Dialogue-Based Evaluation as a Creative Climate Indicator: Evidence from the Pharmaceutical Industry

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This paper examines how different forms of performance evaluation relate to aspects of the creative climate in a major pharmaceutical company. The study was based on a large employee-attitude survey that was distributed to all company employees. The study analyses survey results from 5,333 employees at five R&D sites. The results indicate that management's evaluation of employees (either dialogue-based or control-based) relates to the type of motivation (intrinsic or extrinsic) that drives employees, to their style of thinking (value-focused thinking) and on their attitudes to organizational creativity. The paper then discusses implications of these findings for HRM.

Introduction

An influential senior pharmaceutical R&D manager probably would not say: 'We need more control and less creativity and innovation'. Management most likely communicates – and often in highly positive terms – the importance of having a culture that enables long-term success and innovation. But the predominant way in which pharmaceutical R&D managers evaluate and reward is based on their abilities to have control. The main focus of the present study is to focus on the limitations of managerial control systems in terms of their ability to provide a creative climate in the organization. It is argued that different forms of dialogue-based systems may be more successful in this respect. The creative climate and the adoption of ideas into innovation is an immensely important asset and success factor for any organization that heavily depends on its intellectual capital (Dougherty, 1999; Hargadon & Sutton, 2000). This is particularly true for pharmaceutical organizations (Horrobin, 2002). More knowledge about its predictors is therefore needed.

A creative climate refers to factors that stimulate or block creativity and innovations in everyday life (Ekvall, 1996, 1997). They include an organization's leadership styles, visions, objectives, goals, strategies, resources, personnel policies, beliefs, values, structures and systems. All these factors are crucial for how people view the climate in which they work. A creative climate, regarded as a culture, may be defined as a system of shared meaning held by members that distinguishes the organization from other organizations (Schein, 1985). It is largely as a result of what the organization has done before and the degree of success it has had with those endeavors (Schein, 1983). For instance, there is an important link between the creative climate and innovation (Ekvall, 1987, 1995), which is reinforced by organizational success over time.

Based on a diagnosis of the creative climate, a distinction can be made between between innovative, average and stagnated organizations based on product performance and success of the organization as a whole (Ekvall, 1987). Innovative organizations develop more new products and services, and generally get them to the marketplace more quickly, while organizations that have become stagnant are often unable to handle new product or service development effectively.

In order to demonstrate this connection between creative climate and innovation, having developed the 'Creative Climate Question-

naire' (CCQ), Ekvall (1987) subsequently validated it by comparing CCQ scores for Swedish companies that were independently rated as 'innovated', 'average' or 'stagnated'. The CCQ scores were as expected. This vital link between creative climate and innovation may, from a wider perspective, be regarded as a key feature of organizational creativity (Woodman, Sawyer & Griffin, 1993). Amabile (1988, 1997) suggested that five environmental components affect creativity in organizations:

- *encouragement of creativity* – information and support for new ideas must be communicated openly between all the different levels in the organization;
- *autonomy* – individual freedom and control must be an integral part of day-to-day work;
- *resources* – basic materials and information for the work must be available;
- *pressures* – positive challenges must be imposed and negative perceptions of workloads should be avoided;
- *organizational impediments to creativity* – influences of conservatism and internal strife must be reduced.

In the present study, we apply four of these components to build up our own creativity climate factor, namely *encouragement of creativity* (novel ideas are allowed to fail), *autonomy* (novel ideas are appreciated), *resources* (time may be invested in new ideas) and *pressures* (innovation is recognized).

Impact of Performance Evaluation on Aspects of Creative Climate

Shalley and Perry-Smith (2001) found that there might be a connection between employees' self-rated creativity and how they are evaluated. Employees see some forms of evaluation as mainly providing information to improve performance. It has also been found that other forms are perceived as primarily measuring performance relative to a set standard, that is, actions taken to exercise control that may create obstacles to creativity. Recent research suggests that situational factors can affect behaviour related to creativity in two ways: one *controlling* and the other *informational* (Shalley & Perry-Smith, 2001). Both have potential to influence the way in which individuals perceive their own competence and self-determination for a specific task (Deci & Ryan, 1980, 1985; Ryan, 1982). The discussion concerning informational versus controlling evaluations furthermore resembles Zhou's (1998) notion of feedback style (informational versus controlling). The style of administrating rewards, rather than the rewards themselves, is the key issue for judging or perceiving rewards as either informational or controlling. Recent research also reveals that the effect of reward seems to be dependent on how the person interprets it. For example, it has been suggested by Hennesey and Amabile (1988) that interpreting a promised or given reward as an attempt at controlling may lead to lowered intrinsic motivation.

We argue that there is a need for using an operational subset of informational evaluation to make this concept more understandable to practitioners. Dialogue-based evaluation may be regarded as such a sub-set. Flexible, non-formalized evaluation of the work task characterizes this type of assessment. It involves making rewards more informational by acknowledging appropriate behaviour, without using rewards to try to control behaviour (Deci et al., 1994; Deci, Nezlek & Sheinman, 1981). Dialogue-based evaluation is guided by, and combined with, giving information, and thus creating an opening for exchanges of ideas and opinions. If dialogue has substance and strength, it will uncover deeper meaning that necessitates exposing values, and, at least, implicitly, keeping them at issue (Blake, 1996). A dialogue may thus be looked on as an organizational inquiry (Duncan & Weiss, 1979) or as a strategic conversation (Van der Heijden & Eden, 1998). In contrast to discussion, which sometimes preserves the status quo for individuals by its vertical control-based nature, dialogue is a communal activity through which collectives learn and change (Preskill & Torres, 1999; see also Hodgkinson & Sparrow, 2002). Dialogue is an important precondition for advanced horizontal learning forms in organizations, such as co-configuration. This particular learning form creates knowledge and transforms an activity by crossing boundaries and tying knots between different forms of activity systems (Engeström, 1999, 2004). The horizontal aspect of learning puts a heavy emphasis on actions of bridging, modelling, textualization, objectification, conceptualization and visibilization. It hereby provides a new perspective on the essence of work life creativity. According to Engeström, horizontal learning, based on dialogue, is a precondition of situationally constructed social spaces, arenas and encounters needed in new forms of expansive learning at work.

