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ORGANIZATION RESEARCH PROGRAM

Career Orientations and Perceptions of Rewarded Activity in a Research Organization

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May, 1964 #56-64

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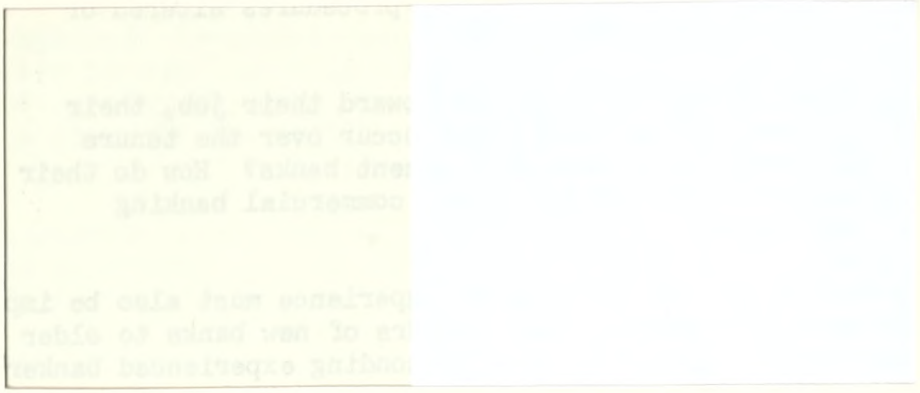

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ABSTRACT

Ninety-six open ended interviews were coded to measure career orientations of scientists and engineers in a formal research organization. Responses were categorized into two "career identification" dimensions (Institutional--Non-institutional; Technical--Managerial) and three "career style" dimensions (Active--Passive; Idealistic--Cynical; Task--Interpersonal). The responses were also categorized with respect to perceptions of "rewarded activity," or how one gets ahead, into four variables: Technical performance, Personality, Visibility, Organizational circumstances.

The low degree of correlation among the orientation dimensions supports the conclusion that a profile based on these five dimensions may be a more accurate and useful depiction of orientations than single dimensions. The data show no correlation between the Managerial orientation and the Institutional orientation, possibly a reflection of the increased "professionalization" of supervisory personnel. Correlations between career orientations and perceptions of rewarded activity tended to be low, suggesting that these are independent variables.

Introduction

Over the past two decades, an increasing amount of attention has been given to issues arising from the growing employment of professional personnel by formal organizations.* A number of variables have been proposed to describe the career attitudes, beliefs, and behavior of individuals whose background and training is technical and professional.

For example, Marvick (1954), in a study of a military research agency, distinguished three types of career orientation: 1) specialist, in which professional skill and accomplishment is given primacy; 2) institutionalist, in which the goals and gratifications are predominantly "place bound" to the work establishment; and 3) hybrid, in which loyalty is neither to a profession nor to an institution but where the emphasis is instead upon maneuvering among the opportunities for personal advancement and advantage. Gouldner (1957-58), studying an academic setting, proposed two latent organizational identities: 1) cosmopolitans, people with high commitment to specialized role skills and likely to use an outer reference group; and 2) locals, people with low commitment to specialized roles and likely to use an inner reference group.** Marcson (1960), in an industrial research laboratory, identified several types of career pathways: 1) continuing devotion to research and a scientific professional career; 2) becoming intrinsically interested in administration and attempting to steer one's career

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* For example, see: Reissman, 1949; Marvick, 1954; Pelz, 1956; Wilensky, 1956, pp.129-153; Gouldner, 1957-58; Bennis, et al, 1958; Caplow and McGhee, 1958; Marcson, 1960; Blau and Scott, 1962, pp.64-74; Kornhauser, 1962; and Glaser, 1963.

** For a summary and comparison of several career orientation typologies see Kornhauser, 1962, pp.119-123.

toward and up this ladder; 3) retaining basic loyalty to research but turning to administration, either because there appears to be a limited financial and status future in research, or because he cannot compete in research performance with his colleagues.

