occur often is indicative of this dimension. People can be seen having fun at work. The climate 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: 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, power, and territory struggles are usual elements of organizational life. Personal differences yield gossip and slander. In the opposite case, people behave in a more mature manner; they have psychological insight and control of impulses. People accept and deal effectively with diversity.

Idea Support: Ways 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 considering new ideas. When idea support is low, the automatic "no" is prevailing. Fault-finding and obstacle-raising are the usual styles of responding to ideas.

Debate: 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 a diversity of perspectives. Where debate is missing, people follow authoritarian patterns without questioning them.

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

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for the entire SOQ is not derived because of the potential for misinterpretation.

Ekvall's research built on his productive working relations with numerous international organizations and was conducted with a variety of doctoral students and colleagues. The companies used in Ekvall's work were selected for their ability to put new products into the marketplace. This selection process was based on the work of Nystrom and Edvardsson (1980) who studied the technical (products that had novel or original technical elements) and market (products that were new to the marketplace) novelty of the products produced by these companies. Based on this information, the companies were divided into three categories.

Innovative organizations invested in new products that increased the likelihood of long-term survival for the company. The stagnated companies were unsuccessful in creating new products and were commercially in trouble. The average companies fell between these two extremes. The results of the studies (see Table 2 and Figure 2) show that organizations that were designated innovative have climate scores that are sig-

Table 2. *Ekvall's CCQ Normative Information—Numeric Data*

| Dimension	Innovative Organizations[a]			Stagnated Organizations[b]		
	M	SD	Range	M	SD	Range
Challenge and Involvement	238	27	219–300	163	10	154–176
Dynamism	220	33	182–290	140	22	120–166
Freedom	210	16	185–240	153	32	114–192
Trust/Openness	178	36	90–212	128	29	89–168
Idea Time	148	13	123–168	97	26	70–130
Playfulness/Humor	230	31	148–260	140	21	105–158
Conflict	78	31	56–150	140	14	126–162
Idea Support	183	14	166–200	108	23	80–132
Debate	158	31	110–204	105	6	98–112
Risk-Taking	195	27	153–240	53	15	34–70

[a]$n = 10$. [b]$n = 5$.
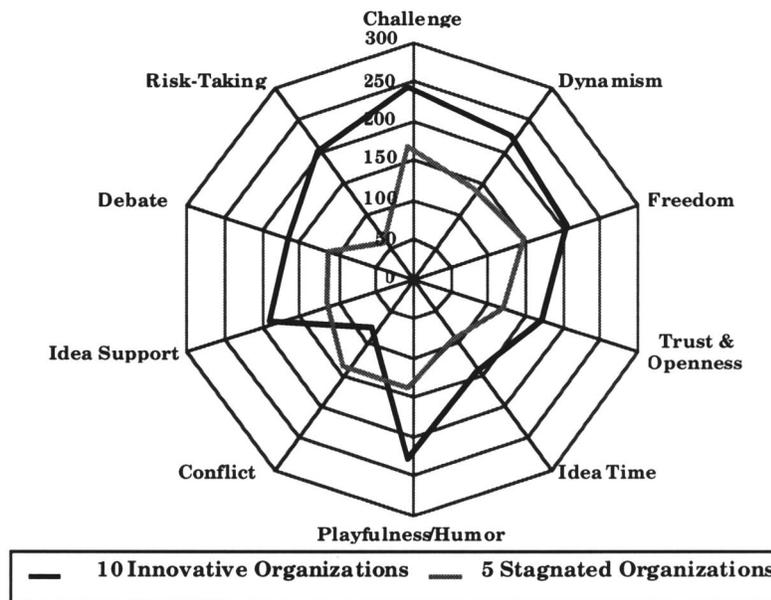
Figure 2. *Ekvall's Creative Climate Questionnaire normative information—Spider chart.*

nificantly different from organizations identified as stagnated. Analysis of variance showed that the mean differences were significant at the .05 level or better on all 10 climate dimensions (Ekvall, 1996).

Table 2 includes the means on all 10 CCQ dimensions for 15 organizations, representing different branches and countries. The first column reports the averages for 10 innovative organizations, and the other column reports averages for 5 stagnated organizations.

Figure 2 illustrates the same data included in Table 2 but uses a spider chart to provide a visual display. Because the spider charts are used to show the shape of the data included in the studies discussed in the following, this figure provides a sort of visual benchmark illustrating the target scores for the best-case and worst-case organizations.