A controlling or control-based evaluation can be defined as a work evaluation characterized by the use of formalized standards and forms. Rules used to direct the individual to act in a certain way guide this assessment, which is less likely to involve sharing information and knowledge or exchanging ideas. Competence feedback, delivered in a control-

ling style, often makes external constraints salient. This implies that certain types of outcomes that the individual must obtain, or certain levels of creativity that he or she must achieve, are highlighted (Zhou, 1998). When confronted with competence feedback delivered in a controlling style, and interpreted by them as attempts at control, people generally experience feelings of external causality. They feel that there is someone else controlling their behaviour and actions. So it is likely that they interpret this style as attempts at inhibiting and restraining. This may increase extrinsic motivation at the expense of intrinsic motivation, and thus reduce creativity (Amabile, 1999).

Research Objectives and Hypotheses

Compared to control-based evaluation, it is believed that dialogue-based evaluation is better able to encourage creativity, increase autonomy, and reduce conservatism and internal strife among employees. This belief relies on a series of experimental findings (e.g. Deci & Ryan, 1980, 1985; Ryan, 1982; Shalley & Perry-Smith, 2001) that point in this direction. We believe that these findings should also be valid in organizational contexts, with emphasis on matters such as whether it is perceived that the organization is establishing a climate and culture in which: (i) new ideas are appreciated; (ii) time is invested for testing new ideas; (iii) people receive appreciation for innovation; and (iv) new ideas can fail without penalty to the originator. It may be argued that dialogue-based evaluation and control-based evaluation by definition need not be dichotomous in practice and that interactions might exist. But previous research (Shalley & Perry-Smith, 2001) shows that the two types of evaluation are conceptually distinguished from each other. We thus regard it as important to treat these two forms of evaluation as distinct concepts from a scientific viewpoint, although this distinction may not always be as clear-cut in practical life. Hence the following hypothesis is made:

> H1: Dialogue-based evaluation will better predict the existence of creativity than control-based evaluation. However, both evaluation forms will serve as reliable predictors of creativity.

Building on the connection between types of evaluation and creativity, it is not difficult to understand why other types of performance evaluation used by an organization have been reported to have different influences on intrinsic motivation, which has been said to be a key factor for creativity (Amabile, 1988; Amabile et al., 1996; Shalley & Perry-Smith, 2001). Several studies link motivation to acts of creativity (Burke, 1983; Gardner, 1993; Kirton, 1989; Koberg & Chusmir, 1987; Payne, 1987). Intrinsic motivation can be defined as the motivation to work on something because it is interesting, involving, exciting, satisfying or personally challenging. It has been suggested that a variety of rewards significantly undermine free-choice intrinsic motivation (Deci, Ryan & Koestner, 1999). Other studies suggest that it is a myth that financial incentives should erode this type of motivation (Cameron & Pierce, 1994; Eisenberger & Cameron, 1996). These results must be regarded as an important extention to the general claim made by Deci, Ryan and Koestner (1999). Extrinsic motivation, which is its counterpart, may be defined as motivation for work driven by the desire to attain some goal apart from the work itself – such as achieving a reward or position or meeting a deadline (Amabile, 1997; Amabile et al., 1996). Several studies indicate that this latter type of motivation is not as conducive to creativity as intrinsic motivation (Amabile, 1986, 1999; Deci & Ryan, 1996, 2000). However, Amabile goes further than this. She states that extrinsic motivation reduces intrinsic motivation, and thus creativity is reduced.

Here, the assumption is that when the controlling aspect is predominant, there will be a negative effect on intrinsic motivation. When the informational aspect is strong, and positive information is expected, conveyed or perceived, then intrinsic motivation will remain stable or increase (see Bass & Avolio, 1994; Bryman, 1996; Buchanan, 2001; Tichy and Devana, 1986). From the above reasoning, the following hypothesis is made:

> H2: Dialogue-based evaluation will better predict the existence of intrinsic motivation than control-based evaluation.

Apart from having an impact on intrinsic and extrinsic motivation, dialogue-based and control-based evaluations are also assumed to have an impact on another type of motivation called value-focused thinking. According to Keeney (1992), value-focused thinking not only manifests a creative thinking style or a creativity technique, it also serves as the key type of motivation by which creativity may be coupled with decision-making (see also Selart & Boe, 2001). People should let themselves be guided by objectives, while asking themselves 'how?' rather than limiting themselves to a few options when they make decisions. A person that is driven by value-focused thinking creates his or her own decision alternatives to the extent that these alternatives become 'tailor-made' to the individual goals and objectives.

The opposite thinking style can be labelled 'alternative-focused thinking', in which the decision- maker does not play an active part in the design of the alternatives, and thus makes the choices from pre-set menus.

However, goals and objectives may not necessarily be individual. In organizations, it is more likely that they are formed on an organizational or group level. In this setting, asking others for suggestions becomes a vital part of an organization's value-focused thinking. By focusing on goals and objectives, people will be better able to find imaginative decision alternatives that are tailored to their problems (Keeney, 1992).

For human resource management (HRM) to be able to encourage this kind of thinking among employees, it is believed that HRM must rely on dialogue-based evaluation rather than on control-based evaluation. Through dialogue, in the form of feedback, managers can give employees a wider range of perspectives. This is mainly achieved through conversation. Note that we do not suggest that dialogue-based evaluation is the only way in which management can encourage value-focused thinking. Other factors, such as creativity training and organizational culture, are also important dimensions in this context. Hence, this hypothesis is made:

> H3: Dialogue-based evaluation will better predict value-focused thinking than control-based evaluation.

