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A NEW LOOK AT PERFORMANCE APPRAISAL FOR SCIENTISTS AND ENGINEERS

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"Regenerating Performance Appraisal for Scientists and Engineers"

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OVERVIEW

The performance appraisal as usually carried out by an organization's management is often incompatible with the needs of the technical staff. Nevertheless, it serves the organizational requirement for evaluation, albeit sometimes poorly. For most professionals, however, it probably does their development more harm than good. The authors propose two appraisals, a Management Performance Appraisal, and a Professional Development Appraisal. The management performance appraisal can be utilized as a management tool conducted for traditional purposes. The professional development appraisal would be a collateral process, separated from the conventional appraisal, but used to enhance professional growth and facilitate the intergenerational transfer of professional culture. Its two main characteristics would be mastery of one's technical proficiency and development of one's inner-directed character. The professional development appraisal would be carried out typically by professional mentors rather than by management.

INTRODUCTION

Performance appraisal is undoubtedly one of the most critical, sensitive, and controversial practices in the career of a technical professional. It is critical in the sense that it is the one regular opportunity where professionals get formal feedback on the worth of their contributions. It is also sensitive and controversial because if handled poorly, it can have devastating effects upon the individual professional's self-esteem and can create a demoralizing atmosphere in the appraisee's place of work.

It is our view that in order to regenerate performance appraisal, guidelines for professional practices should incorporate recommendations for its conduct as a professional process. Such recommendations need to consider the impact it has on professional careers and the criteria and agents responsible for its implementation.

MANAGEMENT PERFORMANCE APPRAISAL

Most studies of and guidelines for performance appraisal approach the issue from the standpoint and best interests of the employing organization. We shall use the terms, "management performance appraisal" (or MPA), to designate the process of evaluating the scientist's or engineer's performance in terms of the organization's needs, providing feedback to the employee to correct or reinforce behavior on the basis of that performance, and allocating corporate rewards - salaries, promotions, job assignments - accordingly.

The wisdom of using the performance appraisal for this purpose is questionable and the subject of much criticism; however, there is no denying management's right, within reasonable moral constraints, to use performance appraisal as a tool to achieve it. Nevertheless, MPA systems seldom get good grades. Schainblatt notes, for examples, that:

"...there are no currently used systems for measuring the productivity of scientific and engineering groups without substantial flaws. Nor does the literature on productivity measurement offer encouragement that suitable systems will soon be available."¹

But whether MPA turns out to be good, poor, or worse, it seems preferable to some available alternatives such as strict seniority, educational credentials, networks, personal friendship, nepotism, or payoffs.² Despite the pessimistic evaluation of Schainblatt and many other students of the MPA, in all fairness, some kind of standardized process needs to be employed. To be judged on merit, as most MPAs profess to do, is a widespread professional belief. Thus, most scientists and engineers have been encouraged and want to believe that it should be possible, though difficult, to develop valid measures and standards of performance for their work. And most technical professionals also believe it to be fair

that the best performers, and not those who are merely politically keen, be the most rewarded and acclaimed.

It is unfortunate that this deeply ingrained belief is held despite the rather uninspiring results produced from the innumerable MPA's tested and tried over the years. The problem is exacerbated in research environments where tasks are so complex and uncertain that it becomes virtually impossible to use objective criteria to measure professional performance. Traits, such as analytic ability, communication, attitude, judgment, etc., - used in common appraisal rating scales - do little to capture the complexity of research work. Output measures, such as revenues generated, patents, or papers published, although nice to have on one's record, also seldom pinpoint individual contributions. Even management-by-objectives (MBO), which focuses more on behavior than on output and is mutually developed by professional and supervisor, can become overly restrictive.

In research laboratories there is the added dimension of intensive interaction between the technical staff and clients both inside and outside the organization. The objectives of these clients may not be commensurate with those of the host organization, yet their contribution to the organization's growth and development can be critical. There is the further problem that the appraiser may be technically or physically displaced from the professional environment. Research managers frequently find their scientific knowledge becoming dated as they are required to move among projects and diverse technical sites. When they actually observe their technical staffs, they are just as likely to see the exception rather than the rule. Further, their judgments are likely to be based on a few scattered incidents or on outcomes and behaviors which mirror their own way of thinking.