The CCQ was chosen for translation into English due to its validation evidence available in the literature. No other measure, available in the behavioral scientific literature, had the same degree of evidence of its ability to effectively discriminate creatively productive organizations from their stagnated counterparts. Further, the practical relevance and usefulness of the climate factors of the CCQ have been well demonstrated for organizational diagnosis and intervention. In short, the CCQ was already in widespread international use in organizational and management development projects and programs.

Studies of the psychometric properties of the versions of the SOQ through its development has suggested that the questionnaire was reliable and began to establish and document the measure's content validity (Cabra, 1996; Lauer, 1994). These works also suggested and implemented the reduction of the SOQ from 10 to 9 dimensions. In a more recent study of the SOQ's construct validity and psychometric properties (Isaksen, Lauer, & Ekvall, 1999) with a predominantly North American sample, it was found that the SOQ had a factor structure that supports the existence of the 9 SOQ dimensions (see Table 1). The reliabilities of the dimensions reported in terms of Cronbach's alpha scores obtained in that study were sufficient enough (.62–.90) to also consider the SOQ a reliable measure.

Although the SOQ has already been subject to a variety of research studies (Isaksen & Kaufmann, 1990; Sobiek, 1996; Sperazini, 1997; Turnipseed, 1994), no specific evidence of its concurrent criterion-related validity is available in the published literature for this translation of the CCQ.

Our studies examined the SOQ's ability to distinguish best-case from worst-case climates for creativity and change. It would be expected that best-case situations chosen by respondents would be significantly different on all the SOQ's dimensions from the worst-case situation they chose.

Study 1

Method

The method used in this study compared individuals' perceptions of the climate dimensions for a very positive or best-case situation against a negative or worst-case situation. Respondents completed the SOQ for a best-case and a worst-case situation. The best case was defined as "an environment in which you felt you did your best work because it encouraged, nurtured, or supported your use of creativity." The worst case was "characterized as an environment in which you felt unproductive because it discouraged, hindered, or interfered with your use of creativity."

It was hypothesized that if the SOQ is an accurate measure of the psychological climate for creativity, then it would be sensitive enough to show distinct differences between very favorable and unfavorable situations. By having respondents think back to a past or present real work situation that could be characterized as either very positive or negative, the perceptions of the climate dimensions could then be compared between these situations.

This procedure was carried out two times. The first time involved a group of 22 managers (14 men and 8 women) from an international computer company. The age for this group ranged from 32 to 58. Examples of the best case for this group were: negotiating with union, intercultural video creation, and internal training center. Examples of the worst case included: post-merger environment, executive development program, and development of a product database.

The second group to complete the SOQ in this manner were 24 graduate students (11 men and 13 women) enrolled in a course at the Center for Studies in Creativity at Buffalo State College. The age for this group ranged from 25 to 56. Examples of the best-case situation identified by the students included teaching in college, working as a journalist for a newspaper, and technology marketing. Examples of the worst-case sit-

uation included working in a psychiatric center, teaching in a middle school, and working as a waitress.

Results

Britz (1995) originally analyzed the data collected from the two samples described previously by examining the means for both measures and conducting an analysis of variance. For this study, the data were reanalyzed. Table 3 shows the mean scores for the best- and worst-case situations for both samples, and

Figures 3 and 4 present a graphic depiction of these scores.

A visual display of the scores for the best-case and worst-case situations between the two samples shows remarkable similarities (see Figures 3 and 4). In general, the scores for the best-case situation approach the high end of the scale (300), except for conflict (a negative dimension), and the scores for the worst case fall toward the low end of the scale (0), again except conflict. To determine if these differences were statistically significant, we began by conducting a 10 (SOQ dimensions) $\times$