Methods

Design Overview

This study explores and examines different factors in the work environment that are relevant to creativity and innovation in a large pharmaceutical company. The global R&D organization of the company AstraZeneca includes about 10,000 employees and is primarily located in six major sites in Sweden, the UK and USA. The R&D organization is mainly divided into two large units – discovery and development – both of which are represented at most of the research sites. The data used for the analysis are taken from a recent global employee questionnaire survey at AstraZeneca. This survey addressed the entire AstraZeneca organization, including marketing, production and research companies and had 138 items, which covered a wide range of organizational issues, such as organizational belonging, education background, opinions about daily work life, communication, management and external competitors. International Survey Research Ltd in the UK conducted the survey and was instructed by one of the authors of this study about which items were to be included. The author also had an influence on the wording of those. The questionnaires were available in electronic and paper forms. The distribution between electronic and paper in the overall survey was 27 per cent and 73 per cent, respectively. Local AstraZeneca co-coordinators were responsible for communication, and sending reminders about returning the paper and electronic questionnaires. Data were collected from September to November 2000. More than 38,000 employees were invited to respond to the survey at AstraZeneca; the overall response rate was 59 per cent (for the entire organization) and 53 per cent (for the global R&D organization).

Respondents and Model

The approach of using keys or constructs for understanding and evaluating factors for creativity has been used before (Amabile, 1988, 1999). The respondents in this analysis come from 5,333 employees, including the Development and Discovery organizations within five R&D sites (three in Sweden and two in UK), and thus representing a majority of the R&D sites and more than 50 per cent of the company's global R&D organization. Sites from other countries were excluded mainly because they were too small. Thirty-one items were extracted from the global survey study based on their relevance to five categories: motivation, value-focused thinking, control-based evaluation, dialogue-based evaluation and items specifically related to creativity.

Instruments and Scaling

In all 31 items selected, the respondents were asked to indicate to what extent each statement described their work environment on a scale ranging from 1 to 5: agree (1), tend to agree (2), don't know (3), tend to disagree (4) and disagree (5). Three items related to control-based evaluation (numbered 7, 8, and 9 in Table 3) were reversed after people responded to them, and corresponding definitions of scale labels were shifted (e.g. original question: 'The performance targets I have in my job have been established with my input'. Inverted question: 'The performance targets I have in my job have not been established with my input'). This was done to clarify their correlation with controlled- based evaluation.

Statistical Methods

Exploratory factor analysis was used to examine the validity of items and factors. Multiple

regression analyses were used to test the hypotheses. Multiple analyses of variance (MANOVA) were made to evaluate whether the effects of background variables (education, gender, managerial role and R&D site belonging) on the dependent variables (creativity, motivation and value-focused thinking) were reliable. SPSS 10.0 was used for all statistical analyses except for the factor analysis, which used SAS 8.1.

A prerequisite for making a factor analysis was to test the data for sphericity using Bartlett's test. The results of this test show that the matrix fulfilled the necessary requirements ($p < 0.001$) for making this kind of analysis. An exploratory factor analysis was done with varimax rotation (see Table 1) to further establish the validity of our measures. Table 1 shows that all factors demonstrated internal consistency (alpha values 0.60–0.90). Eigenvalues of one or higher were used to determine the number of factors. According to Hair et al. (1998) factor loadings of more than 0.50 are considered significant when the sample size is larger than 100. Accordingly, the criteria for item retention were based on factor loadings of 0.50 or higher and cross-loadings lower than 0.30. The factor analysis (see Table 1) resulted in six factors with eigenvalues of one or more and the elimination of five items.

Internal Consistency of Control- and Dialogue-Based Evaluation

Data from the questionnaire indicated that most employees felt that established objective norms existed as regards evaluations of performance in the organization. Table 2 presents the three measures of control-based evaluation taken from the questionnaire. These included reports of whether work performance was evaluated fairly, whether employees felt that they were held accountable for delivering results and whether it was felt that performance targets were clear ($\alpha = 0.76$).

Sixty-one per cent of the respondents reported that their immediate manager provided regular feedback on their performance (31 per cent reported in the opposite direction). This indicates that dialogue-based evaluation is used extensively in the organization. As many as 74 per cent of the employees reported that they use performance targets. The fact that 85 per cent of these 74 per cent (i.e. employees using performance targets) think that targets were established with input from the employees themselves constitutes another indication of the high prevalence of dialogue-based evaluation within the organization. Table 2 gives the nine measures of dialogue-based evaluation extracted from the questionnaire. As can be seen, most of these measures dealt with issue of whether the employees felt that they received sufficient information on their performance from the immediate manager or from the team ($\alpha = 0.92$).

Internal Consistency of Creativity

Analytical concepts were established to measure creativity, which included four measures of whether the employees felt that the organization had established an innovative culture and climate ($\alpha = 0.77$). Participants generally reported that the creative climate and culture of the organization was satisfactory, but that the time allocated for generating new ideas could be improved. Table 3 presents the four items included in this factor.

Internal Consistency of Extrinsic and Intrinsic Motivation

The questionnaire included items on pay equity in the organization. Based on the results, it is argued that such equity gives quite a good indication of the extent to which control-based evaluation is exercised overall within the organization. In this study, an estimated 49 per cent of the employees reported that they were paid fairly in relation to their performance. But just 18 per cent felt that the organization offered outstanding rewards for outstanding performance. A majority of the employees reported that the organization provided a creative climate that stimulated their intrinsic motivation. This might be interpreted to mean that the tasks in many cases served as a basis for motivation. Table 3 gives the four measures of extrinsic motivation ($\alpha = 0.74$) and the two measures of intrinsic motivation that were used in the study.

Internal Consistency of Value-Focused Thinking

Questionnaire data showed that 71 per cent of the respondents felt that the aspirations and values of the organization were very clear to them (17 per cent reported in the unfavorable direction, and 88 per cent of the respondents had a clear understanding of the goals and objectives of the group (8 per cent reported in the unfavourable direction), and 75 per cent of the respondents indicated that they had a clear understanding of the goals and objectives of the organization (14 per cent reported in the unfavorable direction). Table 3 shows the nine measures of value-focused thinking used in the study ($\alpha = 0.84$).