Running through this literature is the tendency to reduce the variety of career orientations to a minimum number of concepts like professional-institutional. Our informal experience in talking to managers in research organizations suggested that more complex categories were needed, hence we set out to do an interview study which would produce more extensive career data. In coding the interviews, we then attempted to define logically independent categories or variables for describing career orientations, with the aim of determining empirically the extent to which they would intercorrelate and thus be reducible to a smaller number of variables. Our general approach has been to think in terms of the long-run perspective, the career rather than the job, and the organizational rewards which pertain to long-run performance rather than short-run productivity and satisfaction.

Specifically, our study has three purposes:

1) Determine various attitudes which could be reasonably identified as "career orientations," in the sense of those perceptions, feelings, and beliefs pertaining to an individual's present, and future career.

2) Determine what kinds of perceptions of "rewarded activity" or perceptions of "how one gets ahead," were held by the personnel of a research organization. Our purpose here was to develop some variables which could be used in future studies to measure the climate or culture of an organization with respect to the handling of its human resources.

3) Determine what relationships, if any, existed among career orientations and perceptions of rewarded activity.

We chose as the locale of the study a "research and development organization", by which we mean an organization whose primary mission is to produce scientific and technical products, and to advance technical knowledge and competence. The study was carried out in two of the field centers of the National Aeronautics and Space Administration (NASA).

The fact that NASA is a government organization with a very special and high prestige mission should influence the variables we have proposed for study. For example, civil service regulations apply in the hiring, advancement, and pay scales of NASA personnel. The organization does not have a success criterion of profitability comparable to private enterprise and cannot generate its own sense of stability. If the government decides to abandon work on problems of outer space, it is likely that NASA would cease to exist in its present form. On the other hand, the NASA mission probably enjoys a high prestige among engineers and scientists because of the nature of its basic contribution to the national and over-all scientific effort. These factors may influence career orientations and perceptions of how one gets ahead, and should caution us about generalizations to other types of organizations.

Method*

In keeping with the exploratory nature of the study, we had to gather more complete data than a questionnaire would ordinarily allow--data which would most accurately reflect the thoughts of the respondents. Therefore, we chose to hold standardized but open-ended interviews with a representative sample of managers, engineers, and scientists in two NASA field centers,

* We would like to acknowledge the assistance of Dominique Bouchard in the planning and interviewing stages of the study.

Langley and Lewis. Ninety-eight interviews were conducted, with ninety-six usable protocols obtained. The interviewees ranged in age from 22 to 55 with a median of 37 years; their service varied from 6 months to 30 years with a median of 10 years. The G.S. levels of the interviewees ranged from GS-7 through GS-15 and "Excepted." In terms of position held, the sample breakdown was approximately 60% professional non-supervisory; 20% Section Heads; 15 % Branch Heads; and 5% Division Chiefs. In terms of function, the proportion of Research to Development personnel in the sample was about 4 to 1.

Interviews ranged in length from 1 to 2½ hours and covered such topics as: why and how the person had come to work for NASA; a description of his present job; his network of work relationships particularly in relation to obtaining information, recognition, and influence; the role stresses he experienced and the coping patterns he used to deal with them; his perception of his future in the organization and the barriers or aids to advancement which seemed to be present; his long-run career aspirations; and his perception of how one gets ahead in the organization.

While the interviewers had general categories in mind of what sorts of variables might later be coded, there was no attempt to pre-code any of the answers or to limit the interview topics in any manner. We chose to risk obtaining lower reliabilities in the later coding process in order to permit interviewees to respond using constructs that were both personally meaningful and organizationally relevant. Responses were recorded by hand on the interview schedules, as much as possible verbatim.

After the interviewing had been completed, we constructed a set of variables which would categorize the various themes appearing in the responses. These covered the two basic categories in which we were interested--<u>career</u>

orientations and perceptions of rewarded activity. Criteria were developed for obtaining a total interview score on each variable for each respondent. We found that an interview score was necessary because no single question carried enough of the information about a particular variable to permit straight coding of questions.