But perhaps the main problem with MPA in evaluating R&D professionals is the absurdity of trying to agree on objective task criteria. As the French playwright, Ionesco, once said, "objectivity is merely agreement on subjectivity." Hence, "objective" performance appraisal can only occur when observers agree on the subjective value or significance of certain job dimensions.³ In most technical work, however, there is little agreement on the standards of work since, by definition, "excellent" professional performance tends to occur at the outer boundary of practice. Good professionals, like the test pilots in "The Right Stuff," push the envelope of their discipline. There is a constant attempt to re-create the standards. Hence, professional evaluation requires subjectivity. This suggests placing as much attention on who is doing the evaluation as on what is being measured.

We have no suitable management tool to replace the MPA, so its existence will be accepted. We

can report that some progressive companies, however, such as Procter & Gamble, Zytec, Eastman Chemical, and Cadillac G.M., have significantly altered their MPAs through such devices as peer and subordinate evaluations, pass-fail approaches, managerial mentoring, and "maturity curve" compensation, all designed to increase a company's quality management through teamwork principles.⁴ We would like to propose an altogether separate vehicle designed to reinforce the commitment and involvement of professional employees in wider professional affairs that in the long run would also benefit the employer. It is a second PA, called professional development appraisal (PDA).

PROFESSIONAL DEVELOPMENT APPRAISAL

PDA is an independent and separate appraisal intended to serve not only the purposes of the organization, but also to serve the life-long career needs of the individual professional. Hence, it attempts to enhance the careers of professionals by developing them to their fullest possible professional attainment. Thus, the emphasis is shifted from performance and immediate results in the management performance appraisal to long-term individual development in PDA. Nevertheless, these two elements are intertwined in PDA, as we shall explain.

The Value of PDA

The ongoing career guidance and reinforcement given technical professionals through PDA should have as its end goal a fully developed ideal professional. Such a goal would, in the long run, benefit not only the individual professional, but the employer, the professional association, and society as a whole.

Two items form the cornerstones of what we mean by "professional." The first is mastery in one's field of expertise. The second is inner-directedness, i.e. having internalized standards of performance, reward, and status so that the professional cannot be outwardly controlled or manipulated.⁵

In general, the relationship a professional has with clients or employers must be based, not on contract, but on trust because the professional's value is in knowing more about a special field than they do. Hence the traditional contract adage, "Let the Buyer Beware," cannot apply. Instead, the adage must be let the client (employer) trust. Indeed, it is through trust that the professional acquires autonomy. The trust between employer and professional, however, needs to be of a special kind, one that

recognizes the value of professional character. It depends critically on the view that the client or employer regards the counsel of the professional as not serving the professional's own self-interest. That is, professionals must be perceived as performing their particular specialty to the best of their ability (and with due regard for the uses and impacts of their work), regardless of material rewards or punishment.

It is not that the "ideal professional" is indifferent to rewards and status but rather that inducements are not a requirement in doing the job nor can they be used to manipulate performance. The work of ideal professionals is to be "trusted" rather than "contracted-for" because they are persons who have internalized the standards of their work and the rewards that come from work that is well-done. The ideal professional "gives" service rather than "gets" rewards. It is our view that when scientists and engineers are treated as inner-directed helmsmen of their own craft, their craftsmanship will spill over into their organization. In other words, their professional work can be shaped to benefit the organization with proper tuning and coordination.

The Challenge of PDA

As a mode of reinforcing the technical professional's inner-directedness, PDA may be viewed with skepticism by corporate officials since issues of character are thought to be only judged subjectively. Indeed, from a legal standpoint, it has become increasingly necessary to assure that substantive corporate rewards such as salary, bonuses, benefits, or promotions as well as punishments, such as demotions or dismissal, be judged by objective performance criteria and not by subjective character judgments in order to avoid possible charges of discrimination.

