Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development

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The problem and the solution. The majority of the literature on creativity has focused on the individual, yet the social environment can influence both the level and frequency of creative behavior. This article reviews the literature for factors related to organizational culture and climate that act as supports and impediments to organizational creativity and innovation. The work of Amabile, Kanter, Van de Ven, Angle, and others is reviewed and synthesized to provide an integrative understanding of the existing literature. Implications for human resource development research and practice are discussed.

Keywords: *organizational culture; organizational climate; organizational creativity; innovation*

Creativity, as expressed and brought to life through organizations, plays a critical role in society. Whether the organization is a business that is bringing creativity to life through innovative products and services that customers desire, therefore fulfilling customers' needs, creating jobs, and contributing to the economy, or whether the organization is the local government using ideas in a creative way to meet the needs of the community, therefore increasing the quality of life, organizational creativity and innovation play an integral role in serving all of us. Yet, the majority of the literature on creativity views it as an individualized phenomenon (Sternberg & Lubart, 1999). "The major focus in creativity research has been on the individual creator and his or her personality, traits, abilities, experiences, and thought processes" (Williams & Yang, 1999, p. 378). However, it is important to study and understand the context in which the individual creator functions. "The social environment can influence both the level and frequency of creative behavior" (Amabile, Conti, Coon, Lazenby, & Herron, 1996, p. 1155).

The purpose of this article is to review the existing literature related to the relationship between organizational culture and creativity and innovation and then to discuss implications of this relationship to the study and practice of human resource development (HRD).

What Is The Difference Between Creativity and Innovation?

Throughout the creativity literature, and particularly the literature focused on organizational creativity, the term "innovation" is often used and the distinction between creativity and innovation is an important one. Sternberg and Lubart (1999) define creativity as "the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (p. 3). Although the measurement of creativity deserves a lot of attention, words associated with this definition of creativity include *idea*, *invention*, and *breakthrough*. However, innovation is about "a process of developing and implementing a new idea" (Van de Ven & Angle, 1989, p. 12). They go on to write that "innovation refers to the process of bringing any new problem solving idea into use . . . it is the generation, acceptance, and implementation of new ideas, processes, products, or services" (p. 20). This process can take place in many different domains; it can be technical, to be sure, but also organizational (e.g., process improvements) or even social (e.g., quality circles) (Kanter, 1983). The focus here, particularly in the context of an organization, is on taking a creative idea and bringing it to fruition. For example, in the life of an organization, many brilliant ideas never see the light of day. To bring an idea from concept to market, it must be recognized for its potential; it must receive funding in an environment of scarce or at least competing resources; and it must overcome potential obstacles such as technology challenges, competitive pressures, and a variety of other obstacles. The process by which this happens is referred to as innovation and it is an important process when talking about creativity in the context of organizations. It would not be a stretch to say that when it comes to organizations, creativity without innovation is of significantly diminished value. The converse is also true: without creative ideas to feed the innovation pipeline so they may be promoted and developed, innovation is an engine without any fuel. Echoing the two citations above, Amabile et al. (1996) differentiates between creativity and innovation as follows: "Like other researchers, we define creativity as the production of novel and useful ideas in any domain. We define innovation as the successful implementation of creative ideas within an organization" (p. 2). "Thus, no innovation is possible without the creative processes that mark the front end of the process: identifying important problems and opportunities, gathering information, generating new ideas, and exploring the validity of those ideas" (Amabile, 2004, p. 1).

The difference between these two terms is critical to HRD scholars and practitioners. Creativity is a phenomenon that is initiated and exhibited at the individual level. Variables such as personality (Feist, 1999), motivation (Collins & Amabile, 1999), and expertise (Weisberg, 1999) are related to creativity at the individual level. Certainly environmental factors at the group and organizational levels, including organizational culture and climate, influence these variables and therefore impact individuals' behavior, but the focus of creativity is primarily on the individual. Innovation, on the other hand, operates much more at the group and organizational levels. The focus is more on interrelationships, interactions, and dynamics among actors and components of the organization and its environment. These differences have implications for HRD scholars in how they study creativity and innovation; they may impact the research question, the unit of analysis, and the research design. For HRD practitioners, the differences will impact the way in which they define issues in an organization, assess situations, and develop and implement solutions.

Throughout the remainder of this article, the terms "creativity" and "innovation" will be used as defined above as much as possible. However, in reviewing the literature, the terms were used interchangeably and it was difficult to differentiate at times which definition was being used.

What Is The Difference Between Organizational Culture and Organizational Climate?

Because this article focuses on the construct of organizational culture in relation to creativity and innovation, some discussion of this construct is useful. The terms "organizational culture" and "organizational climate" are another pair of terms that appeared in the literature, this time in the organizational culture literature, which deserves some attention here. Organizational culture and organizational climate often appeared to be used interchangeably. However, some authors (e.g., Amabile et al., 1996; Martin, 2002) make a distinction that is important when it comes to researching the phenomenon of organizational creativity and innovation.