All of the major career variables were assessed by having the rater go through an entire interview and rate the response to each question in terms of the relevant variables. These ratings were then combined to obtain a single summary score on the interview for each variable. To insure adequate reliability and minimize bias, we initially had two raters independently assess several entire interviews following their preliminary discussion of the variables and how to infer them. All instances of poor agreement were discussed until the raters felt confident that a correct interpretation of the variables and accurate ratings had been achieved, following which, one person (W. McKelvey) rated all of the interviews. After all the rating had been completed, 10% of the interviews were again assessed by 2 independent raters, with a 68% degree of single-question rating reproducibility with the primary rater.*

Pearson product-moment correlations were obtained among the variables. Our choice of a parametric statistic was based on the assumptions that the response scores on the variables approached normal distribution and that the use of one rater to code all the interviews resulted in an approximation to a metric scale.

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* This criterion is more stringent than reproducibility of the combined ratings for each interview since much of the error variance cancels out when a number of questions are combined into a single summated score. Hence the actual scoring reliability is somewhat greater than 68%.

Variables Analyzed

I. Demographic and Objective Variables

1. NASA Field Center
2. Age of respondent
3. Position title
4. Type of job function (basic, applied research development)
5. Rank (G.S. level) of respondent
6. Level of education
7. Type of degree obtained (science, engineering, liberal arts)
8. Years in NASA
9. Years in present position
10. Years at present rank
11. No. of other employers prior to NASA
12. Was respondent a Co-op student or not

II. Career Orientation Variables

A. Career Identification

1. Institutional--Non-institutional: pertains to the locus of identification of the individual. The Institutionalist identifies with the organization and its goals, uses the organization as his principal career frame of reference, implies that he will remain in the organization. The Non-institutionalist does not identify with the organization and its goals, does not see his career in terms of the organization, and is willing to leave the organization.

2. Technical--Managerial: pertains to the functional skill area with which the individual identifies. In the Technical orientation the person finds his interests, pleasures, and aspirations in technical problem solution and technical performance. In the Managerial orientation the person finds his interests, pleasures, and aspirations in skills and activities normally associated with management.

Note that the definition of these orientation variables implies that they are in principle independent of each other.

B. Career Styles

1. Movement--Non-movement: pertains to the style which shows anticipation of and desire for career change, whether this be promotion, transfer, or simply the acquisition of more responsibility or influence, either within the organization or elsewhere.

2. Active--Passive: pertains to the exertion of influence on, or manipulation of, the surrounding environment. The Active style involves taking initiative toward getting ahead and career movement and making one's own fate. The Passive style implies that one should not or need not engage the environment but rather let things take care of themselves, partly because one cannot influence the environment anyway.

3. Task--Interpersonal: pertains to the style or manner of activity an individual emphasizes as being necessary to accomplish his career goals. The Task or instrumental style emphasizes doing the job, pushing the task, and keeping strictly to business. The Interpersonally oriented style emphasizes the mastery of interpersonal relations, skill in getting things done through people, concern for and interest in the social and human aspects of the job.

4. Idealistic-Cynical: pertains to the degree to which the individual views his environment in terms of its "ethical rightness" or "justness." The Idealistic style perceives rewards as being commensurate with merit and that things are as they should be. The Cynical style perceives absence or violation of principles of ethical rightness or justness, that one must take an expedient view of the organization in order to get ahead.

It should be noted that the six career orientation variables are divided into two different classes. The first two dimensions, labelled "career

identifications," involve the respondent's identification with a reference group or set of functional skills. The last four dimensions, labelled "career styles" involve the respondent's general stylistic approach towards his career. This kind of variable has not been recognized in the literature thus far. Taken together, we felt that our list of career orientation variables provided a somewhat more differentiated and complete picture of the attitudinal structure of the respondents than found in prior studies.

C. Rewarded Activity Variables (perceptions of what it takes to get ahead within the organization)

1. Technical competence and performance: one gets ahead by being technically competent, being knowledgeable in relevant areas of technology, by hard work, doing a good job, etc.