Nevertheless, corporate organizations cannot help but impact their scientists' and engineers' character, albeit unwittingly. The organization's "culture" in fact exists because employees have been socialized to certain common views and values. The MPA serves and promotes the organization's culture. It does this through the custom of holding periodic evaluations which normally entail the tangible transfer of material (salary) and symbolic (promotion) rewards. Unfortunately, the MPA may obstruct professional learning and contribution rather than advance it. It tends to encourage the professional to conform to patterns of responsibility already laid out by management rather than to think for himself or herself. In order to protect themselves, professionals may purposefully obscure problems that might put

them in a bad light. Hence, they oversimplify and tell their management what they want to hear. Both manager and professional become unwitting accomplices in denying the organization the vitality that is available from the professional staff were its character to be properly tapped.

To make the PDA viable, it is essential that it, too, become an important custom intended to revivify the professional's subculture. To accomplish this, the PDA needs to be as emotionally important as the MPA. It must become an event with widespread recognition, anticipation, and support. Although it may not generate materially significant consequences, its results can become symbolically meaningful.

We cannot expect that apprentice scientists or engineers enter their profession, fresh from college or grad school, with the fully developed inner-directedness of an ideal professional. Nor can we assume that society has nurtured the budding professional to develop these qualities of character. Thus, there is a clear need for employers and professional societies to collaborate in advancing the professional socialization of their members. The character and expertise of our technical professionals should receive continuing attention throughout their career. This is where PDA, supported by the professional's referent groups, can make a real difference.

IMPLEMENTATION OF THE PDA

Having considered the question of why PDA should be brought about, we come to the critical issues of who should do it and how it should be conducted.

We believe that the PDA feedback which professionals receive on professional career development should come, not from any member of management, but rather from a formally-designated professional mentor. It would be nice if the mentoring process evolved spontaneously but we also see the need for making mentor assignments. Experienced professionals need encouragement to accept responsibility for the development of protégés or what Erik Erikson, in referring to the concept of generativity, defined as ..."the interest in establishing and guiding the next generation."⁶ Meanwhile, protégés need to recognize that professional development can be aided by one-on-one guidance.

The idea that senior professionals assume the responsibility for handing on professional standards to their juniors is an ancient tradition. Unfortunately, this responsibility has become more diffuse as professionals have moved into the corporate environment. And the problem has become more difficult

since our modern culture emphasizes the right of the individual to do "his or her own thing."

Although implementation of the mentoring process should rely to some extent on the professional society, we believe that its best chance of success rests with sympathetic research management. The authors further recognize that, like tying the bell on the cat, the nomination and coaching of mentors may very well constitute the critical steps between a good idea and a much-needed improvement in professional development.

We might suggest at the outset that the mentors responsible for implementing PDA be self-nominated or otherwise selected from the experienced professional staff. In organizations featuring some form of dual ladder, these professionals would presumably come from the upper levels of the technical track. In some instances, mentors may even be selected from outside the organization, especially where there is a need to match technically sophisticated individuals with compatible interests and levels of expertise.

Planning the mentoring process of the PDA requires more attention than we can give to it here, but a few priorities should be considered:

- Mentors must have close knowledge of the protégé's work and responsibilities.
- Mentors should be fully coached as to the limits of their role.
- Mentors must themselves have the respect of other professionals, i.e., as fully as practical meet the requirement of an ideal professional.
- Since the mentors are not able to dispense the rewards of money and promotion, they must be able to make a good case for the long term values of professionalism.
- Mentors must be sensitive to the protégé's view of his or her world.
- There needs to be genuine support within the organization, among management, and among the local professional community for the program.
- The program requires ongoing evaluation and must be flexible so that relationships can evolve and change over time.

The terms "professional" and "character" are ephemeral when compared to the concrete rewards of money and power held out by the employer. What is it then that the mentor can offer which can match such rewards? The answer must lie in the protégé's own feelings of pride, technical accomplishment, and trustworthiness.

PDA Counseling

PDA counseling sessions should stress the broadening of interests, responsibilities, and professional character, as well as the development of skills and technical knowledge. They should stimulate problem-solving and, in general, induce reflection and receptiveness. The intent of the interaction should be to facilitate an ongoing process of personal discipline with which to build self-understanding. The process is intended to help protégés internalize their own standards of performance toward the ultimate goal of being an ideal professional. At the same time, it should stress the need to strengthen one's social ties to the professional community. The emphasis, then, should be less on individual competitiveness and more on collective performance and cooperation.