Martin (2002) has written a book titled *Organizational Culture: Mapping the Terrain* in which she provides a comprehensive review of the organizational culture literature and provides an interesting perspective on a number of issues related to the study of organizational culture. According to Martin, culture is about deeply held assumptions, meaning, and beliefs. If we look at Schein's (1992) iceberg model, this would include all of the elements of the iceberg that appear "under the waterline" or remain invisible for the most part. When researching culture, it is often done using phenomenological methods incorporating the recounting of stories, observation of physical arrangements, and interpretation of jargon and rituals.

Climate, on the other hand, refers to the manifestation of practices and patterns of behavior rooted in the assumptions, meaning, and beliefs that make up the culture. When researching climate, scholars look at content themes (beliefs, values, basic assumptions), informal practices, and behavioral norms, often measured via questionnaires or other survey instruments. Although this distinction is consistent with Amabile et al.'s (1996) conceptualization of climate, Martin goes on to talk about three perspectives on organizational culture that have emerged out of the literature among which the relationship between organizational culture and organizational climate differs. The three perspectives are (a) integration (there is one culture in an organization), (b) differentiation (subcultures exist in an organization), and (c) fragmentation (ambiguity; culture can exist at the individual level in an organization). The Integrationalist assumption is that culture and climate are consistent with each other, whereas the Differentiation and Fragmentation perspectives assume there is room for inconsistency across climate and culture.

Denison (1996) put forth a compelling explanation for the lack of clarity and consistency in the use of the terms *climate* and *culture* in the literature. Denison first described the evolution of the study of the two constructs which, similar to Martin's (2002) conclusions above, focused on culture being about assumptions, beliefs, meaning, and values primarily studied through qualitative methods, whereas climate was about the practices and behaviors though which culture is manifested. However, Denison goes on to demonstrate striking similarities between culture and climate along the lines of definition, central theoretical issues, content and substance, and epistemology and methods. It is not surprising then that the research looking at creativity/innovation and organizational culture/climate is complicated by the lack of consistency with which two terms are used.

The distinction, similarities, and relationship between the two terms is important for the study of creativity and innovation because it drives the methodology that is used in conducting research in this area and because the majority of the research in the literature really is looking at the relationship between organizational climate and creativity and innovation, not organizational culture.

Review of the Literature on Organizational Culture and Creativity and Innovation

Now that certain terminology has been defined and some background has been laid out, the next section of this article will review the history and evolution of research on organizational culture as it relates to creativity and innovation and then provide an integrative literature review based on the work of a few key scholars.

History and Evolution of the Literature on Organizational Culture and Creativity and Innovation

Somewhat surprisingly, given the importance of creativity and innovation in organizations, there has been relatively little empirical work done in the area of organizational culture and creativity and innovation (Oldham & Cummings, 1996). The author conducted a search of the electronic catalogs of several major university libraries, a number of journal indexes, and Google.com. Much of what has been written on the topic has appeared in the popular press and in books written for practitioners, with little apparent empirical evidence to back up the content of those books. The first scholarly article of some notoriety on the topic was written by Burns and Stalker (1961), who compared electronics firms with more established industrial enterprises and made the distinction between mechanistic and organic forms of organizing. Mechanistic organizations were characterized as hierarchical, highly structured organizations with well-defined, formal roles and positions relative to others in the organization, with communication flowing primarily vertically. Organic organizations, by contrast, were typified by their fluid organizational design, with departments and teams forming and reforming to address new problems and opportunities, with communication flowing primarily laterally. Burns and Stalker's environmental determinism view of organizations led to the conclusion that organic organizations form to deal with unpredictability and volatility in an organization's environment. Compared with a mechanistic organization, an organic one facilitated greater creativity and innovation. This conclusion was later challenged when Kimberly (1981) found that centralized decision making may enhance an organization's ability to implement innovations, particularly in a more stable environment. And whereas Burns and Stalker began a body of knowledge on creativity and innovation in organizations over the next several decades (see Appendix A for a brief chronology of research on organizational creativity and innovation), relatively little of that research focused specifically on organizational culture or climate. Nonetheless, a few key scholars have done work in this area and their work is reviewed below.

A Review of the Existing Literature: Major Contributions

Although the literature on organizational culture and creativity and innovation is not extensive, there have been some high-quality and influential pieces of research by a number of scholars. The author's search converged on the work of three scholars whose writing in the area of creativity/innovation and organizational culture has been prolific and whose work has been based on scholarly endeavors. This section provides a brief overview of

each scholar's body of work and then goes on to provide an integrative review of their collective work.

