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Organizational Commitment and Identification of Engineers as a Function of Organizational Climate
L'engagement et l'identification de l'ingénieur comme professionnel face au climat de l'entreprise

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Aller au sommaire du numéro

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Résumé de l'article

INTRODUCTION

Cet article a pour objet d'étudier les répercussions du climat du milieu de travail sur le degré d'engagement et d'identification des ingénieurs avec les organisations qui les emploient. Les données étudiées dans cette enquête furent recueillies auprès de 359 ingénieurs professionnels en tenant compte de huit facteurs dimensionnels ainsi que des variables se rapportant à l'engagement et à l'identification. On a choisi les facteurs suivants: la structure, c'est-à-dire l'impression que les employés ressentent à l'intérieur du groupe, etc. ; la responsabilité, c'est-à-dire le sentiment qu'ils ont d'être leurs propres maîtres, de n'avoir pas à faire superviser toutes leurs décisions ; la récompense, c'est-à-dire l'impression d'être appréciés pour l'ouvrage bien fait, une rémunération équivalente à leurs efforts; le risque, c'est-à-dire la possibilité de pouvoir prendre certaines initiatives ; la cordialité, c'est-à-dire l'impression de vivre dans une atmosphère respirable sur le plan social, d'être considérés ; l'entr'aide, c'est-à-dire le sentiment d'obtenir des employeurs et des camarades l'appui dont ils ont besoin si nécessaire ; la qualité, c'est-à-dire l'impression d'accomplir une tâche utile et, enfin, la controverse, le sentiment qu'employeurs et compagnons sont disposés à écouter des avis divergents et qu'ils sont prêts à discuter ouvertement les questions.

HYPOTHÈSES

On a posé, au point de départ les hypothèses suivantes : a) rapport positif ou favorable entre un climat de travail qui est satisfaisant et les variables d'engagement et d'identification; b) rapport négatif ou défavorable entre un climat de travail mauvais et les deux mêmes variables ; c) explication du degré d'engagement et d'identification par la connaissance des variables du climat.

LA MESURE DES VARIABLES

Vingt-quatre énoncés (trois pour chacun des facteurs du climat) de l'instrument mis au point par Litwin et Stringer furent utilisés pour évaluer les impressions du répondant devant le degré de satisfaction actuelle (la réalité) du climat et l'ambiance idéale qu'il souhaiterait trouver dans l'entreprise. Les différences entre l'idéal et la réalité, entre ce qui existe et ce qui devrait exister, ont servi à mesurer le degré d'insatisfaction.

On a mesuré le degré d'engagement envers l'organisation au moyen d'une version sommaire d'un questionnaire comprenant quinze énoncés mis au point par Porter. On a obtenu l'indice d'identification en faisant la somme de réponses comme celles-ci : « Nous sommes fiers de travailler pour cette entreprise » ; « Nous sentons que nous faisons partie d'une équipe » ; « Il y a beaucoup de loyauté personnelle à l'endroit de la compagnie ».

RÉSULTATS

Toutes les corrélations entre les deux variables dépendantes (engagement et identification) et l'insatisfaction ou la satisfaction à l'endroit du climat organisationnel furent significatifs (p. <c. 01 ; voir le premier tableau). Plusieurs combinaisons d'analyses de régression linéaire furent effectuées pour déterminer dans quelle mesure on pouvait percevoir l'engagement et l'identification par l'état du climat. Comme on peut le voir par le deuxième tableau, les équations de régression condensées, utilisant les scores de la satisfaction comme prédicteurs expliquent en bonne partie la différence dans les variables engagement et identification. (R = .73 et .76, p. <.001 respectivement). Les valeurs de R ne furent pas affectées de façon appréciable lorsque l'échantillon total fut subdivisé au hasard en deux sous-échantillons (l'échantillon A comprenant 179 sujets et l'échantillon B en comptant 180) est que les pondérations*bêta* tirés de l'échantillon A furent comparées avec les données de satisfaction tirées de l'échantillon B à des fins de contrôle. L'utilisation des scores du climat d'insatisfaction donna comme résultat un R plus faible dans chaque cas (voir le deuxième tableau), la plus forte réduction s'opérant de R = .76 à R = .64 pour l'échantillon B. Toutefois, toutes les valeurs R formées sur les scores d'insatisfaction restaient fort significatif (p. <.001). Les résultats ont démontré les liens de dépendance qui s'établissent entre l'engagement et l'identification et les composantes du climat psycho-sociologique de l'organisation. Nous concluons en suggérant deux définitions opérationnelles de l'attraction du climat qui pourraient être au coeur d'une recherche plus poussée à l'avenir.