2. Personality: one gets ahead by having the "right" qualities or personal attributes such as tact, ability to handle people, showing initiative, being mildly aggressive and independent, etc.

3. Visibility and getting recognition: one gets ahead by becoming visible in the organization or the profession and by obtaining recognition. Examples here are making yourself visible to the higher officials, publishing often, building up the right image, playing politics, etc.

4. Organizational circumstances: one gets ahead by being in the right place at the right time, being on a hot project, through reorganization, empire building, being sponsored by someone powerful (following in the footsteps of a rising star), by luck or fate, etc.

On the rewarded activity variables, we found that respondents often listed several of them as being equally important, and did not seem to construe them to have mutually exclusive properties.

There are certain similarities between the two career identification dimensions found here and concepts which have been used in prior studies. Because the two dimensions of Institutional--Non-institutional and Technical--Managerial were defined so as to be independent of each other in principle, this permitted us to verify empirically whether the two dimensions are actually correlated highly with each other, an association which is assumed in those studies which combine these two variables into "professional" (our Technical plus Non-institutional) versus "organizational" (our Managerial plus Institutional).

RESULTS

Our results will be presented in terms of the major purposes of the study. The first set of results (Table 1) simply indicates the distribution of responses to each of the career orientation and rewarded activity variables to give the reader an idea of the range of responses. It is difficult to interpret the meaning of these responses within a single organization because of the absence of a meaningful neutral point for each of the dimensions. The results therefore should be taken only as illustrative of the possibilities in using these variables in studying an organization.

The second set of results (Table 2) shows the inter-correlations among the career orientation variables. Are the dimensions for which we developed codes actually independent of each other or not? If not, which ones correlate with each other, and what patterns of correlation are evident?

The third set of results (Table 3) shows the inter-correlations among the rewarded activity variables. Do respondents who see visibility important in getting ahead also tend to see personality as important, and the like?

The fourth set of results (Table 4) shows the correlations between career orientation variables and rewarded activity variables. Are there systematic relationships between a person's attitude about his own career and how he perceives one must behave to get ahead within NASA?

1. Distribution of responses on major variables

TABLE I

DISTRIBUTION OF MEAN RESPONSE SCORES ON MAJOR CAREER VARIABLES*

Scale Categories Career Orientation Variables	1	2	3	4	5	6	7	8	9	N
Institutional--Non-institutional			2	5	22	34	29	4		96
Technical--Managerial		2	33	27	19	9	5	1		96
Movement--Non-movement		2	24	36	21	9	4			96
Active--Passive		4	29	41	17	4	1			96
Task--Interpersonal			14	52	17	8	4	1		96
Idealistic--Cynical			21	47	15	3				96

Scale Categories Perception of Rewarded Activity Variables**	HIGH 1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	LOW 5.0	N
Technical Competence and Performance			2	4	9	12	37	19	13	96
Personality				2	4	2	14	33	38	96
Visibility and recognition-getting					1	5	22	25	26	96
Organizational Circumstances					5	12	45	21	12	96

* The reader should note that although the numbers presented in this table have been rounded off, the figures used in the correlation computations were kept to four place accuracy.

** The rewarded activity variables were scored only on a scale of 1 to 5, hence no responses should be expected in categories 6 to 9.

As can be seen from this table, most of the variables were reasonably widely distributed, but on all of them there was a definite tendency for most respondents to fall toward one or the other end of the scale.

In this population of responses and by our coding criteria, therefore, most of the respondents were Non-institutionally oriented, Technically oriented, interested in Movement, Active, Task-oriented and Idealistic. If these findings accurately reflect the respondent's orientations (i.e., if we can assume that a scale score of 5 is the correct estimate of a neutral point on the scales), we can infer that the NASA employee sees himself as a dynamic, cosmopolitan, professionally oriented kind of individual, vigorously pursuing a technical career.