The Work of Theresa M. Amabile

Amabile began her work at Brandeis University and is currently on faculty at Harvard University's Business School. A prolific writer, in addition to her work on creativity and innovation, she has focused extensively on motivation research. Much of her work has focused on behavior in the context of the organization. This is true of her body of work in the area of creativity and innovation and her approach to researching these phenomena can generally, although not exclusively, be characterized as a psychometric, quantitative approach. For example, Amabile et al. (1996) have developed and validated an instrument called KEYS: Assessing the Climate for Creativity that was specifically aimed at assessing the work environment for creativity (recall the discussion above distinguishing between organizational climate and organizational culture). In fact, Amabile et al. (1996) have identified only one other psychometric instrument designed for this purpose documented in the literature, and this author has found no evidence to the contrary. The Scale of Support of Innovation (Siegel & Kaemmerer, 1978), however, was validated on school teachers and students and so its utility in business organizations is uncertain.

The literature generally groups work factors affecting creativity and innovation into two categories that could be referred to as supports of and impediments to creativity and innovation. However, Amabile et al. (1996) pointed out that

> in most previous research on the work environment for creativity, there has been a bias toward creativity supports—work environment factors that appear to enhance creativity. There is comparatively little research evidence on creativity impediments—work environment factors that may undermine creativity. (p. 1162)

Because both supports and impediments affect creativity, KEYS includes scales that assess both. Amabile et al. (1996) identified six support scales that they hypothesized would differentiate between high-creativity climates and low-creativity climates, including (a) organizational encouragement, (b) supervisory encouragement, (c) work group supports, (d) freedom, (e) sufficient resources, and (f) challenge. The scales identified as obstacles included workload pressure and organizational impediments. In a study to validate the instrument (Amabile et al., 1996), all scales showed a significant difference between high- and low-creativity projects, with sufficient resources and workload pressure showing less distinction, comparatively. Each of these scales will be explained in greater depth in the integrative review of this literature below.

It is interesting to note that Amabile's (1998) work has focused on three ingredients for creative output: (a) domain expertise, (b) creative-thinking

skills, and (c) intrinsic motivation. In reviewing the scales included in KEYS, it appears that these factors are related almost exclusively to factors that have the potential to affect intrinsic motivation.

The Work of Rosabeth M. Kanter

Kanter is also at Harvard Business School and previously taught at Yale University. In contrast to Amabile's quantitative and psychometric approach, Kanter's stream of research in the area of innovation is based primarily on a qualitative, interpretive case study approach. The result of her research on innovation culminated in a book titled *Change Masters* (Kanter, 1983). This work was based on six studies involving more than 100 companies and in-depth case studies on 10 core companies utilizing highly qualitative and interpretive analysis drawing on multiple sources of data in each organization (Kanter, 1983). Although not every one of these studies focused on organizational culture, the conclusions certainly involve organizational culture and innovation. In particular, the study titled "Whole Company Cases: Structure, Culture, and Change Strategies" looked specifically at organizational culture.

As did Amabile, Kanter addressed both supports and impediments to innovation. On the supports side, Kanter (1988) states that innovation is most likely to occur in organizations that (a) have integrative structures, (b) emphasize diversity, (c) have multiple structural linkages inside and outside the organization, (d) have intersecting territories, (e) have collective pride and faith in people's talents, and (f) emphasize collaboration and teamwork (p. 383).

On the impediments side, Kanter (1983) talks about a culture of segmentalism—"a culture and an attitude that make it unattractive and difficult for people in the organization to take initiative to solve problems and develop innovative solutions" (p. 101). Kanter even lists 10 "Rules for Stifling Innovation" that focus on control of action, decisions, and information, hierarchical structures, and lack of supervisor support or encouragement. "The highest proportion of entrepreneurial accomplishments is found in the companies that are least segmented and segmentalist, companies that instead have integrative structures and cultures emphasizing pride, commitment, collaboration, and teamwork" (p. 178). Although these characteristics may lead an organization to be perceived as "more political in the sense that managers will have to capture support and power for their ideas through persistence and persuasive arguments" (Kanter, 1983, p. 179), it also may be perceived as more civil in the sense that support is gained through persistent and persuasive arguments and open communication rather than backstabbing.

Minnesota Innovation Research Program: Van de Ven, Angle, and Poole

One of the most ambitious research programs ever done in the area of innovation and creativity was the Minnesota Innovation Research Program led by Van de Ven, Angle, and Poole (1989) at the University of Minnesota. Although only one of the chapters in the book reporting on the research is focused explicitly on elements of organizational culture, the scope and depth of the research has had a significant impact on the innovation body of knowledge. Angle's (1989) chapter on psychology and organizational innovation is supported by the data collected in the larger research program and contributes the most to the topic of organizational culture and innovation, not so much in that it provides a lot of empirical research results but rather because it draws on a fairly extensive review of the literature and lays out a research agenda inclusive of propositions on the relationship among variables important to organizational culture and innovation. An adapted table laying out the propositions that are most closely related to organizational culture and innovation can be found in Appendix B.