Organizational Commitment and Identification of Engineers as a Function of Organizational Climate

Richard T. BARTH

This article examines the impact of organizational climate components upon engineers' commitment to, and identification with, their employing organizations. The application of multiple regression analysis indicates that a significant proportion of the variance of the dependent variables can be accounted for by organizational climate scores.

This study is concerned with an examination of predicting organizational commitment and identification from (a) a knowledge of the perceived attainment (i.e. perceived quality) of the organizational climate in which the employee works, and (b) a knowledge of the incongruence perceived with regard to the actual or « Is Now » climate and the ideal or « Should Be » climate. Another purpose was to explore the relative usefulness of predicting commitment and identification from direct « Should Be » climate scores. Thus, climate is hypothesized as a primary determinant of commitment and identification with the organization. The hypotheses are that there will be (a) a positive relationship between climate attainment and the depen-

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dent variables of commitment and identification, (b) a negative relationship between climate incongruence and commitment — identification, and (c) that commitment and identification can be accounted for in large part from a knowledge of climate variables.

In recent years, increasing attention has been focused upon organizational climate as a theoretical construct which seems to be an important explanatory concept in organizational research and analysis. According to Forehand and Gilmer [1], organizational climate refers to the atmosphere, set of characteristics, or climate within organization members operate. Forehand and Gilmer also view climate as relatively enduring over time, influencing the behaviour of organization members, and useful for distinguishing a given organization from other organizations. This approach to climate is considered somewhat restrictive by others, who feel that Forehand and Gilmer's definition invites excessive attention to the organization as a whole and insufficiently emphasizes the perceptions of organization members. For example, Tagiuri [2] has indicated one should stress the idea that climate connotes also that the internal work environment has a certain quality to which employees are sensitive and which, in turn, influences their behaviour. Litwin and Stringer's [3] definition deals with climate at a concept describing the quality of organizational characteristics perceived or experienced by employees. Thus, the significance of the construct of climate is based on the notion that behaviour is a function of the interaction of environment and person.

Although a number of attempts have been made toward systematic measurement of climate and relating it as an independent or intervening variable to various dependent variables, the latter have not included organizational commitment and identification. Rather, among the dependent variables of concern have usually been job satisfaction, need for achievement, affiliation and power, overall organizational effectiveness, or innovativeness of school systems, individual performance of scientists and engineers, success in the life insurance industry, organizational health or effectiveness, and unity of effort achieved by task-interdependent

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[1] G. A. FOREHAND and von H. B. GILMER, « Environmental Variation and Studies of Organizational Behaviour », *Psychological Bulletin*, Vol. 62, 1964, pp. 361-382.

[2] R. TAGIURI, « The Concept of Organizational Climate ». In R. TAGIURI and G. H. LITWIN (eds.), *Organizational Climate: Explorations of a Concept.* Boston, Division of Research, Harvard Business School, 1968.

[3] G. H. LITWIN and R. A. STRINGER, *Motivation and Organizational climate.* Boston, Division of Research, Harvard Business School, 1968.

groups [4]. With the exception of a few studies, research on organizational climate has been more concerned with assessing satisfaction with the « here and now » climate rather than focussing on the employee's perceptions of the congruence between the « here and now » and the preferred ideal or « should be » climate [5]. The reason one is interested in perceived incongruence is because research has indicated that unfulfilled expectations are related to both individual and organizational outcomes. For example, Barth [6] found that engineers' perceived noncomplementarity with respect to work-related values detracts from organizational commitment. Hall