In comparing the relative importance attached to the rewarded activity variables, we find that Technical competence and performance ranks first, Organizational circumstances ranks second, Personality ranks third, while obtaining Visibility and recognition ranks fourth in importance for getting ahead. Respondents state, in other words, that to get ahead in NASA, it is necessary to be competent and to perform, and to be lucky or in the right place at the right time. Having the right personality and making yourself visible is relatively less important for advancement.

2. Inter-correlations among career orientations

Table 2 shows the product-moment inter-correlations among the six career orientation variables. It should be remembered that these variables were initially chosen to encompass the range of responses observed in the interviews. The correlations among them can now be used to determine the utility of keeping all six variables.

The results indicate that the separation of Institutional--Non-institutional from Technical-Managerial was justified. These dimensions do not correlate with each other. The managerially oriented individual can be non-institutional, and the technical individual can be institutional.

A strong association occurs between the Movement--non-movement and the Activity-passivity dimensions. The high correlation here strongly suggests that there is a single underlying dimension which concerns both a tendency to want to move and the person's beliefs about how one must go about moving. The individual who is movement oriented also believes one must be an active agent in making one's own fate.

The Institutional orientation does correlate with Non-movement tendency and Passive style, but not with the Idealism-Cynicism or Task-Interpersonal dimensions. The Technical orientation is correlated with the Task style, as might be expected but also with Non-movement and Passivity, suggesting a kind of syndrome of the man identified with technical skills being indifferent to interpersonal considerations and career movement. Rather, he is satisfied to pursue his work wherever he will be permitted to do so. Inversely, the Managerial orientation is correlated with Movement, Activity and Interpersonal styles, suggesting a syndrome of concern with active career change within an interpersonal framework.

We can summarize by suggesting that, with the exception of the Movement and Activity dimensions, no evidence was revealed in the inter-correlations which would argue for dropping any of the variables identified.

TABLE 2

INTER-CORRELATIONS AMONG CAREER ORIENTATION VARIABLES
(only the first half of the dimension label is retained here)

	Institutional	Technical	Movement	Active	Idealistic	Interpersonal
Institutional	---	-.04	-.40**	-.38**	.09	-.07
Technical		---	-.32**	-.28*	-.04	-.28*
Movement			---	.73**	-.05	.23*
Active				---	-.02	-.09
Idealistic					---	.02
Interpersonal						---

* Significant at the .05 level
** Significant at the .01 level
All significance levels reported are based on a two-tailed test.

TABLE 3

INTER-CORRELATIONS AMONG REWARDED ACTIVITY VARIABLES

	Technical competence performance	Personality	Visibility, Recognition	Organizational circumstances
Technical competence and performance	---	-.09	-.21	-.29**
Personality		----	.04	-.34**
Visibility, recognition			----	.13
Organizational circumstances				----

** Significant at the .01 level

3. Inter-correlations among rewarded activity variables

Table 3 shows the inter-correlations among the factors perceived by the respondents to be important for getting ahead within NASA. The only one of the factors which is correlated significantly with others is Organizational

circumstances. The implication is that individuals who see either Technical competence or Personality emphasized in the organization as ways of getting ahead do not see Organizational circumstances as being important, and vice versa.

4. Correlations between career orientation variables and perceptions of rewarded activity.

Is there a tendency for respondents who have a certain orientation toward their career to show systematic trends in how they perceive the organizational reward structure and how one gets ahead?

The results are shown in Table 4. Institutional orientation is negatively correlated with Visibility, indicating that it was the Non-institutional respondents who tend to emphasize getting Visibility and recognition as being rewarded and as the way one gets ahead.

The Movement orientation style is related to both Technical competence and Visibility, indicating that the respondents who anticipated career movement tended to see both Technical competence and Visibility as the relevant aspects in getting ahead. The Active orientation style shows a similar pattern as would be expected.

Finally, the Idealistic style is related to Technical performance, Personality (not quite significant), Visibility, and Organizational circumstances. Respondents who were Idealistic in style tended to perceive the reward structure as favoring Technical performance and to a lesser extent, Personality. Alternatively, those characterized by a Cynical style saw Organizational circumstances as the prime way of getting ahead, with Visibility next in impor-

tance. It is likely that this row of correlations is influenced by a coding overlap because the Idealism-Cynicism score was based on all responses including how the person perceived the organizational reward structure.