Angle (1989) first reviewed the literature related to how motivation is important for creativity and innovation, noting that intrinsic motivation for creativity is much more powerful in producing creative behavior than extrinsic motivation. Angle went on to discuss enabling factors in the organization, highlighting the importance of information flows in the organization. Information flows are dependent, to a certain degree, on organizational climate and culture. Expectations about the importance of communicating, the vehicles available for communicating, and the cues within the environment regarding with whom to communicate can determine how communication will influence innovation. In the Minnesota Innovation Survey (MIS) data, "innovation effectiveness was found to be related both to communication frequency within the innovation teams ($r = .17$, $p < .03$) and communication frequency outside the teams ($r = .19$, $p < .02$)" (Angle, 1989, p. 144). However, somewhat surprisingly, the MIS data also showed the lack of a relationship between innovation effectiveness and communication with customers ($r = .09$, $p < .23$) and vendors ($r = .12$, $p < .12$). This data contradicted previous research (Utterbach, 1971). Angle concluded that what is important is not necessarily that the communication and information sharing take place within or outside the organization, but rather the frequency of communication among persons with dissimilar frames of reference with the thought being that an exchange of ideas from different points of view will generate new, creative ideas.

Also particularly relevant to creativity/innovation and its relationship to organizational climate/culture is the concept of an organic organization (Burns & Stalker, 1961). By definition, an organic organization supports

open communication flows, power on the basis of expertise instead of position, and decision-making authority is decentralized (Angle, 1989). Angle concluded that an organic organization (as opposed to a mechanistic one) enables greater organizational innovation in environments of dynamic change. Kimberly (1981) found that in relatively stable environments, some formalization and centralization of decision-making can lead to freeing up time for employees to focus on more creative/innovative endeavors.

While Angle's (1989) article is valuable in that it synthesizes a large body of literature and posits a number of thoughtful hypotheses related to innovation and psychological aspects of the phenomenon, its application to the present chapter is limited in that it stops short of creating an explicit and compelling link between the conditions that are associated with greater innovation effectiveness and organizational climate/culture. The remainder of this article will attempt to more explicitly create these links.

Other Work on Organizational Culture and Climate and Creativity/Innovation

One other literature review conducted by Tesluk, Farr, and Klein (1997) was identified. Their search focused on how organizational culture and climate influenced creativity at the individual level. Drawing on the work of the scholars described above, among others, Tesluk et al. identified five dimensions of organizational climate that influence creativity, including goal emphasis, means emphasis, reward orientation, task support, and socioemotional support.

Goal emphasis is "the extent that goals for creativity and innovation and the standards for achieving those goals are made known to employees" (Tesluk et al., 1997, p. 34). When it is clearly communicated in an organization that creativity and innovation are valued goals, there is a greater likelihood that individuals will engage in more creative behavior (Tesluk et al., 1997). Clarity about goals frees up employees to focus their attention on solving problems and generating ideas rather than spending time and energy on trying to determine what goals should receive focus.

Means emphasis is "the extent that the methods and procedures for creativity and innovation are conveyed to employees" (Tesluk et al., 1997, p. 34). If management is able to convey through its actions and words that it values challenging existing norms, active risk taking, sharing of information, and open debate, employees are more likely to engage in those behaviors.

Reward orientation is "the extent that rewards and evaluations are allocated on the basis of creativity and innovative results" (Tesluk et al., 1997, p. 34). The acknowledged sensitivity here is to ensure that the reward and recognition system encourages or enables intrinsic motivation (or equally

doesn't impede intrinsic motivation) by focusing too much on extrinsic rewards.

Task support is "the extent that employees believe that they are being supported by allocations of the time, funding, equipment, materials, and services necessary to function creatively and to implement new ideas, projects and solutions" (Tesluk et al., 1997, p. 34). Task support may be thought of simply as the organization providing the tools and resources for employees to carry out the work of creativity and innovation. For example, it would be difficult for a scientist to test a new hypothesis without the proper lab equipment or without the time to conduct experiments.

Finally, *socioemotional support* is "the extent that employees believe that the work environment provides the interpersonal support necessary to feel free to function creatively" (Tesluk et al., 1997, p. 34). When employees perceive that an organization has their welfare and best interest in mind, when an environment of open debate and discussion is in place, and when trust exists among employees, especially with management, employees can feel more open to take risks and put forth creative ideas.

