

Innovative productivity linked to perception of organisational climate

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Abstract This paper provides an overview of the role of organisational climate in context with managerial practices and innovation. Based on existing studies this paper explicates the mediating role that climate plays between leadership as an antecedent factor influencing the intervening variable of climate, which, in turn, affects innovation. The purpose of this paper was to discuss on how leaders and managers affect innovation and creativity through their efforts to deliberately foster a work climate that supports creative thinking. The first section is an explaining the general concept of organisational climate. In the second section organisational climate will be linked to leadership and innovation. The final section is conclusion in a manner of discussing the following Thesis: „Leader must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products.“

Keywords Leadership, organisational climate; climate for innovation

1. INTRODUCTION

Not only productivity but also innovation performance got critical components for the competitive advantage of organisations. Innovation is important, because the market situation became uncertain and complex. As a consequence organisations are forced to adopt on market conditions in the form of innovation. In the literature, numerous factors are discussed that have an impact on the innovation capability of organisations (Crossan and Apaydin, 2010). So organisational structure, organisational culture and organisational climate are analysed as relevant variables for fostering the organisations performance. “Studies on organisational climate are a proven instrument for measuring the effectiveness of leadership, "says Jörg Hull, Vice President Leadership Transformation of Hay Group. The organisational climate can determine whether employees experience is a motivating or demotivating of the work environment. This results in direct conclusions about the performance of a company. But many scientific studies show that there exists a lot of issues that need to be overcome before using the organisational climate as an indicator for conclusions about companies performance.

2. ASPECTS OF ORGANISATIONAL CLIMATE

As part of the literature review, it always comes back to overlap the topics organisational culture and organisational climate. Often the two terms are also used interchangeably but in this cases the terms didn't get their real importance (Nerdinger et al., 2014). Different research perspectives. Both concepts come from different scientific developments. The climate concept is based on the psychological field theory of Lewin (1939). Aspects of culture traditionally addressed by the scientific discipline of anthropology. It can be deduced also that these studies were carried out using different methods. In his comparison of the two literature of culture and climate Denison (1996) stated, that traditional methods of studying culture relates to qualitative perspectives and studies of organisational climate are based on quantitative research designs (Denison, 1996). Different implications. The term climate consciously perceived processes and factors of the environment are described that can be controlled by the organisation. The focus of climate is on the situation and its link to perceptions, feelings, and behaviour of employees. It can be viewed as relatively temporary and as subject to direct control, that means also as subject to manipulation by authority figures (Denison, 1996), (Weiner, 2012). The term organisational culture, however, deeply rooted values and assumptions are addressed, which are often not aware of (Schneider and Barbera, 2014), (Amjad and Bhaswati, 2014), (Nerdinger et al., 2014). „Meaning is established through socialisation to a variety of identity groups that converge in the workplace. Interaction reproduces a symbolic world that gives culture both a great stability and a certain precarious and fragile nature rooted in the dependence of the system on individual cognition and action“ (Denison, 1996, pp.624).

Differences	Culture Literature	Climate Literature
Epistemology	Contextualized and idiographic	Comparative & nomothetic
Point of View	Emic (native point of view)	Etic (researcher's viewpoint)
Methodology	Qualitative field observation	Quantitative survey data
Level of Analysis	Underlying values and assumptions	Surface-level manifestations
Temporal Orientation	Historical evolution	Ahistorical snapshot
Theoretical Foundations	Social construction; critical theory	Lewinian field theory
Discipline	Sociology & anthropology	Psychology

Figure 1: Contrasting Organisational Culture and Organisational Climate Research Perspectives (Source: Denison, 1996)

In Figure 1 Denison (1996) presents a summary of differences of research perspectives.

In summary it can be said that a lot of overlap between the two concepts and relationships, as well as differences exist. In research, often both terms are not sufficiently differentiated or used interchangeably. In contrast to the organisational culture is stronger in the organisational climate of the focus on the individual level and involves psychological concepts of perception, attitude, motivation and emotion (Ashkanasy et al., 2011); (Nerdinger et al., 2014).