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[4] See, for example, the following studies which treated these factors as dependent variables : F. FRIEDLANDER and N. MARGULIES, « Multiples Impacts of Organizational Climate and Individual Value Systems Upon Job Satisfaction », *Personal Psychology*, Vol. 22, 1969, pp. 171-183, who used job satisfaction ; LITWIN and STRINGER, *Ibid.*, who considered nAch, nAff, and nPower ; D. T. HALL and E. E. LAWLER, III, « Unused Potential in Research and Development Organizations », *Research Management*, Vol. 12, 1969, pp. 339-354, and J. J. MORSE, « Organizational Characteristics and Individual Motivation », In J. W. LORSCH and P. R. LAWRENCE (eds.), *Studies in Organization Design*. Homewood, Ill., Irwin, 1970, who focussed on organizational effectiveness ; school system innovativeness as treated by L. R. HILFIKER, *The Relationship of School System Innovativeness to Selected Dimensions of Interpersonal Behaviour in Eight School System*, Wisconsin Research and Development Centre for Cognitive Learning, University of Wisconsin, 1969 ; individual performance of scientists and engineers by G. F. FARRIS, « Organizational Factors and Individual Performance : A Longitudinal Study », *Journal of Applied Psychology*, Vol. 53, 1969, pp. 87-92 ; performance of life insurance agents by B. SCHNEIDER and C. J. BARTLETT, « Individual Differences and Organizational Climate : I. Research Plan and questionnaire Development », *Personnel Psychology*, Vol. 21, 1968, pp. 323-333 ; and organizational effectiveness or unity of effort considered by R. T. BARTH, *Intergroup Climate Characteristics, Perceived Communication Problems, and Unity of Effort Achieved by Task — Interdependent R & D Groups*. Proceedings of the 31st Annual Convention of The Academy of Management, 1972, pp. 250-254 ; and R. W. STEPHENSON, B. S. GANTZ, and C. E. ERICKSON, « Development of Organizational Climate Inventories for Use in R & D Organizations », *IEEE transactions on Engineering Management*, Vol. EM-18, 1971, pp. 38-50.

[5] A. H. RUBENSTEIN, R. T. BARTH, and C. E. DOUDS, « Ways to Improve Communications Between R & D Groups », *Research Management*, Vol. 14, 1971, pp. 49-59. B. SCHNEIDER, « Organizational Climate : Individual Preferences and Organizational Realities », *Journal of Applied Psychology*, Vol. 56, 1972, pp. 211-217, E. WALTON, « Gauging Organizational Health », *IRE Transactions on Engineering Management*, Vol. EM-8, 1961, pp. 201-205; STEPHENSON, *et al., Ibid.*

[6] R. T. BARTH, « Value Noncomplementarity and Organizational Commitment of Engineers », *R & D Management*, (in press).

et. al. [7], in a study of professional foresters, reported that satisfaction of the foresters' higher-order needs was significantly related to identification with the organization, while McKelvey [8] found that exceptional non-complementarity was correlated with deviant styles of interaction adopted by engineers as a coping strategy.

Since organizational climate is a multi-dimensional concept, it is not surprising that a variety of climate dimensions have been treated in the literature in order to capture the relevant aspects perceived as existing in an organization by its members [9]. However, the set of dimensions isolated by Litwin & Stringer is not only particularly appropriate for the kind of organizations examined in this study, but is based on a climate scale whose development presents some evidence of validity as well. A brief summary of these dimensions is presented below. The scales of the eight dimensions summarised constitute the measure of climate referred to in the remainder of this article. The descriptions are taken from Litwin & Stringer : [10]

1. *Structure* — the feeling that employees have about the constraints in the group, how many rules, regulations, procedures there are ; is there an emphasis on « red-tape » and going through channels, or is there a loose and informal atmosphere.

2. *Responsibility* — the feeling of being your own boss ; not having to double-check all your decisions ; when you have a job to do, knowing that it is your job.

3. *Reward* — the feeling of being rewarded for a job well done ; emphasizing positive rewards rather than punishments ; the perceived fairness of the pay and promotion policies.

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[7] D. T. HALL, B. SCHNEIDER, and T. H. NYGREN, « Personal Factors in Organizational Identification », *Administrative Science Quarterly*, Vol. 15, 1970, pp. 176-190.

[8] W. W. McKELVEY, « Expectational Noncomplementarity and Style of Interaction Between Professional and Organization », *Administrative Science Quarterly*, Vol. 14, 1969, pp. 21-32.

[9] For a comprehensive review of the various dimensions considered, see J. P. CAMPBELL, M. D. DUNNETTE, E. E. LAWLER, III, and K. E. WEICK, *Managerial Behaviour, Performance and Effectiveness*. New York, McGraw-Hill, 1970.

[10] G. H. LITWIN and R. A. STRINGER, *op. cit.*, pp. 81-82 ; another recent climate scale development and validation effort is reported by R. J. HOUSE and J. R. RIZZO, « Toward the Measurement of Organizational Practices : Scale Development and Validation », *Journal of Applied Psychology*, Vol. 56, 1972, pp. 388-396.

4. *Risk* — the sense of riskiness and challenge in the job and in the organization ; is there an emphasis on taking calculated risks, or is playing it safe the best way to operate.

5. *Warmth* — the feeling of general good fellowship that prevails in the work group atmosphere ; the emphasis on being well-liked ; the prevalence of friendly and informal social groups.