Table 1. Factor Analysis of Perceptions of Items Included in the Study

(Item no.) abbreviated items	Dialogue based evaluation	Value-focused thinking (values)	Intrinsic motivation[1] & org. creativity	Value-focused thinking (belief)	Extrinsic motivation	Control-based evaluation
(1) Authority to do my job well	0.26	0.07	**0.40**	0.22	0.07	–0.18
(2) Sense of personal accomplishment	0.27	0.17	**0.32**	0.25	0.01	–0.14
(3) Adequate use of recognition	0.13	0.12	0.30	0.04	**0.54**	–0.05
(4) Salary compared to other organizations	0.03	0.12	0.03	0.03	**0.81**	–0.04
(5) Pay in relation to performance	0.14	0.06	0.06	0.08	**0.78**	–0.10
(6) Rewards versus performance	0.11	0.16	0.33	0.01	**0.69**	–0.05
(7) Input on performance targets	–0.22	–0.09	–0.02	–0.04	–0.06	**0.83**
(8) Agreement on development plan	–0.42	–0.03	–0.14	–0.05	–0.09	**0.49**
(9) Clear performance targets	–0.19	–0.11	–0.10	–0.23	–0.11	**0.77**
(10) Communicating clear vision	**0.65**	0.11	0.11	0.37	0.13	–0.06
(11) Objectives and future direction	**0.62**	0.13	0.11	0.38	0.15	–0.09
(12) Supporting individual	**0.81**	0.03	0.14	0.09	0.07	–0.16
(13) Personal consideration	**0.79**	0.06	0.11	–0.01	0.06	–0.12
(14) Effective communication of ideas	**0.75**	0.07	0.11	0.14	0.07	–0.06
(15) Respecting diversity and differences	**0.78**	0.10	0.15	–0.01	0.04	–0.05
(16) Encouraging personal development	**0.69**	0.08	0.14	0.06	0.06	–0.18
(17) Trust in team capabilities	**0.77**	0.08	0.16	0.10	0.00	–0.10
(18) Openness on feedback	**0.74**	0.08	0.12	0.01	0.06	–0.06
(19) Involvement in planning of the team	0.59	0.07	0.05	0.22	0.10	–0.10

Table 1. Continued

(Item no.) abbreviated items	Dialogue based evaluation	Value-focused thinking (values)	Intrinsic motivation[1] & org. creativity	Value-focused thinking (belief)	Extrinsic motivation	Control-based evaluation
(20) Understanding values	0.10	**0.80**	0.08	0.17	0.10	–0.09
(21) Supporting values	0.10	**0.82**	0.11	0.07	0.09	–0.07
(22) Inspired by values	0.13	**0.76**	0.29	0.03	0.09	0.00
(23) Translating values to everyday work	0.15	**0.69**	0.28	0.12	0.12	–0.05
(24) Understanding team objectives	0.31	0.07	0.09	**0.69**	–0.02	–0.20
(25) Understanding unit objectives	0.16	0.20	0.17	**0.78**	0.04	–0.07
(26) Understanding functional objectives	0.10	0.36	0.14	**0.70**	0.09	–0.02
(27) Understanding AZ objectives	0.03	**0.65**	0.04	0.36	0.16	–0.07
(28) Culture for new ideas	0.14	0.22	**0.68**	0.15	0.08	–0.10
(29) Time for testing new ideas	0.10	0.15	**0.74**	0.06	0.16	0.00
(30) Culture for recognition	0.17	0.13	**0.71**	0.05	0.30	–0.06
(31) Culture where ideas can fail	0.18	0.11	**0.67**	0.05	0.06	0.02
Initial eigenvalue	9.33	3.26	2.00	1.47	1.31	1.15
Percent of variance	30.0	10.5	6.4	4.7	4.3	3.7
Coefficient alpha for final scales	0.91(***)	0.85(***)†	0.77(***)††	0.84(***)†	0.74(***)	0.77(***)

Notes: Bold numbers indicate items forming the factor (varimax rotation, rotated factor pattern, N = 5333).
** =p < 0.01; *** = p < 0.001; (†) = Coefficient alpha (Cronbach) calculation is based on items 20 to 27; (††) Coefficient alpha (Cronbach) calculation is based on items 28 to 31; (1) r = 0.36** (Pearson).

Results

Hypothesis Testing

To test H1, we used regression analysis of creativity on the two types of evaluation (control-based and dialogue-based).

As seen in Table 4, dialogue-based evaluation was a significant (and the strongest) indicator of creativity. Control-based evaluation had a low and negative predictability of creativity. The overall regression was significant ($F = 514$, $p < 0.01$, $R^2 = 0.17$).

To test H2, we regressed extrinsic and intrinsic motivation on the two types of evaluations (control-based and dialogue-based). As shown in Table 4, both types of evaluation are significant indicators of extrinsic motivation, and the overall regression is significant ($F = 247$, $p < 0.01$, $R^2 = 0.09$). The two types of evaluations are also significant indicators of intrinsic motivation, with a significant overall regression in

Table 2. Dependent Variables, Items, Scaling, Mean and Standard Deviation

Intrinsic motivation1 (agree) to 5 (disagree)	**Item no.**	**Mean**	**Std.dev.**
I have sufficient authority to do my job well	(1)	1.89	1.03
My work gives me a sense of personal accomplishment	(2)	1.98	1.07
Extrinsic motivation1 (agree) to 5 (disagree)	**Item no.**	**Mean**	**Std.dev.**
AstraZeneca makes adequate use of recognition other than money to encourage good performance	(3)	3.58	1.17
From what I hear, our pay is as good as or better than the pay in other organizations in our industry	(4)	3.54	1.23
I believe I am paid fairly in relation to my performance	(5)	2.89	1.35
AstraZeneca offers outstanding rewards for outstanding performance	(6)	3.54	1.08
Value-focused thinking1 (agree) to 5 (disagree)	**Item no.**	**Mean**	**Std.dev.**
My immediate manager involves me in planning the work of our team	(19)	2.18	1.33
Regarding AstraZeneca's overall aspiration and values:			
They are very clear to me	(20)	2.30	1.08
I support them	(21)	2.08	0.90
They inspire me	(22)	2.78	1.08
I can translate these to my everyday work	(23)	2.86	1.12
I have a clear understanding of the goals and objectives of:			
My team	(24)	1.73	1.02
My local unit (e.g., manufacturing site, marketing company)	(25)	2.18	1.08
My functional area (e.g., R&D, marketing, and operations)	(26)	2.22	1.08
AstraZeneca	(27)	2.19	1.04
Organizational creativity1 (agree) to 5 (disagree)	**Item no.**	**Mean**	**Std.dev.**
AstraZeneca is establishing a climate/culture in which:			
New ideas are appreciated	(28)	2.37	1.07
Time is invested for testing new ideas	(29)	3.04	1.16
People receive recognition for innovation	(30)	2.93	1.10
New ideas can fail without penalty to the originating person	(31)	2.67	1.06

Note: n = 5,333.