2.1 What is organisational climate?

Studies on organisational climate are a proven instrument for measuring the effectiveness of leadership, says Jörg Hull, Vice President Leadership Transformation of Hay Group (HayGroup, 2013). The organisational climate can determine whether employees experience a motivating or demotivating a work environment. This results in direct conclusions about the performance of a company can be drawn as many scientific studies show. Organisational climate is a central concept in organisational psychology. Scientific knowledge are rooted in the 30s of the last century on the Hawthorne studies. Here for the first time the employee was seen as a social being. As part of the human relations movement then the influence of social relationships and informal groups was analyzed as a key way to improve the performance of the company (Bungard et al., ©2007); (Nerdinger et al., 2014). Kurt Lewin, Ronald Lippitt, and Ralph White (1939) were the first to use the term climate in psychological research. In their view „social“ climate stands for the relationship created between leaders and followers as a function of a leader's behaviour. $B = f(p,e)$ - B being the function between the person (p) and their environment (e) (Ashkanasy et al., 2011). Following the work of Lewin, research in the late 1950s through the early 1970s emphasized the human context of organisations have been concentrated on:

- individual-level and organisational outcomes; Studies of: Argyris (1964); Likert (1967), McGregor (1960).
- consistency between climates and the needs or personalities of individuals within them; Studies of: George & Bishop (1971); Pervin (1967).
- the impact that climates have on the performance and attitudes of individuals that work within them; Studies of: Litwin & Stringer (1968); Schneider & Bartlett (1968) (Weiner, 2012); (Schneider et al., 2011).

2.2 How to define organisational climate?

Organisational climate is to be understood as a theoretical construct used to describe the perceived patterns in experience and behaviour of members of an organisation. These are very abstract components for developing a commonly accepted definition. Followig table shows different approaches to define the meaning of organisational climate.

Forehand & Gilmer, (1964)	the set of characteristics that describe an organisation, that distinguish one organisation from other organisations are relatively enduring over time influence the behaviour of the people in the organisation
Tagiuri (1968)	a relatively ending quality of the internal environment that is experienced by the members, influences their behaviour and can described in terms of values of a particular set of characteristics of the organisation.
Litwin and Stringer (1968)	the set of measurable properties of the work environment that is either directly or indirectly perceived by the employees who work within the organisational environment that influences and motivates their behaviour is the sum of

	individual perceptions working in the organisation
Schneider (1974, 1983)	concepts people share about the organisation; concepts, climate perceptions are meaningful abstractions of sets of cues, the cues being the many specific events, conditions, practices, and procedures that occur in the daily life of an organisation; concepts, climate perceptions help individuals reduce information overload and function as frameworks against which people identify behaviours that will adapt them to their situation
Payne , Pughes (1976)	produced by objective context and structure of organisation (size, hierachy etc.)
James (1974, 1981, 1989, 1990)	collective perception of the work environment by the individuals within a common system.
Wiener, (1988)	stable organisational characteristic that is maintained overtime and which gains considerable inertia as generations of workers come and go
Denison (1996)	the way in which organisational members perceive and characterize their environment in an attitudinal and value-based manner
Litwin (2001)	a group of measurable characteristics that members could perceive directly or indirectly in the work environment, a description of environmental factors, it could help researchers ascertain the effects of environment on employee motivation
Patterson, Warr & West (2004)	those aspects of the social environment that are consciously perceived by organisational members
Rosenstiel, Nerdinger (2011)	the relatively enduring quality of the internal environment of the organisation that is experienced by the members, influences their behaviour and can be described by the values of a certain set of characteristics of the organisation.

Table 1: Definitions of Organisational Climate based on (Amjad and Bhaswati, 2014), (Holloway, 2012; Weiner, 2012) and authors source analysis (own illustration)

After analysis of the different approaches to definition, the following differences in the viewing can be identified (Bungard et al., 2007).

- Structural approach. Concentration to the consideration of structural and above all objectively observable facts in an organisation (size, hierarchy, span of control, resources, and rate of turnover).
- Subjective approach. The climate is conceptualized and measured at the individual's point of view in an organisation.
- Cognitive approach. Socially shared perception, cognitive interpretations of the context from the interactions of the organisation's members on selection and socialisation processes.