Synthesis of the Literature

Many of the concepts and factors identified by these authors and others are related. The following is a synthesis of these concepts organized by organizational supports and impediments. The names of the categories below align closely with the subscales of the KEYS instrument (Amabile et al., 1996) and, as will be demonstrated, many are supported by the other research reviewed here. This should not be surprising given that these subscales were developed based on an extensive literature review prior to being validated through multiple research studies.

Organizational Supports for Creativity and Innovation

Organizational encouragement. The KEYS subscale titled "organizational encouragement" encompasses several aspects, including encouragement of risk taking and idea generation, supportive evaluation of ideas, collaborative idea flow, and participative management and decision making (Amabile et al., 1996). Concepts put forth by other scholars align closely with some of these. For example, the idea of an open flow of communication across groups in the organization is supported by Angle (1989) and Kanter (1983). In particular, Kanter puts a heavy emphasis on integrative structures, multiple structural linkages with intersecting territories and horizontal communication that is often supported by a matrix organization. Organizational structures and a culture that supports, or perhaps more appropriately does not punish, this type of communication will be more likely to have more effective creativity and innovation.

For example, the way in which communication channels are nurtured or discouraged in organizations can be a potential source of support or an impediment to innovation and creativity. Imagine a situation in which an employee in one business unit of an organization is looking for expertise to further develop her idea and that expertise doesn't exist in her own business unit. An organization that has strong organizational support would have mechanisms for identifying where else inside or outside the organization she might find expertise. If the expertise existed in another business unit within the organization, she could contact employees in another business unit and would be likely to find a willingness to help. However, in organizations where organizational support is minimal, there is unlikely to be a productive exchange of ideas. There may be no mechanism for finding expertise within the organization. Or, when employees are solicited for help, they may not have the time to do so because they have been over-allocated to their own projects.

Robbinson and Stern (1997) highlight the example of 3M's invention of Scotchgard as an example of how opportunities for open communication flow resulted in a major commercial success through innovation. In this example, work originating outside the organization was developed by scientists in one research unit and applied in another research unit. This series of events was made possible by an environment that encouraged its employees to reach out and connect with others who might benefit from an idea exchange and vice versa.

Supervisory encouragement. Supervisory encouragement includes clarity of team goals, supervisory support of the team's work and ideas, and an environment where open interactions are supported (Amabile et al., 1996). Angle (1989) was a little more specific in one of his propositions: "Innovation effectiveness is positively associated with group cohesiveness, provided that an open, confrontive climate for conflict resolution exists within the innovation team. Absent such a climate, cohesiveness is negatively related to the level of innovation in the team" (p. 165). Of interest, Oldham and Cummings (1996) tested Supportive Supervision, in conjunction with individual characteristics, and found no support for their hypothesis. However, they found support for a closely related hypothesis, that noncontrolling supervision is positively related to creative performance. This will be discussed further in the Organizational Impediments section below. In Tesluk et al.'s (1997) literature review, the concept of supervisory encouragement cuts across the climate dimensions identified. They discussed the role of the supervisor in clearly communicating goals, setting expectations for how those goals are accomplished, rewarding and recognizing accomplishments, providing task support, and creating an environment where risk taking is encouraged.

Work group encouragement. The conceptualization of work group encouragement focuses on diversity among group members (see Egan's article in this

issue) and constructive challenging among team members (Amabile et al., 1996). Creative performance is increased when diversity is allowed, when people with dissimilar frames of reference can exchange ideas, and when the organization can effectively integrate creative personalities into the organizational mainstream (Angle, 1989; Kanter, 1983). Although not explicitly stated in the literature, these assertions have significant implications for the organizational culture. The organization that possesses these attributes must have a culture that strongly values, tolerates, and even embraces diversity, particularly diversity of personalities. Feist (1999) identified a number of personality traits, both social and nonsocial, of individuals who were especially creative compared to their peers. Some of those traits include dominance, arrogance, hostility, self-confidence, autonomy, introversion, and independence. These characteristics are likely to be at odds with organizational norms and have the potential to create conflict in the social construct of an organization or work group, unless carefully and intentionally managed.

Freedom and autonomy. Freedom and autonomy here are related to granting and allowing freedom and autonomy to employees for determining the means by which to achieve a goal (Amabile, 1998), not necessarily autonomy for selecting what goals to go after. "In fact, clearly specified strategic goals often enhance people's creativity" (Amabile, 1998, p. 82). As discussed above, individuals who stand out in their ability to perform creative acts often value independence and autonomy. An organizational culture that supports autonomy in achieving clearly communicated goals will likely be more successful in terms of creativity and innovation than an organization that does not. An environment of freedom and autonomy is more likely to tap into the intrinsic motivation of its employees, which has been a key factor in promoting creativity in organizations.