Table 3. Independent Variables, Items, Scaling, Mean and Standard Deviation

Control-based evaluation(*)/5 (agree) to 1 (disagree)	**(Item no.)**	**Mean**	**Std.dev.**
The performance targets I have in my job have not been established with my input	(7)	1.69	1.02
My manager and I have not agreed on a plan for my further development at work	(8)	2.74	1.45
The performance targets I have in my job are not clear	(9)	1.78	0.94
Dialogue-based evaluation/1 (agree) to 5 (disagree)	**(Item no.)**	**Mean**	**Std.dev.**
My immediate manager:			
Communicates a clear vision for the future role of our team	(10)	2.53	1.29
Ensures that our short-term objectives are in line with future direction	(11)	2.29	1.15
Supports me	(12)	1.85	1.10
Is considerate of me as a person	(13)	1.74	1.06
Effectively communicates his/her ideas	(14)	2.21	1.25
Respects diversity/individual differences	(15)	2.00	1.33
Encourages me to take responsibility for my own development	(16)	1.83	1.04
Displays confidence in our team's capabilities	(17)	1.78	1.02
Is open to feedback on his/her own strengths and weaknesses	(18)	2.38	1.27

Note: (n = 5,333).
* These items and their corresponding scales were inverted.

Table 4. Results from Multiple Regression with Intrinsic Motivation, Extrinsic Motivation, Value-focused Thinking and Organizational Creativity as Dependent Variables, Standardized Coefficients (β)

Dependent variables/ Indicator variables†	**Intrinsic motivation**	**Extrinsic motivation**	**Value-focused thinking (values+belief)**	**Organizational creativity**
Control-based evaluation	0.13***	0.14***	0.15***	–0.09***
Dialogue-based evaluation	0.39***	0.20***	0.33***	0.36***
F	659	247	575	514
Adjusted R^2	0.20	0.09	0.18	0.17

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$, n = 5,333.
† r = –0.37 (Pearson), $p < 0.01$, between the indicator variables.

this case as well ($F = 659$, $p < 0.01$, $R^2 = 0.20$). In agreement with H2, dialogue-based evaluation was found to be a better indicator of intrinsic motivation than control-based evaluation. Interestingly, much to our surprise dialogue-based evaluation was also a better indicator of extrinsic motivation than control-based evaluation, although the difference was not as significant.

To test H3, we regressed value-focused thinking on the two types of evaluation (control- and dialogue-based). Table 4 shows that both types of evaluation were significant indicators of value-focused thinking and that the

overall regression was significant ($F = 575$, $p < 0.01$, $R^2 = 0.18$). In agreement with the hypothesis, dialogue-based evaluation proved to be a better indicator of value-focused thinking than control-based evaluation.

Analyses of Background Variables

A series of multivariate analyses of variance (MANOVA) were made that compared levels of education (PhD or lower), gender, position (management or non-management) and different site affiliations (three Swedish R&D sites – SWE1, SWE2, SWE3 – and two British R&D sites – UK1 or UK2) with creativity, motivation and value-focused thinking (see Table 5). Site affiliation had a significant effect on creativity ($F = 16.6$, $p < 0.01$) as did level of education ($F = 6.7$, $p < 0.05$); (see Table 6). Taken together, these findings suggest that *site affiliation* and *education* are factors that are important for the way in which respondents perceived the organizational climate for innovative thinking. With regard to site affiliation, Malnight's (2001) study of Eli Lilly and Hoffmann LaRoche indicates that internal diversities between research centres (i.e. R&D sites) constitute one important factor that researchers should investigate to find emerging structural patterns in the organization. With regard to education it was found that employees who held post-graduate degrees (i.e. PhD)

Table 5. Means for Dependent Variables versus Background Variables (R&D Sites, Education, Managerial Role and Gender)*

Dependent variables/ sample categories	**Intrinsi cmotivation**	**Extrinsi cmotivation**	**Value focused thinking (values+belief)**	**Organisational Creativity**
R&D sites				
Swe 1	1.87	3.65	2.30	2.79
Swe 2	1.87	3.61	2.36	2.55
Swe 3	1.89	3.77	2.23	2.78
UK 1	1.93	3.00	2.13	2.72
UK 2	1.97	3.34	2.23	2.90
Education				
PhD	1.89	3.53	2.20	2.79
Other	1.92	3.42	2.30	2.71
Management				
Manager role	1.87	3.44	2.14	2.75
Non manager role	1.94	3.51	2.37	2.75
Gender				
Female	1.94	3.43	2.26	2.74
Male	1.87	3.52	2.24	2.76

Note: *Estimated marginal means. Means refers to 1 (agree) to 5 (disagree), n = 5,333.

Table 6. Main Effects for Dependent Variables by R&D Sites, Education, Managerial Role and Gender

Dependent variables/ sample categories	**Intrinsi cmotivation**	**Extrinsi cmotivation**	**Value focused thinking(values+belief)**	**Organization creativity**
R&D sites	ns	(0.000)***	(0.000)***	(0.000)***
Education	ns	(0.002)**	(0.001)**	(0.012)*
Managerial role	ns	(0.024)*	(0.000)***	N.S
Gender	ns	(0.006)**	N.S	N.S

Note: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$, ns = not significant, n = 5,333.

perceived the creativity climate as less favourable than those who did not hold such a degree.

The analyses further showed that level of education and R&D site affiliation had a significant effect on value-focused thinking ($F = 8.4$, $p < 0.01$ and $F = 5.8$, $p < 0.01$), as did management position ($F = 73.4$, $p < 0.001$). Gender had a significant effect on extrinsic motivation ($F = 6.9$, $p < 0.01$), and management position had a marginally significant effect ($F = 4.6$, $p = 0.03$). Another finding was that position had a significant effect on intrinsic motivation ($F = 3.9$, $p < 0.005$).