6. *Support* — the perceived helpfulness of the managers and other employees in the group ; emphasis on mutual support from above and below.

7. *Standards* — the perceived importance of implicit and explicit goals and performance standards ; the emphasis on doing a good job ; the challenge represented in personal and group goals.

8. *Conflict* — the feeling that managers and other workers want to hear different opinions ; the emphasis placed on getting problems out in the open, rather than smoothing them over or ignoring them.

As already indicated, the dependent variables considered in this study have generally not been used along with organizational climate variables. Much of the research on commitment and identification *per se* has focused on the individual's commitment to or identification with his profession, such as low, medicine, and business [11]. Others have examined commitment or identification within the context of political organizations and utopian social movements [12]. However, although less is known about the *development* of organizational commitment and identification, recent research has indicated that self image and job characteristics, the individual's investments and involvement with the organization, the socializing processes of university training along with organizational structure, and job design appear to be related to the employee's organizational commitment or

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[11] See, for example, D. C. LORTIE, « Layman to Lawman : Law School, Careers, and Professional Socialization », *Harvard Educational Review,* Vol. 29, 1959, pp. 363-367. H. BECKER, B. GEER, E. HUGHES, and A. STRAUSS, *Boys in White.* Chicago, University of Chicago Press, 1961 ; and E. H. SCHEIN, « Attitude Change During Management Education : A Study of Organizational Influences on Student Attitudes », *Administrative Science Quarterly,* Vol. 11, 1967, pp. 601-608.

[12] W. KORNHAUSER, *Scientists in Industry.* Berkeley and Los Angeles, University of California Press, 1962 ; and R. M. KANTER, « Commitment and Social Organization : A Study of Commitment Mechanisms in Utopian Communities », *American Sociological Review,* Vol. 33, 1968, pp. 499-517.

identification [13]. These studies represent attempts to account for commitment or identification in terms of organizational conditions *or* personal factors.

METHODS

Sample

The respondents were 359 engineering professionals chosen randomly from the membership directory of the Association of Professional Engineers of British Columbia. Over half the sample (61É) reported receiving the BS degree, fourteen percent had done some graduate work beyond the BS, 15 percent held the MS degree, and six percent had the Ph.D. Over two thirds of the sample was older than 35 years, had more than three years of seniority, and had been registered as professional engineers for more than five years.

Measurement Instruments

ORGANIZATIONAL CLIMATE

Twenty-four items of the improved organizational measure (Form B) developed by Litwin and Stringer were used to assess respondents' perceptions of the actual and the prefered ideal organizational climate [14]. Three items were selected for each of the climate dimensions of structure, responsibility, risk-taking, standards, reward, support, conformity, and warmth. The response format and instructions of the Litwin and Stringer instrument were modified and requested respondents to supply two ratings for each item on a 7-point scale ranging from « not at all characteristic » to « extremely characteristic » in response to the questions « How characteristic is this statement of your company ? » and « How characteristic

[13] For the importance of self image and job characteristics see B. SCHNEIDER, D. T. HALL, and H. T. NYGREN, « Self Image and Job Characteristics as Correlates of Changing Organizational Identification », *Human Relations*, Vol. 24, 1971, pp. 397-416 ; individual investments and involvements are discussed by Mary E. SHELDON, « Investments and Involvements as Mechanisms Producing Commitment to the Organization », *Administrative Science Quarterly*, Vol. 16, 1971, pp. 143-150 ; socializing processses and organizational structure by G. A. MILLER and L. W. WAGER, « Adult Socialization, Organizational Structure, and Role Orientations », *Administrative Science Quarterly*, Vol. 16, 1971, pp. 151-163 ; and job design by D. T. HALL, « Identity Changes During the Transition From Student to Professor », *School Review*, Vol. 76, 1968, pp. 445-469.

[14] A copy of the particular 24 items selected and the revised instructions are available upon request to the author.

would this statement be of ideal company you prefer ? ». For each dimension, responses to the first question for the three appropriate items were averaged to form a mean dimension score of attainment. Corresponding incongruence scores were constructed by taking the difference between the responses to the second question and attainment scores. This approach to constructing indices of incongruence is similar to the (Should Be — Is Now) formulation used in job satisfaction studies [15]. Responses to the second question were used directly to provide indicators of the « Should Be » climate.

ORGANIZATIONAL IDENTIFICATION

The indicator of identification was obtained by summing the responses to the statements « We are proud of working in this company », « We feel that we are members of a well-functioning team », and « There is much personal loyalty to the company ». Each of these items was scored according to the same 7-point scale used in the organizational climate measure.