TABLE 4

CORRELATIONS BETWEEN CAREER ORIENTATIONS AND PERCEPTIONS OF REWARDED ACTIVITY

	Technical competence, performance	Personality	Visibility, recognition	Organizational circumstances
Institutional--non-institutional	-.02	-.10	-.33**	-.08
Technical-managerial	-.12	.02	-.04	.05
Movement--non-movement	.22*	.03	.27*	.08
Active-passive	.30**	-.06	.18	.05
Idealistic-cynical	.28*	.21	-.30**	-.60**
Task-interpersonal	-.13	-.09	-.15	.08

* Significant at .05 level
** Significant at .01 level

5. Correlations between objective variables, career variables, and reward variables.

The objective variables listed on p.7 were also correlated with career orientation and rewarded activity variables. The major purpose was to obtain clues concerning the validity of the coded variables by checking whether the correlations with objective variables fell into sensible patterns or not. We did not attempt to use these data to draw inferences about the distribution of career orientations because of the relatively small sample size in our survey.

All those correlations which reached the .05 level of significance are discussed below.*

Not too surprisingly, number of years in one's present position correlated with being Institutionally oriented (.26), while level of education correlated with being Non-institutionally oriented (.33).

The Technical-Managerial orientation correlated with type of job function (.42)--the Technical orientation was found more often in a basic research job and the Managerial orientation was more prevalent in development functions. This finding tends to substantiate the commonly accepted belief that men in development jobs hold a set of attitudes (probably as a result of various processes of selection and the impact of role-taking) which are different from those of people in basic research, and that development personnel hold attitudes which are more congruent with the management role.

Both of the above findings are in the direction one would predict and serve to increase the plausibility and validity of the two career identification dimensions.

Considering now the Movement dimension, we found that the Non-movement style or complacency was associated with increasing age (.23), length of service within NASA (.26), number of years in present position (.40), and number of years at the present G.S. level (.38). The Passive style was also correlated with increasing number of years in present position (.36) and with present G.S. level (.31).

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* The complete inter-correlation matrix is available from the senior author upon request.

Idealism showed a positive correlation with age (.31), type of position (toward supervisory positions--.32) and present G.S. level (.24). The older and higher ranking the person was the more likely he was to be idealistic.

With respect to the perceived reward structure, the emphasis on Technical performance as a way to get ahead was correlated with type of job function, from basic research to developmental activities, (.27), the type of college degree, science or engineering, (.30), and G.S. level (.28). Those respondents emphasizing Technical performance shared the attributes of having an engineering rather than a science degree, being found in development rather than basic research jobs, and being located at the higher G.S. levels.

The emphasis on Organization circumstances was negatively related to age (-.25), G.S. level (-.24), and number of years at present G.S. level (-.27). It is the "junior" member of the organization who is most likely to be pessimistic or fatalistic about his possibilities of advancement, a view probably stemming from a feeling of having little influence or control over ways of getting ahead.

The correlations reported above are generally in the direction one might expect and thus serve to substantiate the validity of our coding of the career and reward variables. We are not arguing from these data that validity has been <u>firmly</u> established--this was not our purpose. Rather, we wished to indicate that the career and reward variables do relate meaningfully to objective organizational indexes.

CONCLUSIONS

Several conclusions and implications for further research have emerged from this study which have significance for the developing body of knowledge about the scientific professional in a research organization. We found that interview data on "career orientations" could be reliably and independently coded on both identification and stylistic dimensions. The generally low intercorrelations among five of the six orientation dimensions support our primary conclusion, that it is important to recognize the complexity of the career orientation concept when applied to scientists, engineers, or other professional personnel. Previous research has tended to focus almost exclusively on an individual's latent identification patterns, neglecting the importance of what we have termed the career style dimensions.