Level of education, site affiliation and position are factors that matter most for value-focused thinking, because these factors influenced how the organizational climate for innovative thinking was perceived. Employees with a post-graduate education generally perceived creativity climate as more favourable than those with a lower level of education.

In the case of motivation, position alone appeared to be the key independent factor, regardless of whether motivation was extrinsic or intrinsic in nature. Level of education was not as important here.

Discussion

In the present study, we tested whether different forms of performance evaluation (dialogue-based and control-based) affect different motivational factors (intrinsic and extrinsic) and perception of creative climate in AstraZeneca R&D. The results indicate that dialogue-based evaluation makes sense as a creative climate indicator in the pharmaceutical industry.

From a methodological perspective, this study is subject to several considerations. First, items were not originally developed for this study, so the constructs developed – for example, dialogue-based evaluation and control-based evaluation – were not formalized or communicated in the organization at the time of the survey. Second, as a consequence, there is imbalance in the number of items in different constructs. But despite these considerations, we argue that the study represents an interesting opportunity to explore important issues relevant to creative climate in a specific organizational context that have potential to reveal what otherwise will remain hidden.

Effects from Type of Evaluation on the Creative Climate

The study suggests that type of performance evaluation (dialogue-based or control-based evaluation) in a multinational pharmaceutical organization matters a great deal when accounting for a broad range of factors that are associated with judgements of creative climate. These factors include creative climate, intrinsic motivation, extrinsic motivation and value-focused thinking. Previous research has shown that type of *expected* evaluation (informational or control-based evaluation) has an effect on creative climate and intrinsic motivation in experimental settings (Shalley & Perry-Smith, 2001). Accounting for these experimental findings, it was revealed that dialogue-based evaluation appeared to be a better indicator of creative climate than control-based evaluation.

Furthermore, our results on predictability capabilities of different types of evaluation (dialogue-based versus control-based) regarding different types of motivation (intrinsic and extrinsic) agree with recent findings on organizational learning versus performance goals (Elliott & Dweck, 1988; Heyman & Dweck, 1992). In line with our findings, the results of these studies suggest that factors of competence and ability are associated with reduced intrinsic motivation and that new skills are associated with enhanced intrinsic motivation. Our results indicate that dialogue-based evaluation has a relationship with intrinsic motivation.

The results also suggest that dialogue-based evaluation at least marginally appears to better predict value-focused thinking than control-based evaluation. This finding lends support to the idea that value-focused thinking is a factor closely connected to creative climate (Keeney, 1992). The reason for this relationship may be that values have the ability to guide our decisions. Creative climate and productivity may thus be present in a search for new alternatives because values may be reformulated into objectives that are assumed to stimulate goal-directed behaviour. This may be achieved by employees being guided by the mindsets of the culture of the company. According to Malnight's (2001) analysis of the work of Ely Lilly and Hoffmann LaRoche (pharmaceutical companies), mindsets can be made up of general company style, ways of doing things, values and common practices.

But in many organizations, conditions for dialogue and learning in an organizational setting may be subject to mixed-message situations. Managers are in intense relationships with their superiors, and their careers and salaries depend on these relationships. So managers who will be evaluated in, for example, a leadership development process, are often trapped in situations in which their superiors

and the intentions stated within the organization at large may express two different objectives. An organization's general goals may preach open dialogue, learning and development, while business plans and individual performance evaluations are most often more results oriented. At the same time, this mixed-message situation seems to be a 'non-topic' in many organizations. The manager might be unable (or unwilling) to comment on such a mixed-message situation being expressed, especially if he or she considers this to be a 'non-topic'. Because of a fear of punishment, he or she cannot (or will not) reveal conflicting messages that are being sent out. Needless to say, mixed messages may in this way distort open dialogue, reflection and thus double-loop learning (see Argyris & Schön, 1978, for a further discussion). Needless to say, managers may themselves be collaborating in such mixed messages to their R&D scientists.

Gender, Age, Position and Site-Affiliation Effects on Creative Climate

This study revealed that level of education and position are factors related to employees' judgements of how creative climate was perceived. It also found that these factors were related to value-focused thinking. In the case of motivation, position appeared to have a greater impact than education, regardless of whether motivation was extrinsic or intrinsic in nature. Clearly, our results indicate that both dialogue-based evaluation and control-based evaluation generally are able to reliably predict the variance observed in the dependent measures. But results of the ANOVA suggest that interactions between gender, age, and position and type of context exist and that these interactions may have a bearing on the dependent measures. From a practical view, these results suggest that HRM must take into account that it is easier to make managers more motivated in different development programmes by focusing on position-related factors than by focusing on issues related to higher education.

Generalizability

At the theoretical level, it is interesting to note that we were able to replicate the findings of experimental studies in which expected evaluation was used as the independent variable (Shalley & Perry-Smith, 2001), even though this study used judgements of evaluation as the independent variable. An explanation for this similarity in results may be that experimentally manipulated expectations and real organizational judgements may work in the same way because they are based on the same kind of life experience. This experience may not necessarily have been gained in work life.

Thus, in terms of external validity we argue that the study quite forcefully corroborate previously experimental results. On the internal side, all the applied measures also revealed a good internal consistency, which indicates a high degree of reliability. However, because of the explorative nature of the study, the conceptual validity of our constructs did not meet the highest set criteria with regard to *all* the included items (Hair et al., 1998). A possible explanation for this may be that the survey was developed by a professional survey organization that was using scientific methods, but without having any scientific aims.

In the present study, creative climate was measured by letting the employees make self-ratings of how they perceived the creative climate of the organization. For several reasons, this has been the most commonly used research method in the field of creative climate (see e.g. Amabile, 1995; Amabile et al., 1996; Ekvall & Ryhammar, 1999). A major reason for this is that it has been found that self-ratings of creative climate represent valid predictions of innovation in research-based organizations (see Ekvall, 1997). Use of this method of measuring creative climate strengthened the idea that creative climate is coupled with intrinsic motivation. In fact, the factor analysis results revealed that creative climate and intrinsic motivation were collapsed into the same factor that was also found by Shalley and Perry-Smith (2001).