Despite the differing views on the definition of organisational climate can be stated as common. The internal environment is the relatively enduring quality of the internal functioning of an organisation; said quality arises largely from the behaviour, the rules and regulations in such a way as perceived by the members of the organisation; it can serve as the basis of the description of the internal situation of the organisation. Accordingly, the organisational climate can be defined:

- as the sum of perceptions of organisational conditions by the organisation's members,

- it is essential descriptive,
- it refers to the entire organisation or sub-systems and has impacts on the behaviour of the members.

2.3 Concept of organisational climate?

The practical benefit of measurement of organisational climate is immense for businesses. With the result, the effects of organisational climate on the behaviour of organisation members can be analyzed. However, the effects due to the influence of the individual or other factors on organisational climate itself (Nerdinger et al., 2014).

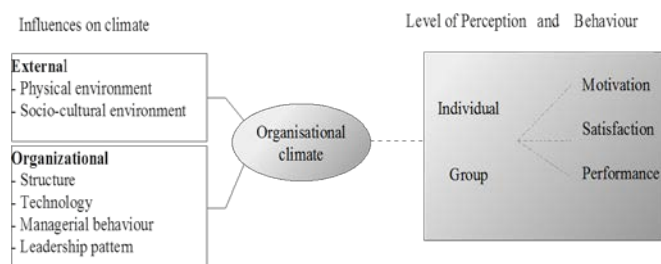


Figure 2: Causes and consequences organisational climate (own illustration)

Organisational climate as dependent variable

The organisational climate can be made dependent on organisational objective conditions such as the size of the organisation, the organisational and operational structure, the relative number of hierarchical levels of formalisation, standardisation and centralisation of decision-making, but also on the prevailing technology in the organisation and the type of tasks. But the internal environment is also dependent on behaviour of organisation members, for example, of leadership behaviour, behaviour among employees or individual characteristics of the organisation members (Nerdinger et al., 2014); (Krause, 2013). Early research of a similar sort was conducted by Chris Argyris (1957), who inferred a climate existed for hiring only “right types,” and by Douglas McGregor (1960), who presented the thought that the fairness with which managers treated subordinates yielded a “managerial climate.” In both cases, the climate was, as in Lewin and colleagues, inferred and unmeasured (Ashkanasy et al., 2011, pp. 30).

Organisational climate as independent variable

Looking at the organisational climate as an independent variable, so it is likely in the present empirical studies that work motivation and performance, leadership, decision-making style, innovative behaviour of organisation members, job satisfaction, are influenced by the organisational climate (Nerdinger et al., 2014); (Krause, 2013).

Organisational climate as intervened variable

Based on the theory to be discussed the organisational climate can also be regarded as an intervening variable that represents a moderating size, it must be examined between a cause and a consequence adopted (Kuenzi, 2008). The organisational climate as an intervening variable between leadership behaviour and innovation will be discussed later see therefore chapter - organisational climate- links to leadership and innovation (Isaksen and Akkermans, 2011).

Level of analysis problem

In organisational research of cognitive schema approach and the shared perception approach are paramount. The cognitive schema approach analyses the concept of climate from the individual level of perception and cognitive representation of the work environment.

From this perspective climate assessments should be conducted at an individual level. The shared perception approach regards that the members of the organisation show characteristics that define and differentiate it (Weiner, 2012). A clear separation between personal and organisational variables is therefore hardly possible. L. R. James and Jones (1974) and also Ostroff et al. (2003) had disproved this apparent contradiction by declaring that the organisational climate can be described on an organisational level as well as at the individual level, depending on the target of the investigation. The latter refer to them as psychological climate (Fleskes, 2006). Only on condition that a significant consensus on the individual subjective perceptions of climate member organisations which individual psychological climates can be aggregated into an organisational climate (but not in the sense of objectification of perceptions). How big should this inter-subjective agreement is scientifically still unclear, as is the appropriate method for determining such compliance (Langford, 2009), (Schneider and Smith, 2004).