ORGANIZATIONAL COMMITMENT

Data on organizational commitment were obtained through the use of a preliminary version of a 15-item questionnaire developed by Porter [16]. These items are in the Likert scale format to which the respondent indicates his agreement (Strongly Agree = 7) or disagreement (Strongly Disagree = 1). Items were counterbalanced and scoring weights for the six negatively worded items were reversed. Thus, high scores indicate high commitment to the organization. The items were given equal weight and averaged to form a mean score of organizational commitment. The questionnaire also requested information concerning job title, age, tenure, total years of experience, years of professional registration, and company size.

RESULTS

The first analyses of interest are the product-moment correlations between the two dependent variables and climate incongruence and at-

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15 J. P. WANOUS and E. E. LAWLER, III, « Measurement and Meaning of Job Satisfaction », *Journal of Applied Psychology*, Vol. 56, 1972, pp. 95-105.

16 L. W. PORTER, *Individual Commitment to Organizations.* Paper presented at the Industrial Relations Management Association Conference, Harrison Hot Springs, B. C., February 1971.

TABLE 1

Correlations of Organizational Commitment and Identification With Organizational Climate Attainment and Incongruence.

Climate dimensions	*Organizational commitment*	*Organizational identification*
Attainment Scores:		
Structure	.47	.49
Responsibility	.29	.35
Risk	.19	.16
Standards	.56	.59
Reward	.66	.65
Support	.48	.54
Conformity	.48	.42
Warmth	.45	.55
Incongruence Scores :		
Structure	−.35	−.36
Responsibility	−.24	−.25
Risk	−.21	−.21
Standards	−.31	−.35
Reward	−.65	−.66
Support	−.39	−.43
Conformity	−.35	−.31
Warmth	−.26	−.32

Note $p < .01$ for all correlations. Also, for each line, the two correlations do *not* differ beyond the .05 level of significance; these tests of significance take into account the nonindependence of each pair of correlation coefficients, and incorporate Fisher's r to Z transformation. Negative correlations appear because of the operational definition of incongruence.

tainment. These data are presented in Table 1. All correlations are significant at $p < .01$. In addition, Table 1 reveals that, for each attainment or incongruence score, the climate-commitment and climate-identification correlations do not differ beyong the .05 level of significance. With regard to climate attainment it is indicated that Reward, Standards, Support, and Conformity appear to be most highly related to organizational commitment. Reward, Standards, Warmth and Support appear to be the four dimensions most strongly related to identification. On the basis of noncomplementarity scores, the data indicate that Structure might replace Standards as one of the four dimensions correlating highly with commitment. Perceived noncomplementary on the Structure dimension also seems to have more impact on identification than Warmth. With the exception of the Risk and Reward dimensions, comparison of the correlation cœfficients based on attainment and incongruence scores for each dimension reveals that cœfficients based on the latter scores are consistently lower.

Correlations between the ideal or Should Be climate scores and commitment (not shown in Table 1) ranged from a nonsignificant .06 between Structure and commitment to r = .43 ($p < .01$) for Standards. The correlations with identification ranged from .08 for Structure to .43 again for Standards. In both cases, Structure, Responsibility and Risk were not significantly correlated with the dependent variables.

Since the previous analysis indicated that organizational climate dimensions had varying relationships to commitment and identification, the next analysis examined the extent to which these two variables could be predicted separately from a knowledge of all eight climate variables. Several sets of linear-regression analyses were performed. In the first set, all eight climate *attainment* scores were taken as independent variables and arbitrarily included in the regression equation to predict commitment. A second regression equation was used to predict identification. It was found that commitment and identification can be accounted for in large part (R = .73 and .76, $p < .001$, respectively) from the eight attainment scores. Reduced equations were then constructed, in which climate predictors were added to the regression equation as long as they added an increment significant beyond the .05 level to the multiple correlation. The results of this set of analysis are shown in Table 2, along with the results based on additional regression equations and cross-validation procedures.

TABLE 2

Multiple Correlation and Cross-Validation Coefficients of Regression Equations Based on Organizational Climate Attainment and Incongruence Data Used to Predict Organizational Commitment and Identification.