This conclusion implies that a research manager or consultant attempting to apply our knowledge concerning the orientations, values, and needs of professional personnel for the purpose of providing an organizational climate more compatible with their career aspirations, should recognize that a categorization such as "professional-technical" or "managerial-institutional" is a conceptualization which does not adequately incorporate differences in an individual's style of career activity. More consideration should be given to the possibility that an individual's style may reflect his perception of whatever activity is rewarded by the organization, and that his latent identification may be a reflection of the organizational reward structure.

Furthermore, it is important to recognize that the nature of these career values--identifications and styles--may change considerably with time as the individual moves through an organization and encounters an increasing variety of work experiences.

Associated with the recognition of the increased complexity of the career orientation concept is our finding that the Technical-Managerial dimension is not correlated with Institutional--Non-institutional (professional) identification. This result is substantially different from some studies which have found that being identified with a technical area is associated with a non-institutional or professional orientation.* Unfortunately it was not within the scope of this study to provide an explanation for this inconsistency. However, we can, by way of conclusion, suggest some possible explanations.

One possibility is related to the observation that in general the managerial role is itself becoming increasingly professionalized, which would suggest that a managerial orientation does not necessarily go with an institutional one. There appears to be an ever larger group of managers who are not loyal to any particular organization and who are non-institutionally oriented. By the same token, an association between technical orientation and institutional loyalty can also exist and may be explained, as Blau and Scott (1962) point out, by an organizational reward system which reinforces technical contribution and the values associated with commitment to professional skills. Thus an individual may simply see the technical side of his career as being a stepping stone to a high management position in the future, a combination of attitudes which is quite consistent with the increasing emphasis on a technical education as a prerequisite for managerial success.

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* See, Blau and Scott, (1962), pp.64-74, for a review of these findings. See also, Bennis, et. al., (1958).

A final conclusion concerns the correlations between career orientations and objective variables such as age, rank, and length of service. The fact tha those correlations which emerged fall into sensible patterns, suggest that a study of a particular organization's utilization of its resources could be profitably pursued through a systematic sampling of career orientations in the different functional groups, ranks, age, and length of service groups. It would be of considerable importance to know, for example, when certain stylistic dimensions show a change--from movement to complacency, from cynicism to idealism, from task-orientation to interpersonal orientation. Data such as these alongside perceptions of reward structure, evidence of actual reward structure (based on study of cases or data obtained from key managers), and ratings of productivity, effectiveness, and satisfaction should provide a more differentiated picture of the relationship between the professional and the organization than we ordinarily have available.

REFERENCES

Bennis, W.G., Berkowitz, N., Affinito, M., & Malone, M. "Reference groups and loyalties in the out-patient department," Administrative Science Quarterly, 1958, 2, 481-500.

Blau, P.M. & Scott, W.R. Formal organizations, San Francisco: Chandler, 1962.

Caplow, T. & McGhee, R.J. The academic marketplace. New York: Basic Books.

Glaser, B.G. "The local-cosmopolitan scientist," American Journal of Sociology, 1963, LXIX, 249-259.

Gouldner, A.W. "Cosmopolitans and locals: Toward an analysis of latent social roles--I, II." Administrative Science Quarterly, 1957-58, 2, 281-306.

Kornhauser, W. Scientists in industry, Berkeley and Los Angeles: University of California Press, 1962.

Marcson, S. The scientist in American industry. Princeton: Princeton University (Department of Economics Publication), 1960.

Marvick, D. Career perspectives in a bureaucratic setting. Michigan Governmental Studies, No.27, Ann Arbor: Bureau of Government, Institute of Public Administration, University of Michigan, 1954.

Pelz, D.C. "Some social factors related to performance in a research organization." Administrative Science Quarterly, 1956, I, 310-325.

Reissman, L. "A study of role conceptions in bureaucracy," Social Forces, 1949, XXVII, 305-310.

Wilensky, H.L. Intellectuals in labor unions. Glencoe, Ill.: Free Press, 1956.