Table 3. *Mean Scores for Best-Case and Worst-Case Situations: Study 1*

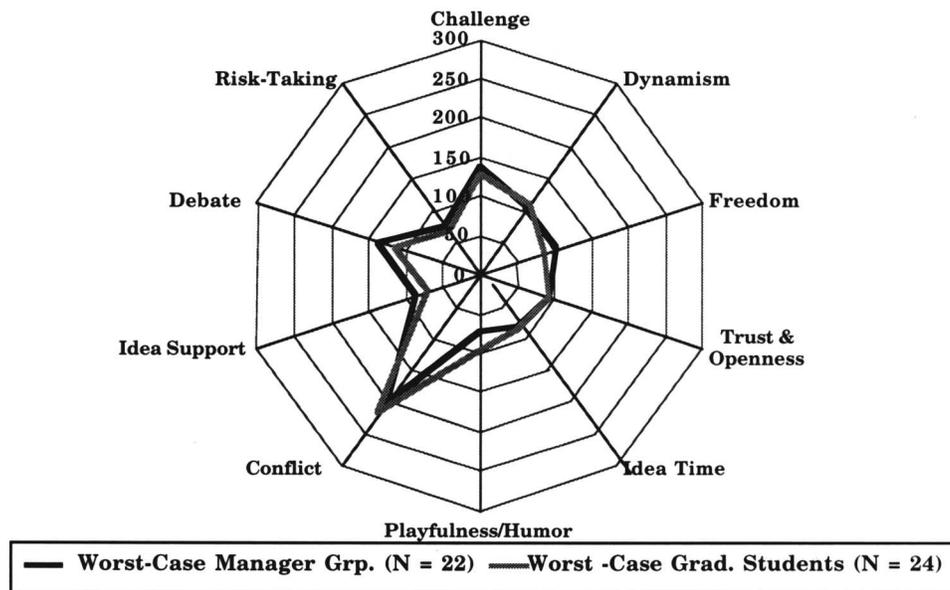| Dimension	Manager Group[a]		Student Group[b]	
	Best Case	Worst Case	Best Case	Worst Case
Challenge and Involvement	259	138	263	130
Freedom	227	104	226	89
Dynamism	239	103	235	111
Trust/Openness	219	94	218	94
Idea Time	155	85	209	86
Playfulness/Humor	213	72	243	99
Conflict	92	204	74	219
Idea Support	232	85	233	70
Debate	238	137	228	113
Risk-Taking	208	77	185	67

[a]$n = 22$. [b]$n = 24$.

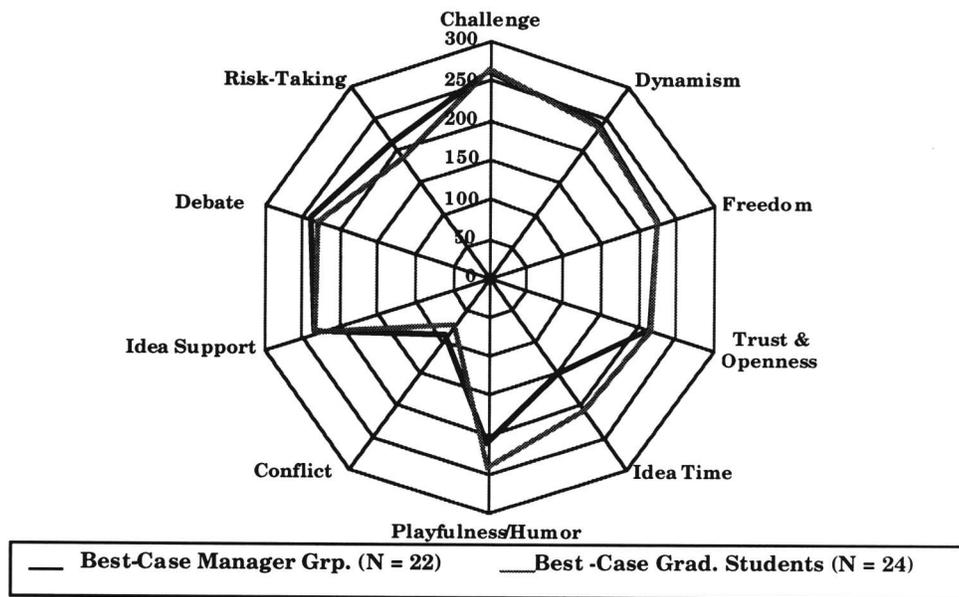**Figure 3.** *Comparison of mean scores for worst-case situations: Study 1.*

Figure 4. *Comparison of mean scores for best-case situations: Study 1.*

2 (situation: best, worst) multivarite analysis of variance (MANOVA). There was a significant interaction for situation in the manager group, Wilks's $\Lambda = .197$, $F(10, 33) = 13.43$, $p < .001$, and in the student group, Wilks's $\Lambda = .154$, $F(10, 37) = 20.33$, $p < .001$.