Criterion and predictors		*Total Sample*	*Subsample A*[a]	*Subsample B*
Criterion :	Commitment			
Predictors :	*Attainment* tada based on : reward, standards, warmth, structure, and conflict	.73	.73	.75
	Incongruence data based on : reward and structure	.66	.65	.66
Criterion :	Identification			
Predictors :	*Attainement* data based on : reward, warmth, structure and standards	.76	.76	.76
	Incongruence data based on : reward and warmth	.67	.66	.64

Note All multiple correlation coefficients are significant well beyond the .001 level.
[a] The regression equation developed from subsample A was cross-validated by applying it to subsample B.

As shown in Table 2, the reduced separate regression equations for predicting commitment and identification from attainment data yield multiple correlation coefficients (R = .73 and .76, $p < .001$) as high as the full equations. In the reduced equations shown below, the decimal figure preceding each climate variable is the *beta* weight attached to that climate variable which, in combination with the others, will best predict commitment or identification.

Commitment = .36 Reward + .20 Standards + .20 Warmth + .10 Structure + .10 Conflict

Identification = .35 Reward + .30 Warmth + .19 Standards + .13 Structure

Thus, commitment is best predicted by a combination of Reward, Standards, Warmth, Structure, and Conflict. Identification is best predicted in terms of Reward, Warmth, Standards, and Structure.

The next step in the analysis consisted of randomly dividing the total sample into two subsamples (sample A with 179 subjects and sample B with 180 subjects). Climate attainment data from sample A were then used to predict commitment and identification using the independent variables shown in the equations presented above. As indicated in Table 2, this procedure produced R values of .73 and .76. The partial regression weights from the regression equations of Sample A were then used with attainment data from Sample B to predict commitment and identification for Sample B. This crossvalidation procedure increased the multiple R for predicting commitment to .75, while the R for predicting identification remained as .76.

The approach described above was repeated with the predictors based on climate *incongruence* scores. As shown in Table 2, the use of incongruence scores yielded a lower R in each case, with the largest reduction indicated from R = .76 to R = .64 for Sample B. However, all R value based on incongruence are still strongly significant ($p < .001$), and required only two climate dimensions for the prediction of commitment or identification. The regression equation for predicting commitment and identification for the total sample yielded values of R = .66 and R = .67 ($p < .001$), respectively.

Regression results based on Should Be scores (not shown in Table 2) with respect to commitment were R = .50 for the total sample, R = .53 for Sample A, and R = .57 for the cross-validation. When identifi-

cation was predicted, the analysis yielded multiple correlation coefficients of R = .50 for the total sample, R = .55 for Sample A, and R < .45 for Sample B. These coefficients are quite lower than those shown in Table 2.

DISCUSSION

This investigation was designed to explore organizational commitment and identification as a function of organizational climate. The study was undertaken in response to the lack of information available regarding the impact of climate on variables other than job satisfaction, team effectiveness, and need for achievement. Thus, the relationship considered here is one that has not been dealt with systematically in the literature.

The results demonstrated quite clearly a strong relationship between organizational climate and the dependent variables of commitment and identification. For each multiple regression equation considered in Table 2, the resulting multiple correlation coefficient was significant well beyond the .001 level and accounted for a significant portion of the variance of the dependent variable. With the exception of the regression analyses based on Should Be scores, the lowest R of this study (R = .64), obtained when identification was predicted for Sample B from incongruence scores, was higher than the multiple correlation coefficients determined by other studies [17] when predicting commitment from lenght and type of education, type of organizational unit, and length of employment. Moreover, the lowest R obtained when predicting commitment (R = .66) is higher than the R = .53 reported by another study in which commitment was predicted from discrepancy scores based on perceived incongruence with respect to work-related values [18].

For each case considered in the present study, the Is Now scores proved to be better predictors than the discrepancy scores based on the Should Be — Is Now formulation. This trend is also reflected in the simple correlations shown in Table 1, and is not unlike that uncovered in job satisfaction studies. For example, in their recent review of nine different operational measures of job satisfaction, Wanous & Lawler [19]

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[17] See, for example, MILLER and WAGER, *op. cit.*, who reported R = 38; and FRIEDLANDER and MARGULIES, *op. cit.*, who obtained values of R = 73, .54 and .63 when using climate scores to predict satisfaction with interpersonal relationships, satisfaction with task-involved self-realization, and satisfaction with recognizable signs of advancement, respectively.

[18] BARTH, *op. cit.*

[19] WANOUS and LAWLER, *op. cit.*, p. 98.

found that correlations between the nine measures considered in their study and two measures of overall job satisfaction ranged from −.24 to .92, with −.24 being the correlation between Should Be — Is Now and a single item measuring overall satisfaction. Facet satisfaction based on Is Now had a considerably higher correlation of .61 with the same single item. The other overall direct measure, based on the mean of 23 job facet satisfaction measures, correlated second highest with the Is Now measure ($r = .82$) and least with the Should Be — Is Now combination ($r = -.34$). These differences in correlations are, in general, much higher than those indicated in Table 1 for the two combinations of attainment and incongruence scores.