In developing the inkjet printer at Hewlett-Packard (HP), John Vaught and Dave Donald were given (or perhaps more accurately, seized) extraordinary autonomy in pursuing their ideas about how heat could be used to eject ink onto paper (Robbinson & Stern, 1997). Their excitement in pursuing their ideas was not encumbered by overly involved supervisors or organizational bureaucracy and their intrinsic motivation and curiosity, coupled with their ability to tap into expertise both inside and outside the company contributed to a fantastic commercial success.

Resources. The literature addresses the resources of both time and money. When it comes to time, not giving enough can lead to distrust and burnout (Amabile, 1998). However, giving too much time can take away from the sense of challenge and decrease creative performance. As for money, enough must be provided such that employees do not have to put their creative focus on finding more resources; however, providing resources "over and above the 'threshold of sufficiency' does not boost creativity" (Amabile, 1998, p. 83).

Organizational Impediments to Creativity and Innovation

Control. The major factor identified in the literature that impedes creative performance is control (Amabile, 1998; Angle, 1989; Kanter, 1983; Oldham & Cummings, 1996). It could be control in decision making, control of information flow, or even perceived control in the form of reward systems that put too much emphasis on increasing extrinsic motivation. A culture that supports and encourages control will result in diminished creativity and innovation. The primary reason for this is that control negatively affects intrinsic motivation. According to Amabile (1988), expertise and creativity skills must be accompanied by intrinsic motivation to produce highly creative behavior. However, this notion may not be as straightforward as it appears. Kimberly (1981) found that in stable and predictable environments, some degree of formalization and centralization of decision making might actually increase an organization's ability to implement innovations.

Implications for HRD Research

The research reviewed in this article has provided a foundation on which future research can build and holds significant implications for HRD research. The field of HRD would benefit from further development of the ideas and theories put forth in the existing literature. To move these ideas forward, creating a broader research base by conducting studies in a larger number of organizations and in a wider variety of organizations (e.g., governmental, not-for-profit, and educational) would add to the existing body of knowledge.

The research reviewed here focuses on work factors related to creativity and innovation in the workplace. These work factors, as discussed earlier in this article, appear to be more reflective of organizational climate than organizational culture. Future research could look deeper at the beliefs, meanings, and assumptions held by those in organizations where innovation and creativity are most effective. For example, what are the specific beliefs, assumptions, and values that lead to organizational support, supervisory support, work group support, and so on? Are there organizational climate dimensions that can be used as proxies for these beliefs, assumptions, and values?

Martin (2002) proposed future research ideas for organizational culture theory that also would be appropriate for looking at organizational culture and creativity and innovation. Studies that look at culture change over time would be useful. For example, research questions might focus on how a highly innovative culture diminishes over time or how a staid, conservative organizational culture is transformed into an innovative one.

Finally, as the research in the field of organizational culture and creativity and innovation matures, the complexities and issues being researched

may demand more creative research methodologies to answer them. Van de Ven and Poole (1989) explored a number of research methods for studying innovation and called for continuous innovation of these methods. In particular they advocate the use of mixed method approaches to the study of innovation, integrating, for example, survey methodologies with case study methods. Aside from methodological issues, one of the biggest challenges is determining how to measure the outcome variable in organizational creativity and innovation research. This issue deserves further thought and study and is an area for greater development in the literature.

Implications for HRD Practice

HRD practitioners would be wise to familiarize themselves with the research on organizational culture/climate and creativity/innovation. As was established in the introduction to this article, many organizations can benefit from creating and sustaining a culture that supports creativity and innovation, and HRD practitioners have a significant role to play. With HRD's focus on facilitating organizational change, and in particular its systemic approach to assessment and intervention, HRD practitioners are well suited to facilitating this type of culture change. Some of the elements of an organizational culture that support creativity and innovation may be enhanced through training and development (T&D) or organization development (OD) initiatives. Let's consider a hypothetical case study demonstrating how an HRD professional might apply the conclusions of this chapter.

Imagine you are an HRD practitioner and have been asked by your CEO to partner with the senior management team to increase creativity and innovation in your organization. Understanding that creativity and innovation work at multiple levels in the organization (individual, team, and organizational levels; Kanter, 1983; Amabile et al, 1996), you can plan an assessment that will look at data from each of these levels. Being familiar with the literature on research methods looking at organizational culture/climate and creativity/innovation, you elect to utilize a multi-method approach to data collection incorporating both surveys and interviews (Van de Ven & Poole, 1989; Martin, 2002). For the survey portion of the assessment looking at the organizational climate aspect of creativity and innovation, you want to select a validated instrument to ensure you're collecting data that are valid and reliable, so you select Amabile et al.'s (1996) instrument called KEYS: Assessing the Climate for Creativity. While the survey will get at measures of the climate, you feel it is important to try and get at the underlying values, assumptions, and beliefs that make up the culture of the organization, so you schedule interviews with key representatives from key stakeholder groups. Following the action research model (Rothwell, Sullivan, & McLean, 1995)

you collect and analyze the data, share the results with the stakeholders and prepare for an action planning session with senior management. Since the data suggested issues related to a lack of supervisory encouragement, the senior management team, through a meeting you facilitate, determines a training program focusing on developing behaviors necessary to support team's work and ideas. The training will be followed up with coaching support in key departments. After twelve months, further data will be collected using the KEYS instrument to evaluate the progress made towards the organization's goal, and creating an action plan as appropriate.