For both samples, a subsequent univariate F test was conducted between the best- and worst-case climates. All 10 dimensions showed significant univariate effects across the best- and worst-case situations (see Table 4). These results are important in that they demonstrate that respondents will vary their answers to the SOQ given very different work environments. Additionally, respondents will vary their answers in the theoretically hypothesized direction (i.e., positive environments receive more positive scores and negative environments receive more negative scores). Results from this analysis show that the SOQ can discriminate between a variety of productive and unproductive work situations experienced by two diverse groups.

Subsequent analysis compared the scores for the best-case and worst-case situations across the two samples. This was done to determine if the scores for the best- and worst-case situations were relatively similar. To examine this question, we pooled the data sets and created a best-case data set and a worst-case data set. A 10 (SOQ dimensions) × 2 (group: manager, student) MANOVA was conducted on each set. There was no significant interaction for the worst-case data

Table 4. *Univariate F Tests Between Best-Case and Worst-Case Scores: Study 1*

	F^*	
Dimension	**Manager Group[a]**	**Student Group[b]**
Challenge and Involvement	76.7	92.8
Freedom	60.0	49.1
Dynamism	74.5	57.3
Trust/Openness	66.0	99.9
Idea Time	13.1	31.0
Playfulness	60.6	107.4
Conflict	29.5	77.8
Idea Support	100.6	102.3
Debate	27.9	56.2
Risk-Taking	66.3	36.9

[a]$n = 22$, $df = 1$, 42. [b]$n = 24$, $df = 1$, 46.
*All $ps < .001$.

set, Wilks's $\Lambda = .747$, $F(10, 35) = 1.19$, $p > .05$. A significant interaction occurred for the best-case data set, Wilks's $\Lambda = .527$, $F(10, 35) = 3.15$, $p < .01$. A subsequent univariate F test of the best-case data set revealed only one significant difference. Idea Time for the best-case situation produced a small but statistically significant difference, $F(1, 44) = 5.79$, $p < .05$. This difference favored students enrolled in a graduate

program over busy professionals working for a global organization. Thus, the patterns across the best- and worst-case situations for the two groups were relatively similar.

Study 2

Method

The second study utilized a revised version of the climate measure containing only nine dimensions. Factor analysis with North American samples had demonstrated that the dynamism dimension fell on the challenge factor (Cabra, 1996). The revised version of the SOQ contained items for only nine dimensions. In addition, the revised measure utilized open-ended questions where participants reported aspects of their environment that help or hinder their creativity as well as make recommendations for improvement.

Data collection occurred during the fall of 1996, with an undergraduate class enrolled in an elective humanities course. This course was selected due to its size and the diversity of the students enrolled. Students volunteered to have their data included in the study. The students' ages ranged from 18 to 56 with an average age of 27.3. The class consisted of 27 men and 44 women.

The group's scores on the Kirton Adaption–Innovation Inventory (Kirton, 1987) showed a fairly normal distribution and a mean score that was close to the theoretical mean (Mudd, 1986). The Kirton Adaption–Innovation Inventory is a 32-item instrument on which respondents are asked to indicate the degree of ease or difficulty they have in maintaining specific adaptive or innovative preferences over a long period of time. This suggested that this group was fairly representative of the normal population and would provide a better sample than those presented in the previous study presented in this article. The Kirton Adaption–Innovation Inventory means for the other two groups were substantially more innovative.

Results

The results from this study show remarkably similar patterns in the numeric data and their visual display. The means on the nine dimensions of the SOQ are reported in Table 5. The spider chart for the results from the 71 students is shown in Figure 5.

The SOQ provided consistent results in the expected direction. The best-case results were all more positive than the worst-case situations, except in conflict where the worst-case average would be expected to be higher on this negative dimension. The worst-case results were all lower and also in the expected direction, except for conflict, which yielded higher scores, showing a more negative climate for creativity and change.

Consistent with the analysis conducted in the first study, a 9 (SOQ Dimensions) $\times$ 2 (situation: best, worst) MANOVA was applied to the means from best- and worst-case climates. As in the previous study, a significant interaction was observed, Wilks's $\Lambda = .255$, $F(9, 132) = 42.80$, $p < .001$. Univariate F tests were then applied and all the means were significantly different (see Table 6). The 71 best-case situations chosen by the undergraduate students were clearly different from their 71 worst-case situations.