Results based on the Should Be scores, which were examined on a purely exploratory basis, revealed that this approach was significantly less useful in the prediction of commitment and identification. It should be noted that a formulation based on *only* Should Be scores has not been considered in job satisfaction studies, but was included here as it may provide some insights when one is interested in an operational definition of climate attraction rather than satisfaction.

There is home additional empirical evidence which indicates it may be fruitful to explore various other operational definitions of climate satisfaction in future studies. Barth [20] reported that an operational definition of *intergroup* climate satisfaction based on the multiplicative combination of Urgency X (Should Be — Is Now) was not as good a predictor of intergroup communication problems as the Is Now measure. Although the concept of urgency [21] is somewhat different from that of importance, this finding appears to be congruent with the view that facet satisfaction ratings reflect importance and that, therefore, multiplying facet satisfaction by importance (or urgency) will in general not increase the predictive ability of facet satisfaction measures.

It also appears useful to make a distinction between climate satisfaction and climate attraction. Both Vroom and Graen have pointed out that, strictly speaking, satisfaction applies only to outcomes already being

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20 R. T. BARTH, « A Comparison of Weighted and Unweighted Intergroup Climate Satisfaction Scores », *Relations industrielles/Industrial Relations,* Vol. 28, 1973.

21 As urgency connotes « immediacy of time », the issue of using urgency is somewhat similar to that of using importance. However, if one assumes that urgency ratings reflect importance, it may be useful in future studies to examine also the relative usefulness of urgency when weighting job satisfaction items.

experienced by individuals [22]. While Vroom suggests the term valence be used to describe an affective orientation toward anticipated outcomes, Graen prefers to use the term attraction, defined as the anticipated satisfaction for an outcome. Wanous & Lawler considered this distinction in terms of « hedonism of the past » (satisfaction already being experienced) and « hedonism of the future » (*anticipated* satisfaction, or attraction). [23]. The distinction between climate attraction and climate satisfaction may have important implications for the prediction of several of the individual and organizational outcome variables (e.g. satisfaction ; turnover ; productivity) which form an integral part of Litwin & Stringer's [24] climate model. Future research is needed to clear up the question of whether various climate satisfaction measures or a climate attraction approach provide better predictors.

There are several ways climate attraction could be measured. The first of these is similar to the operational definition of job attraction suggested by Wanous & Lawler [25], and involves a measure of Should Be — Expect instead of Should Be — Is Now. Applied to climate attraction, the discrepancies between the Should Be and *Expect* responses would be summed across climate facets to yield a measure of climate attraction as follows :

$$CA = \sum_{\text{facets}} (\text{Should Be} - \text{Expect}) \qquad [1]$$

A second formulation, not heretofore treated in the job satisfaction or organizational climate literature, is based on perceived discrepancies between Would Like and Expect. It is important here to distinguish first between the Would Like and Should Like. While the Should Be is part of a general equity comparison the individual makes, the Would like refers more to the individual's particular desires with regard to climate, and may be quite different from the Should Be. Using Would Like and Expect, the second suggested approach to climate attraction can be formulated as :

$$CA = \sum_{\text{facets}} (\text{Would Like} - \text{Expect}) \qquad [2]$$

22 V. H. VROOM, *Work and Motivation,* New York, Wiley, 1964 ; and G. GRAEN, « Instrumentality Theory and Work Motivation : Some Experimental Results and Suggested Modifications », *Journal of Applied Psychology,* Vol. 53, 1969, (2, Pt. 2).

23 WANOUS and LAWLER, *op. cit.,* p. 104.

24 LITWIN and STRINGER, *op. cit.,* p. 41.

25 WANOUS and LAWLER, *op. cit.,* p. 104.

In conclusion, it must be noted that throughout the study reported here the inferred causality has been in the direction of organizational climate affecting commitment and identification. Empirical validation of this general chain of influences must properly be left to another, preferably longitudinal, study. It is quite possible, for example, that the individual's commitment or identification with the organization are to some degree determinants of his climate perception. However, based on the climate model developed by Litwin & Stringer [26] and the findings of this study it is reasonable to make the assumption that climate influences commitment and identification far more it is influenced by these two variables.