The issue is whether climate is an individual experience construct and/or one that assesses unit-organisational attributes. In other words, there was confusion between the level of the theory and the level of data and its analysis. The “problem” was that researchers were not clear about whether they were conceptualizing organisational climate as an individual differences variable representing individual experiences or as an attribute of the setting being described via the perceptions of those in the setting. (Ashkanasy et al., 2011, pp. 33).

2.4 Climate Measurement - Dilemma of Climate-Dimensions?

It is difficult to challenge specify what exactly describes organisational climate and which dimensions are important for this. For companies, this question is crucial because only in the defined dimensions effects can be measured and analyzed¹. Some developed and applied in practice climate dimensions are briefly:

Core dimensions of the psychological climate of Jones and James (1979)

- Characteristics of the work and the role (autonomy, variety of tasks, role clarity)
- Characteristics of Leadership (support, confidence, workload)
- Characteristics of the working group (cooperation, warmth) and
- Characteristics of the organisation and its subsystems (openness, fairness and objectivity of the reward system, possibilities of development) (Carr et al., 2003), (Schneider and Barbera, 2014).

Dimensions of the psychological climate of Koys and DeCotiis (1991)

- Autonomy (in terms of level of responsibility)
- Cohesion (in the sense of cooperation, friendliness, warmth)
- Confidence (in the sense of openness)
- Pressure (in terms of labor and time pressure, role conflict, role overload)
- Support (in terms of workload by the supervisor)
- Recognition (in terms of feedback, reward, development opportunities)
- Fairness (in terms of objective and fair reward systems, target transparency)

¹Many methods have been developed to measure climate, only to improve the weaknesses detected by measure. In practices almost used the questionnaire-technique for this purpose com (2013).

- Innovation (in terms of flexibility, risk-taking) (Carr et al., 2003; Crossan and Apaydin, 2010).

Climate-Taxonomy of Ostroff (1993). Ostroff (1993) ranked 12 climate-dimensions to three major facets:

- The affective facet refers to interpersonal and social relationships among employees and includes the dimensions of participation, warmth, social recognition and cooperation (Carr et al., 2003).
- The cognitive facet describes the degree of involvement awareness, commitment of its employees. Among the dimensions fall growth, innovation, autonomy and intrinsic reward (Carr et al., 2003).
- The instrumental facet concerns the work process itself and includes the dimensions of power, hierarchy, structure and extrinsic reward (Schneider and Barbera, 2014), (Carr et al., 2003).

(Schneider et al., 2000) has just realized that in the development and measurability of the dimensions of a problem (Schneider et al., 1995). Often all sorts of performance factors of a company are used. On the other surveys in research and practice are more likely to corporate and situation-specific designed so that other substantive dimensions are considered significant. Schneider and other experts from research and practice argued for the organisational climate should be considered to be multi-specific, for example as a climate in relation to something, e.g. Climate for innovation or for leadership. Only by this specific viewing the concept, in the first step and precise be operationalised meaningful results and then also meaningful interpretation and action implications are derived (Schneider et al., 1995; Bungard et al., 2007; Krause, 2013).

The development of this more focused approach also resulted in the climate construct being more available to practitioners because it literally focused on important organisational processes and outcomes and indicated specific actions that might be taken in organisations to enhance performance in those areas. (Ashkanasy et al., 2011, p. 31)

There exists a lot of issues that need to be overcome in studies referring the organisational climate. Summarized they can be named as followed:

- Cognition schema or shared perception. That means a differentiation between the aggregation of individual perceptions ("Psychological climate") or shared perception (Schneider and Barbera, 2014), (Weiner, 2012), (Langford, 2009).
- The sense of measuring one organisational climate or different climates, the communication climate, service climate, the climate for creativity, etc. (Schneider et al., 1995).
- The increased conceptual complexity in studying climate as a potential mediator and moderator variable. Five of the most significant achievements (Ashkanasy et al., 2011).

2.5 Organisational climate – links to leadership and innovation?

The purpose of this chapter is to discuss on how leaders and managers affect innovation and creativity through their efforts to deliberately foster a work climate that supports creative thinking.