Discussion

From the studies reported, it seems reasonable to conclude that the SOQ appears to perform similarly to its parent measure, the CCQ. The studies reported in this article provide preliminary evidence regarding the validity of the SOQ. The three samples from the two studies, offering a wide variety of best- and worst-case comparisons, yielded very similar results. These results appeared to be consistent with the earlier validation results provided by Ekvall and his colleagues, who reported significant differences that

Table 5. *Mean Scores for Best-Case and Worst-Case Situations: Study 2*

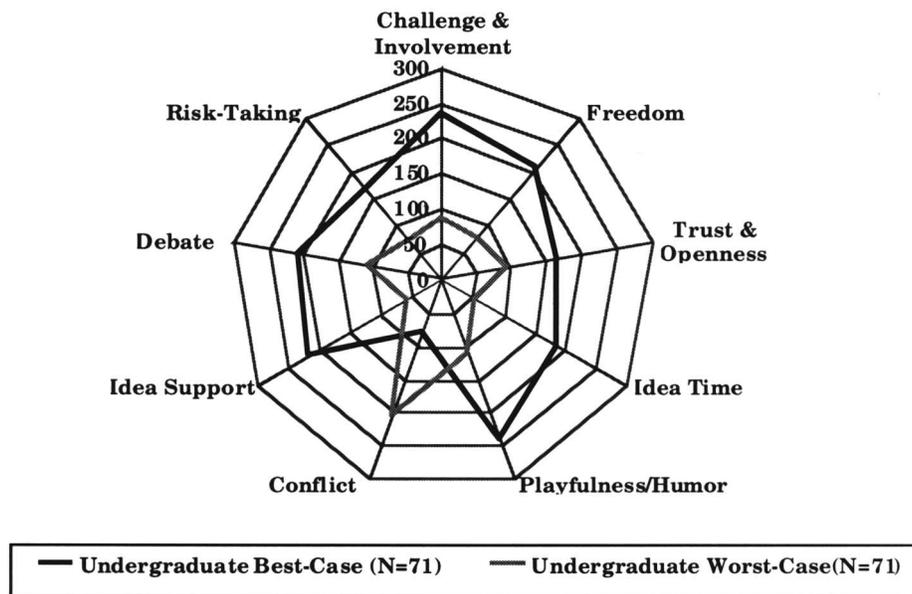|	Undergraduate Students	
Dimension	Best Case[a]	Worst Case[a]
Challenge and Involvement	232	84
Freedom	207	77
Trust/Openness	166	95
Idea Time	190	57
Playfulness/Humor	241	111
Conflict	81	209
Idea Support	217	59
Debate	208	108
Risk-Taking	167	72

[a]$n = 71$.

Figure 5. *Comparison of mean scores for best-case and worst-case situations: Study 2.*

Table 6. *Univariate F Tests Between Best-Case and Worst-Case: Study 2*

Dimension	Undergraduate Group F^{a}*
Challenge and Involvement	259.7
Freedom	204.8
Trust/Openness	30.0
Idea Time	183.0
Playfulness/Humor	138.1
Conflict	111.3
Idea Support	231.3
Debate	93.6
Risk-Taking	87.3

$^{a}n = 71$, $df = 1, 140$.
*All $ps < .001$.

occur on climate scores between companies identified as innovative and stagnated (Ekvall, 1996). As such, it appears from these studies that the SOQ discriminates climates for creativity. Further studies may build on these findings to examine other issues regarding the SOQ's validity.

Because the current version of the SOQ also provides narrative data, qualitative research methods should be applied to provide a more descriptive understanding of the perceived differences in best- and worst-case situations. Further analysis should also be conducted on the data from the two studies reported in this article.

Considering the graphic representation of the data (see Figures 6 and 7), it appears that the results are consistent across the three groups reported in this article for both the best- and worst-case situations. A future study may examine the adjusted means scores for the three groups and a multiple analysis of variance could be performed to determine if the differences are consistent across the three samples.