This study discusses the influence of evaluation type on creative climate and creativity-related behaviour, and perhaps in some environments, the level of creative climate allows (or even forces) managers to use less control-based evaluations. This may have been the case in several reported ultra-creative phases of the studied organization; for instance, at the former Astra R&D site in Mölndal, Sweden between 1975 and 1985 when, according to official statistics, one of the best-selling drugs in the world was developed (Sundgren & Styhre, 2003). So we think that it is an important task for future research to investigate other more context-specific ways to explain correlations observed between evaluation type and level or quantification of creativity.

Implications for Practice

At the practical and managerial level, this study has several implications relevant to pharmaceutical R&D. Based on results from this study, two important messages to HRM can be communicated:

1. The dominating way to evaluate employees is based on a rather fixed apparatus of standardized measures derived from clear inputs (e.g. number and quality of patents or reports, meeting deadlines or other fixed performance aspects) and outputs much related to extrinsic motivation factors such as salary and promotion. So the concept of dialogue-based evaluation has potential for providing increased understanding of intrinsic motivation and for becoming a vehicle for a more elaborated view of motivation.
2. A clear message to management is to challenge the attitude toward the traditional notion of evaluation and to reflect on how to improve communication and knowledge exchanges in the organization. Dialogue-based evaluation can be seen as a tool for exploiting ideas and knowledge in the organization – an activity that otherwise might fall between stools. So dialogue-based evaluation promotes awareness of how to influence creative climate and support creativity.

An organization faces several challenges when trying to put dialogue-based evaluation into practice:

(1) it would require more time and effort than standardized methods;
(2) it requires a new kind of organizational competence that involves behavioural change on the part of individuals and the managerial system;
(3) it challenges the traditional transactional leadership model in the sense that it emphasizes relations and requires a more open exchange of ideas rather than just delivering according to fixed processes.

So participants (managers and employees) would become more actively involved in providing information – thus creating an opening for exchanges of ideas and opinions and thus imposing a dialogue that questions organizational values and norms.

In the day-to-day business, dialogue-based evaluation might take the form of more flexible relations between managers and individuals for discussing ideas (including visions, hopes, concerns and feelings) without relating to performance and output, and thus creating a balance between extrinsic and intrinsic motivation. The main message for management of the organization would be not to jump into a new change initiative before finding out what the key drivers are for intrinsic motivation. Drivers for intrinsic motivation are probably different for different parts of the organization. In the present case of AstraZeneca, representing large complex R&D organizations, it is important to acknowledge that creativity is under the influence of two major aspects; regulations and scientific breakthroughs. To drive creativity in such an organization, extrinsic motivation is not enough. Dialogue-based evaluation may be a new vehicle for managing different types of intrinsic motivation to promote creative climate.

Like AstraZeneca, other large pharmaceutical R&D organizations are probably forced to deliver projects, products and services quickly and efficiently. Daily control and monitoring of organizational activities have become more detailed and sophisticated, while there are many attempts to empower employees and implement new organizational routines and standard operating procedures to improve the firm's knowledge-based resources. Today, we speak of *adhocracies*, *boundary-less organizations*, *post-bureaucratic organizations* and the like. So there are two opposing forces at work: (1) organizational life is becoming increasingly managed, monitored and controlled and (2) newly developed managerial practices emphasize the need for commitment, coherence, and the ability to make use of one's creativity and skills in the existing organizational activities. We argue that dialogue-based evaluation can bridge and reduce discrepancies between the *assumed* and *politically correct* culture versus the *enacted* and *true culture* and thus become one way to manage creativity in an age of management control.

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References

Amabile, T.M. (1986) The social psychology of creativity: a componential conceptualization. *Journal of Personality and Social Psychology*, 45, 357–77.
Amabile, T.M. (1988) A model of creativity and innovation in organizations. In Staw, B.M. and Cummings, L.L. (eds.), *Research in Organizational Behavior*. JAI Press, Greenwich, CT.
Amabile, T.M. (1995) *KEYS: Assessing the Climate for Creativity*. Center for Creative Leadership, Greensboro, NC.
Amabile, T.M., Conti, R., Coon, H., Lazenby, J. and Herron, M. (1996) Assessing the work environment for creativity. *Academy of Management Journal*, 39, 1154–84.
Amabile, T.M. (1997) Motivating creativity in organizations: on doing what you love and loving