„Leader must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products.“

Based on the above-described theory of organisational climate, discussion thesis is divided into two parts. So that initially will be discussed:

Thesis 1: Leader must learn how to create an organisational climate.

a) Has Leadership an influence on the organisational climate?

b) Can Leaders create an organisational climate?

Thesis 2: Organisational climate applies innovative thinking to solve problems and develop new products.

Thesis 1: This question has already adopted a number of researchers, key statements and are summarized in the table below:

Kozlowski & Doherty (1989)	Theorists e.g. Blake & Mouton (1964), Lewin (1951), Likert (1967), Litwin & Stringer (1968), McGregor (1960) analysed in their studies that leadership is one of the most important organisational factor that affected employees' perceptions of climate.; study in non-profit organisation; relations-oriented leadership behaviours have a positive and significant relationship with the organisational climate dimensions reward and warmth.
Kouzes and Posner (2010)	Leader's behaviour explains nearly 25 percent of the reason that people feel productive, motivated, energized, effective, and committed in their workplaces
McClelland, David C., & Burnham, David H (1995) *	Concluded that right managerial style is an important ingredient in the profile of an effective manager; study conducted on 50 managers in a large, highly hierarchical organisation.; better organisational climate is strongly related to democratic and coaching style.
Ingles, S. & Moreno (1998)*	Strong relationship was found between styles and climate. Total climate correlated positively with the Authoritative, Affiliative, Democratic and Coaching style.
Mulrooney, C. & Sala, F (2002)*	Test on 61 managers in 25 health care systems located in 15 US states. Each style dimensions correlated with each organisational climate dimensions. Coercive and Pace-setting Democratic and Coaching tended to correlate positively.
V.S.R. Vijay Kumar (2007) *	While directive style results in unfavorable climate perceptions, diversity tolerance and individual orientation moderate by reducing the unfavourable perception and its effects are enhanced by diversity tolerance and team orientation.
Holloway (2012)	Survey on 303 employees; web-based questionnaire consisting of 79 questions; result indicate a positive and significant relationship between relations-oriented leadership behaviours and the organisational climate dimension reward and warmth
Momeni (2009)	Leader's behaviour has a great influence on employees' attitudes, behaviours, emotions, morale, and perceptions; more than 70% of employees' perceptions of organisational climate are shaped directly by their leader's style of leadership and behaviour: Results of the study: the higher a manager's EI, the better that manager's OC. OC is more influenced by self-awareness and social awareness, e.g. good communication skills, interpersonal expertise, and mentoring abilities.

*Table 2: Relation between Leadership/-style and organisational climate; based on (Kozlowski and Doherty, 1989), (Holloway, 2012), (Kouzes et al., ©2010), (Momeni, 2009); * cited in (Balameenapriya and Krishnapriya, 2014); own illustration*

Thesis 2: Organisational climate applies innovative thinking to solve problems and develop new products.

To be able to operationalise and interpret the organizational climate plausible meaning, it is as described by Schneider discussed

(Schneider et al., 1995), are not considered a molar rather than specific climate for innovation. Organisational climate for innovation has been identified as a productive concept to use in preliminary and sustained organisational diagnosis for development or improvement efforts (Isaksen and Akkermans, 2011). Organisational innovation depends on a climate that supports innovation. Only a few models explicitly explain the content and functional importance of innovation climate. Following model is one of the most used and refined model for measuring climate for innovation. Ekvall (1996) has found that measures of creative climate have significantly differentiated innovative from stagnated organisations (number of patents obtained, technical and market originality, business strategy, success in developing and launching new products and services) (Ekvall, 1996).

Answering Thesis 1:

Based on the identified results from the studies can be said in summary that (a) Leadership a strong influence on the organisational climate. Overall, it is clear from the studies that different leadership styles are perceived differently. (b) the relationship-oriented leadership styles have a positive influence on the organisational climate. (Momeni, 2009) comes to the conclusion that regarding following aspects, leaders can create a positive working environment, perceived by the employees as positive organisational climate:

Developing and improving face-to-face communications, giving enough information; Fostering ethical behaviour; Showing care for and respect to employees by expressing appreciation and gratitude; Handling grievances seriously and fairly; Integrating employees in solving organisational problems, being receptive to new ideas, and caring about the employees' problems. Showing fairness through fair salaries and rewards; Encouraging and facilitating teamwork; Creating situations in which employees get a sense of pride about working as a members of the organisation; Making the work environment friendly through sincerity and sympathy, all of which increase employees' loyalty to the organisation.