The studies reported here utilized individuals and their recollections of actual organizations within which they worked. Actual climate data from other individuals was not used within a shared context. For the purpose of these studies, the individual level of analysis was used for both the best- and worst-case. Ekvall (1996) used actual data from innovative, average, and stagnated organizations. In this case, however, post-facto, self-report recollections were utilized. Future research should include data at a similar level of analysis as those Ekvall utilized and be based on similar criteria for discriminating innovative organizations from their stagnated counterparts. Future studies should also focus more on predictive validation. Next steps in this area could include using measures of organizational productivity and profit-
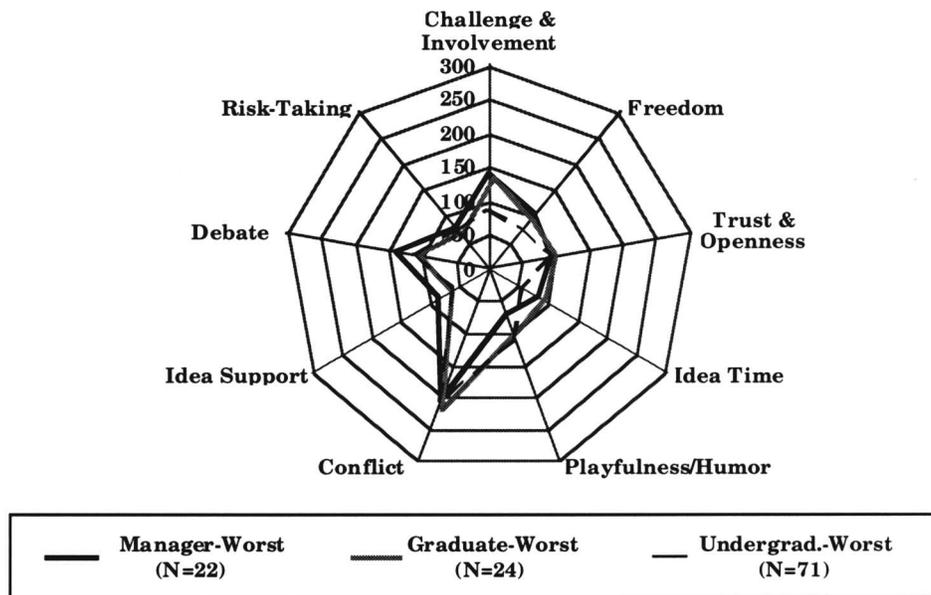
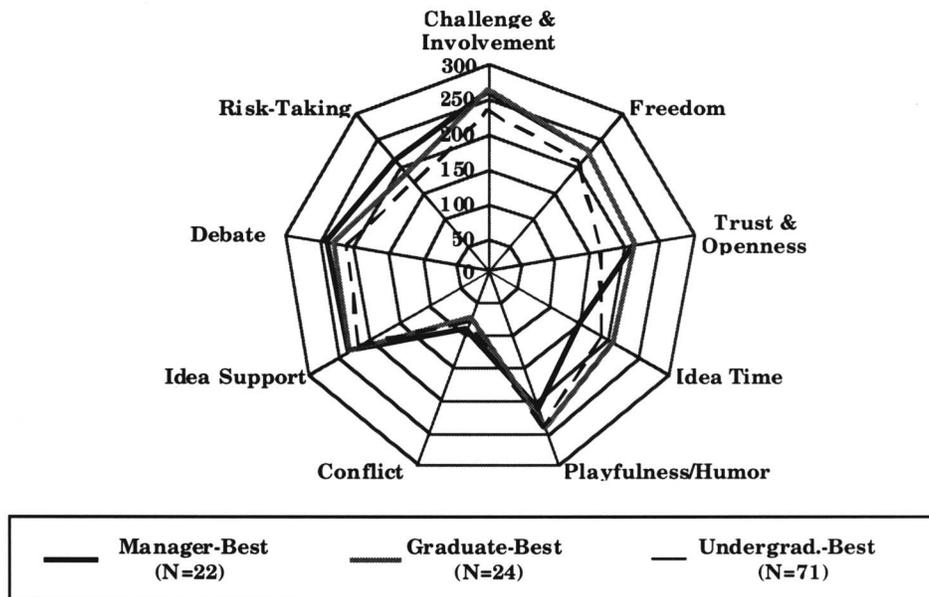Figure 6. *Comparison of mean scores for all three worst-case situations.*

Figure 7. *Comparison of mean scores for all three best-case situations.*

ability and providing a blind description of a workplace for participant review.

A further avenue for future research to more firmly establish the validity of the SOQ would be to establish that clear narrative differences translated into item and dimensional differences.

The two studies presented here have provided preliminary evidence that the SOQ does discriminate the climate for creativity and change. This article is the first published evidence supporting the concurrent criterion-related validity of the SOQ. Future studies should further examine this and other aspects of the SOQ's validity.

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