what you do. *California Management Review*, 40(1), 39–59.
Amabile, T.M. (1999) *Creativity in context: update to the social psychology of creativity*. Westview, Boulder, CO.
Argyris, C. and Schön, D.A. (1978) *Organizational Learning Theory*, Adison-Wesley, Reading, MA.
Bass, B.M. and Avolio, B.J. (1994) *Improving Organizational Effectiveness through Transformational Leadership*. Sage Publications, Thousand Oaks, CA.
Blake, A.G.E. (1996) *Structures of Meaning*. Unis Institute, Bridgewater, NJ.
Bryman, A. (1996) *Leadership in Organizations*. Routledge & Kegan Paul, London.
Buchanan, D. (2001) *Organisational Behaviour: An Introductory Text*. Prentice Hall, Harlow.
Burke, R.J. (1983) Career orientations of type A individuals. *Psychological Reports*, 53, 979–89.
Cameron, J. and Pierce, W.D. (1994) Reinforcement, reward, and intrinsic motivation: a meta-analysis. *Review of Educational Research*, 64, 363–423.
Deci, E.L. and Ryan, R.M. (1980) The empirical exploration of intrinsic motivational processes. In Berkowitz, L. (ed.), *Advances in Experimental Social Psychology*, 13, Academic Press, New York, pp. 39–80.
Deci, E.L. and Ryan, R.M. (1985) *Intrinsic Motivation and Self-determination in Human Behavior*. Plenum, New York.
Deci, E.L. and Ryan, R.M. (1996) Need satisfaction and the self-regulation of learning. *Learning & Individual Differences*, 8, 165–84.
Deci, E.L. and Ryan, R.M. (2000) The 'what' and 'why' of goal pursuits: human need and the self-determination of behavior. *Psychological Inquiry*, 11, 227–68.
Deci, E.L., Ryan, R.M. and Koestner, R. (1999) A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125, 627–68.
Deci, E.L., Egharri, H., Patrick, D.C. and Leone, D.R. (1994) Facilitating Internalization – The Self-Determination Theory Perspective. *Journal of Personality*, 62, 119–42.
Deci, E.L., Nezlek, J. and Sheinman, L. (1981) Characteristics of the Rewarder and Intrinsic Motivation of the Rewardee. *Journal of Personality and Social Psychology*, 40, 1–10.
Dougherty, D. (1999) Organizing for innovation. In Clegg, S.R., Hardy, C. and Nord, W.R. (eds.), *Managing Organizations*. Sage, London.
Duncan, R. and Weiss, A. (1979) Organizational learning: implications for organizational design. In Staw, B. (ed.), *Research in Organizational Behavior*. JAI Press, Greenwich, CT.
Eisenberger, R. and Cameron, J. (1996) Detrimental effects of rewards: reality or myth? *American Psychologist*, 51, 1153–66.
Ekvall, G. (1987) The climate metaphor in organisational theory. Bass, I.B.M. and Drent, P.J.D. *Advances in organizational psychology. An international review*. Sage Publications, Newbury Park, CA, pp. 177–90.
Ekvall, G. (1996) Organizational climate for creativity and innovation. *European Journal of Work and Organizational Psychology*, 5(1), 105–23.
Ekvall, G. (1997) Organizational conditions and levels of creativity. *Creativity and Innovation Management*, 6(4), 195–205.
Ekvall, G. and Ryhammar, L. (1999) The creative climate: its determinants and effects at a Swedish university. *Creativity Research Journal*, 12(4), 303–10.
Elliott, E.S. and Dweck, C.S. (1988) Goal: an approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5–12.
Engeström, Y. (1999) Innovating learning in work teams: Analyzing of knowledge creation in practice. In Engeström, Y. Miettinen, R. and Punamäki, R-L. (eds.), *Perspectives on Activity Theory*. Cambridge University Press, Cambridge.
Engeström, Y. (2004) *New forms of learning in co-configuration work*. London School of Economics Department of Informations Systems, London.
Gardner, H. (1993) *Creating Minds*. Basic Books, Newbury Park, CA.
Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998) Multivariate Data Analysis. Prentice Hall, Upper Saddle River, NJ.
Hargadon, A. and Sutton, R.I. (2000) Building an innovation factory. *Harvard Business Review*, 78(3), 157–66.
Hennesey, B. and Amabile, T. (1988) The conditions of creativity. In Sternberg, R.J. (ed.), *The Nature of Creativity*. Cambridge University Press, New York.
Heyman, G.D. and Dweck, C.S. (1992) Achievement goals and intrinsic motivation: their relation and their role in adaptive motivation. *Motivation and Emotion*, 16, 231–47.
Hodgkinson, G.P. and Sparrow, P.R. (2002) *The Competent Organization*. The Open University Press, Buckingham.
Horrobin, D.F. (2002) Effective clinical innovation: an ethical imperative. *Lancet*, 359, 1857–58.
Keeney, R. (1992) *Value-focused thinking: A Path to Creative Decisionmaking*. Harvard University Press, London.
Kirton, M.J. (1989) Adaptors and innovators at work. In Kirton, M.J. (ed.), *Adaptors and Innovators: Styles of Creativity and Problem Solving*. Routledge, New York.
Koberg, C.S. and Chusmir, L.H. (1987) Organizational culture relationships with creativity and other job-related variables. *Journal of Business Research*, 15, 397–409.
Ledbetter, W.N., Snyder, C.A. (1985) Assessing the organizational climate for OA implementation. *Information and Management*, 8(3), 155–70.
Malnight, T.W. (2001) Emerging structural patterns within multinational corporations: toward process-based structures. *Academy of Management Review*, 44(6), 1187–1210.
Payne, R. (1987) Individual difference and performance amongst R&D personnel: some implications for management development. *R&D Management*, 17, 153–66.
Preskill, H. and Torres, R. (1999) The role of evaluative enquiry in creating learning organizations. In Easterby-Smith, M. Burgoyne, J. and Araujo, L. (eds.), *Organizational Learning and the Learning*

Organization: Developments in Theory and Practice. Sage, London.
Ryan, R.M. (1982) Control and information in the intrapersonal sphere: an extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, 43, 450–61.
Schein, E.H. (1983) The role of the founder in creating organizational culture. *Organizational Dynamics*, Summer, 13–28.
Schein, E.H. (1985) *Organizational Culture and Leadership*. Jossey-Bass, San Francisco.
Selart, M. and Boe, O. (2001) On practitioners' usage of creativity heuristics in the decision process. In Allwood, C.M. and Selart, M. (eds.), *Decision Making: Social and Creative Dimensions*. Kluwer, Boston, pp. 197–210.
Shalley, C.E. and Perry-Smith, J.E. (2001) Effects of social-psychological factors on creative performance: the role of informational and controlling expected evaluation and modeling experience. *Organisational Behaviour and Human Decision Processes*, 84(1), 1–22.
Sundgren, M. and Styhre, A. (2003) Creativity – a volatile key of success? Creativity in new drug development. *Creativity and Innovation Management*, 12(3), 145–61.
Tichy, N.M. and Devana, M.A. (1986) *The Transformational Leader*. Wiley, New York.
Van der Heijden, K. and Eden, C. (1998) The theory and praxis of reflective learning in strategy making: In Eden, C. and Spender, J-C. (eds.), *Managerial and Organizational Cognition: Theory, Methods, and Research*. Sage, London.
Woodman, R.W., Sawyer, J.E. and Griffin, R.W. (1993) Towards a theory of organizational creativity. *Academy of Management Review*, 18, 293–321.
Zhou, J. (1998) Feedback valence, feedback style, task autonomy, and achievement orientation: interactive effects on creative performance. *Journal of Applied Psychology*, 83, 261–76.

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