2.6 Creative Climate Questionnaire (CCQ)² – Ekvall (1991)?

Ekvall (1991) defined climate as the observed and recurring patterns of behaviour, attitudes, and feelings that characterize life in the organisation. (Isaksen and Akkermans, 2011). During the 1980s Ekvall developed a measurement tool to study whereby creativity / innovation is influenced in organizations. He developed 10 dimensions that can be grouped into three areas.

Resources: Idea Time; Idea Support; Challenge

Motivation: Trust and Openness; Playfulness and Humor; Conflicts

Exploration: Risk-taking; Debates; Freedom, Dynamism

As the main results of the studies it can be summarized, that climate dimensions assessed by the instrument make a difference between innovative and stagnated organisations. Between the climate dimensions Risk Taking, Dynamism, Freedom, and Debates is a strong correlation for radical innovation (opposed to incremental innovation) behaviour. The leadership style of the manager has substantial correlations with the climate dimensions. Creative

climate is positively caused by change-oriented leadership style and task- and structure-oriented style has weak or zero correlations to creative climate-dimensions.

„The conclusion should be that the climate to a fairly large extent is in the hands of the manager“ (Ekvall, 1996, pp. 122).

Answering Thesis 2:

Numerous conducted by Ekvall (1983, 1987, 1991) studies show that certain dimensions such as Risk Taking, Dynamism, Freedom and Debates have a strong relationship with a positive innovative behaviour. It could also be noted that change-oriented leadership style has an positive impact on climate for innovation. Now the mediating role that climate plays between leadership as an antecedent factor influencing the intervening variable of climate, which, in turn, affects innovation become evident. A few studies have examined how climate intervenes between leadership behaviour and innovative outcomes.

Ekvall and Ryhammer (1998; 1999)	CCQ, Responses from 130 faculty members (Sweden); high evidence for the intervening role of climate for innovation
Jung, Chow, and Wu (2003)	Transformational leadership was significantly and positively related to organisational innovation and support for innovation. Both climate variables of empowerment and support for innovation were found to moderate the effects of transformational leadership on organisational innovation.

Table 3: climate for innovation as moderating variable; based on (Isaksen and Akkermans, 2011); (Wu and Shi); own illustration

Both researchers detected the high evidence for the intervening role of climate for innovation.

3. CONCLUSION

Since leadership behaviour has such an influence on climate, and climate influences innovation, this discussion unrolled the intervening nature of creative climate between leadership behaviour and innovative productivity. The previous analysis of the theses has shown that there is a high correlation between leadership support for innovation and the climate for innovation. That means as the level of leadership support for innovation increased, there would be a corresponding increase in the positive aspects of creative climate. It was further determined that climate, as an intervening variable, moderate or mediate the relationship between leadership behaviour and innovative productivity. Although one must say that leadership behaviour is clearly one of the key influencing factors affecting organisational creativity and innovation. Some literature points to the kinds of leadership behaviour that is more likely to positively effect these types of organisational outcomes. Thus, it was found that especially relationship-oriented leadership styles have a positive influence on the organisational (Momeni, 2009). Especially with this style one of the ways leaders influence innovation is through creating a climate that encourages creativity and the implementation of creative ideas. That comes to the conclusion that regarding following aspects, leaders can create a positive working environment, perceived by the employees as positive organisational climate for innovation.

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²CCQ meanwhile refined to Innovation Climate Questionnaire (ICQ) by adding four additional scales: stress, shared view, pay recognition, and work recognition, and modifying two other scales : idea-proliferation and positive relationships. The ICQ incorporates thirteen scales: 'commitment', 'freedom', 'idea-support', 'positive relationships', 'dynamism', 'playfulness', 'idea-proliferation', 'stress', 'risk-taking', 'idea-time', 'shared view', 'pay recognition', and 'work recognition'.

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