L'engagement et l'identification à l'organisation de la part de l'ingénieur et le climat organisationel

INTRODUCTION

Cet article a pour objet d'étudier les répercussions du climat du milieu de travail sur le degré d'engagement et d'identification des ingénieurs avec les organisations qui les emploient. Les données étudiées dans cette enquête furent recueillies auprès de 359 ingénieurs professionnels en tenant compte de huit facteurs dimensionnels ainsi que des variables se rapportant à l'engagement et à l'identification. On a choisi les facteurs suivants: la structure, c'est-à-dire l'impression que les employés ressentent à l'intérieur du groupe, etc. ; la responsabilité, c'est-à-dire le sentiment qu'ils ont d'être leurs propres maîtres, de n'avoir pas à faire superviser toutes leurs décisions ; la récompense, c'est-à-dire l'impression d'être appréciés pour l'ouvrage bien fait, une rémunération équivalente à leurs efforts ; le risque, c'est-à-dire la possibilité de pouvoir prendre certaines initiatives ; la cordialité, c'est-à-dire l'impression de vivre dans une atmosphère respirable sur le plan social, d'être considérés ; l'entr'aide, c'est-à-dire le sentiment d'obtenir des employeurs et des camarades l'appui dont ils ont besoin si nécessaire ; la qualité, c'est-à-dire l'impression d'accomplir une tâche utile et, enfin, la controverse, le sentiment qu'employeurs et compagnons sont disposés à écouter des avis divergents et qu'ils sont prêts à discuter ouvertement les questions.

HYPOTHÈSES

On a posé, au point de départ les hypothèses suivantes : a) rapport positif ou favorable entre un climat de travail qui est satisfaisant et les variables d'engagement et d'identification ; b) rapport négatif ou défavorable entre un climat de travail mauvais et les deux mêmes variables ; c) explication du degré d'engagement et d'identification par la connaissance des variables du climat.

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[26] LITWIN and STRINGER, *op. cit.*, p. 41.

La mesure des variables

Vingt-quatre énoncés (trois pour chacun des facteurs du climat) de l'instrument mis au point par Litwin et Stringer furent utilisés pour évaluer les impressions du répondant devant le degré de satisfaction actuelle (la réalité) du climat et l'ambiance idéale qu'il souhaiterait trouver dans l'entreprise. Les différences entre l'idéal et la réalité, entre ce qui existe et ce qui devrait exister, ont servi à mesurer le degré d'insatisfaction.

On a mesuré le degré d'engagement envers l'organisation au moyen d'une version sommaire d'un questionnaire comprenant quinze énoncés mis au point par Porter. On a obtenu l'indice d'identification en faisant la somme de réponses comme celles-ci : « Nous sommes fiers de travailler pour cette entreprise » ; «Nous sentons que nous faisons partie d'une équipe » ; « Il y a beaucoup de loyauté personnelle à l'endroit de la compagnie ».

Résultats

Toutes les corrélations entre les deux variables dépendantes (engagement et identification) et l'insatisfaction ou la satisfaction à l'endroit du climat organisationnel furent significatifs (p. <c. 01 ; voir le premier tableau). Plusieurs combinaisons d'analyses de régression linéaire furent effectuées pour déterminer dans quelle mesure on pouvait percevoir l'engagement et l'identification par l'état du climat. Comme on peut le voir par le deuxième tableau, les équations de régression condensées, utilisant les scores de la satisfaction comme prédicteurs expliquent en bonne partie la différence dans les variables engagement et identification. (**R** = .73 et .76, p. <.001 respectivement). Les valeurs de **R** ne furent pas affectées de façon appréciable lorsque l'échantillon total fut subdivisé au hasard en deux sous-échantillons (l'échantillon **A** comprenant 179 sujets et l'échantillon **B** en comptant 180) est que les pondérations *bêta* tirés de l'échantillon **A** furent comparées avec les données de satisfaction tirées de l'échantillon **B** à des fins de contrôle. L'utilisation des scores du climat d'insatisfaction donna comme résultat un **R** plus faible dans chaque cas (voir le deuxième tableau), la plus forte réduction s'opérant de **R** = .76 à **R** = .64 pour l'échantillon **B**. Toutefois, toutes les valeurs **R** formées sur les scores d'insatisfaction restaient fort significatif (p. <.001). Les résultats ont démontré les liens de dépendance qui s'établissent entre l'engagement et l'identification et les composantes du climat psycho-sociologique de l'organisation. Nous concluons en suggérant deux définitions opérationnelles de l'attraction du climat qui pourraient être au cœur d'une recherche plus poussée à l'avenir.