The previous example was simplified to illustrate how the literature reviewed in this chapter may be put to use by HRD practitioners with the aim of aiding organizations to improve in the areas of creativity and innovation.

Conclusion

This chapter has explored three propositions including a) the relationship between creativity and innovation, b) the relationship between organizational climate and culture, and c) a synthesis of the literature on how organizational climate and culture influence creativity and innovation. The conclusions stated here will deduce learnings from each of these propositions based on the literature review.

Creativity and Innovation

Creativity and innovation are closely related constructs that share significant overlap in characteristics (Angle, 1989). However, in essence, creativity is the generation of novel and useful ideas, primarily at the individual level (Amabile et al., 1996). Innovation is the process by which these ideas are captured, filtered, funded, developed, modified, clarified, and eventually commercialized and/or implemented. It is creativity that fuels the innovation pipeline. In order for an organization to remain relevant and to compete in pursuit of its mission, management of organizations must pay attention to both ends of the process, generating creative ideas frequently and utilizing its innovation process to realize the potential value of those ideas.

Organizational Climate and Culture

While the academic jury is still out as far as clearly differentiating between these two terms (Denison, 1996), it is clear that organizational climate and culture are integrally related and that they influence and drive behavior in organizations. It is culture that creates the parameters for what

behavior is desirable and will be encouraged and what behavior is unacceptable and will be censured. Climate may be viewed as a more concrete and tangible way to measure elements of culture in terms of specific behaviors and characteristics. The ability to study climate and its connection to specified behaviors, such as creativity and innovation, will enable researchers and practitioners alike to increase our understanding of the relationship and may lead to more effective practice.

Creativity/Innovation and Organizational Culture/Climate

The literature review discussed above leads to a number of conclusions. First, several characteristics of organizational culture and dimensions of organizational climate, as they relate to the supports of or impediments to creativity and innovation, appear consistently in the literature. On the supports side, these include organizational encouragement, supervisory encouragement, work group encouragement, freedom/autonomy, and resources. On the impediments side, control is the dimension that has been identified as decreasing organizational creativity and innovation. Additionally, it appears that organizational culture and climate characteristics that support creativity are similar, if not the same, as those that support innovation.

Finally, the existing literature exploring the relationship between organizational culture/climate and creativity/innovation is relatively limited. A small number of scholars dominate the literature and many research questions beg further investigation. Angle (1989) in particular has done a fine job of explicitly positing hypotheses that deserve researchers' attention.

Appendix A
Chronology of Research on Creativity
and Innovation in Organizations

1961: Burns & Stalker	Mechanistic versus organic forms of organizing
1967: Laurence & Lorsch	Interdepartmental relationships significantly influence an organization's ability to produce new products
1983: Kanter	Change masters book on intraprenuership
1985: Pinchot	Intrapreneurship and bureaucracies
1986, 1989: Van de Ven, Angle, & Poole	Minnesota Innovation Research Program
1990: Tushman & Nelson	Administrative Science Quarterly[a]
1990: Guth & Ginsberg	Strategic Management Journal[a]
1996: Special Research Forum: Innovation and Organizations	Academy of Management Journal[a]

a. Denotes special issues devoted to innovation.
SOURCE: Drazin and Bird Schoonhoven (1996)

Appendix B
Research Propositions About Elements Related
to Organizational Culture and Innovation

Proposition 1	Organization innovation occurs in organizations that provide a context that contains both enabling and motivating conditions for innovation; innovation will not occur where either factor is missing.
Proposition 2	Innovation effectiveness is positively associated with frequency of communication among persons having dissimilar frames of reference.
Proposition 3	Competition with peer units in the organization for scarce resources is associated with reduced innovation effectiveness.
Proposition 4	Innovation effectiveness is positively related to the extent to which the organization is able to integrate creative personalities into the organizational mainstream.
Proposition 5	The level of organizational innovation is higher in organic organizations than in mechanistic organizations, particularly under conditions of environmental change and uncertainty.
Proposition 6	The level of innovative activity in an organization is positively associated with the availability of innovation role models or mentors who enjoy high status in the organization and who are appropriately rewarded for their innovative contributions.
Proposition 7	The level of innovative activity in an organization is higher in an organization where there is a consensus between organization and members that spontaneous, innovative behaviors are a legitimate part of the psychological contract.
Proposition 8	Innovation success is positively related to management's ability to balance innovation team members' commitment to the innovation and to the larger organization.
Proposition 9	Innovation effectiveness is positively associated with group cohesiveness, provided that an open, confrontive climate for conflict resolution exists within the innovation team. Absent such a climate, cohesiveness is negatively related to the level of innovation in the team.

SOURCE: Adapted from Angle (1989).

References

Amabile, T. M. (1988). A model of creativity and innovation in organizations. In B. M. Stew & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 123-167). Greenwich, CT: JAI.

Amabile, T. M. (1998). How to kill creativity. *Harvard Business Review*, *76*, 77-89.

Amabile, T. M. (2004). Innovation & creativity quotes. Retrieved July 27, 2004, from http://www.innovationtools.com/Quotes/Quotes.asp

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, *39*(5), 1154-1185.

Angle, H. L. (1989). Psychology and organizational innovation. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the management of innovation: The Minnesota studies* (pp. 135-170). New York: Harper & Row.

Burns, T., & Stalker, G. M. (1961). *The management of innovation*. London: Tavistock.

Collins, M. A. & Amabile, T. M. (1999). Motivation and creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 297-312). Cambridge, UK: Cambridge University Press.

Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *The Academy of Management Review, 21*(3), 619-654.

Drazin, R., & Bird Schoonhoven, C. (1996). Community, population, and organization effects on innovation: A multilevel perspective. *Academy of Management Journal*, *39*(5), 1065-1084.

Feist, G. J. (1999). The influence of personality on artistic and scientific creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 273-296). Cambridge, UK: Cambridge University Press.

Guth, W. D., & Ginsburg, A. (1990). Guest editor's introduction: Corporate entrepreneurship. *Strategic Management Journal*, *11*, 5-16.

Kanter, R. M. (1983). *The change masters: Innovation for productivity in the American corporation*. New York: Simon & Schuster.

Kanter, R. M. (1988). When a thousand flowers bloom: Structural, collective and social conditions for innovation in organizations. In B. M. Straw & L. L. Cummings (Eds.), *Research in Organizational Behavior*, *10*, 123-167.

Kimberly, J. R. (1981). Managerial innovation. In P. C. Nystrom & W. H. Starbuck (Eds.), *Handbook of organizational design*. Oxford, UK: Oxford University Press.

Laurence, P. R., & Lorsch, J. W. (1967). *Organization and environment: Managing differentiation and integration*. Boston: Harvard Business School Press.

Martin, J. (2002). *Organizational culture: Mapping the terrain*. Thousand Oaks, CA: Sage.

Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, *39*(3), 607-655.

Pinchot, G. (1985). *Intrapreneuring*. New York: Harper & Row.

Rothwell, W. J., Sullivan, R. & McLean, G. N. (1995). *Practicing organization development: A guide for consultants*. San Diego, CA: Pfeiffer.

Schein, E. H. (1992). *Organizational culture and leadership* (2nd ed.). San Francisco: Jossey-Bass.

Siegel, S. M., & Kaemmerer, W. F. (1978). Measuring the perceived support for innovation in organizations. *Journal of Applied Psychology, 63*, 553-562.

Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity: Prospects and paradigms. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 3-15). Cambridge, UK: Cambridge University Press.

Tesluk, P. E., Farr, J. L, & Klein, S. A. (1997). Influences of organizational culture and climate on individual creativity. *Journal of Creative Behavior, 31*(1), 27-41.

Tushman, M. L., & Nelson, R. R. (1990). Introduction: Technology, organizations, and innovation. *Administrative Science Quarterly, 35*, 1-8.

Utterbach, J. (1971). The process of technological innovation within the firm. *Academy of Management Journal, 11*, 101-102.

Van de Ven, A. H. (1986). Central problems in the management of innovation. *Management Science, 32*, 590-607.

Van de Ven, A. H., & Angle, H. L. (1989). An introduction to the Minnesota innovation research program. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the management of innovation* (pp. 3-30). New York: Harper & Row.

Van de Ven, A. H., Angle, H. L., & Poole, M. S. (1989). *Research on the management of innovation: The Minnesota studies*. New York: Harper & Row.

Van de Ven, A. H., & Poole, M. S. (1989). Methods for studying innovation processes. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the management of innovation* (pp. 31-54). New York: Harper & Row.

Weisberg, R. W. (1999). Creativity and knowledge: A challenge to theories. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 226-250). Cambridge, UK: Cambridge University Press.

Williams, W. M., & Yang, L. T. (1999). Organizational creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 373-391). Cambridge, UK: Cambridge University Press.

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McLean, L. D. (2005). Organizational culture's influence on creativity and innovation: A review of the literature and implications for human resource development. *Advances in Developing Human Resources*, *7*(2), 226-246.