One way to encourage the open climate specified for PDA is to ask the protégés being appraised to take responsibility for controlling some of the areas covered in the discussion. This would promote greater involvement and commitment on their part. Their professional concerns and doubts, which rarely get a chance to be heard in the typical MPA exchange, could thereby be made an essential part of the discussion. This reversal of the normal roles, with the protégé inviting review and guidance and drawing upon the mentor as a resource, would also permit the mentor to more easily assume the role of a counselor.

Although, in theory, an outstanding research manager could conduct both the MPA and the PDA, there are some reasons why this should not be done. MPA is typically tied to material rewards; hence, it would be very difficult for the manager to achieve the desired isolation of PDA from these same material rewards. In fact, there is substantial research⁷ supporting a separation of the development aspect of performance appraisal from the evaluative or judgmental component. Separate MPA's and PDAs also provide an opportunity for a balanced perspective on one's contribution as well as relief from the occasional dominant superior. [Some other ways in which the proposed PDA differs from MPA are summarized in Table 1.]

CONCLUSION

We have seen that the ritual of performance appraisal is critical to the self-esteem and careers of technical professionals and that current practices, while serving some corporate purposes, often have adverse impacts on a professional's development. This is in part because management performance

appraisal (MPA) usually emphasizes short-term organizational rewards whereas professional career development must be seen as a long-term investment.

Consequently, we have argued that our corporate organizations and professional societies have a specific responsibility to their members, and a broader responsibility to society, to better understand the appraisal process and to improve it. We suggest that it is necessary to expand the process to include a periodic appraisal of the individual's professional development and that it be separated from the evaluation of his or her corporate performance. We thus propose a collateral process, professional development appraisal (PDA), to enhance professional growth and to facilitate intergenerational transfer of professional culture by experienced professional mentors.⁸

The ultimate purpose of this PDA would be to develop the employee to the fullest possible professional attainment. To that end we have suggested two important characteristics, mastery of one's field of specialization and that quality of character we call inner-directedness. Inner-directed professionals do not give their best because they are applauded or rewarded but because they are inwardly directed to do so.

The inner-directed character of the professional is especially critical because it is this aspect which earns trust and authority. It is also an aspect which enhances the long-term potential of the employing organization. However, professionals can only expect to be trusted (rather than being bound by contract) when the professional community, as a whole, exacts a higher standard of behavior from its members than does the law or the employing organization. This behavior can only be assured if the professional traditions and standards are handed on from generation to generation through continuing professional socialization. This is the core of the PDA process we have described.

Corporations have often neglected professional development in the past partly because of the potential conflict between professional and corporate purposes. We suggest that the proposed PDA would, in fact, reduce rather than add to this possible conflict. By structuring and strengthening one's professional heritage, PDA adds security, clarity, and commitment to the technical professional's own work role. Thus scientists and engineers cease to view themselves as bureaucratic functionaries, who can be easily replaced, and present themselves, instead, as responsible and trustworthy partners in the organization.

The end result of this "regenerated" performance appraisal should be a win-win relationship in which individual professional and organization both gain.

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2. A useful compilation of selected papers from Research Management on MPA during the period 1973-1985 entitled, "Personnel Appraisals, Motivation, and Salary Administration" is available from the Industrial Research Institute.
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4. See, for example, Andrea Gabor's article, "Take This Job and Love It," in the New York Times, January 26, 1992.
5. See another application of the concept of "inner-directedness" in H. J. Leavitt, "Socializing our MBAs: Total Immersion? Managed Cultures? Brainwashing?" California Management Review, Summer 1991, pp. 127-143.
6. Cited in G. W. Dalton & P. H. Thompson, Novations: Strategies for Career Management (Glenview, IL: Scott, Foresman & Co., 1986).
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8. We note that there are reputed innovations in performance appraisal being applied in professional environments in such well-known companies as IBM and American Cyanamid. Nevertheless, we have found these programs to fall short as true professional practice innovations. Rather, they appear merely to tinker with the number of forced-choice categories to be used in the still pervasive MPA rather than inspire a true professional development orientation.

Table 1

Comparison of Typical Management Performance Appraisal (MPA) and Proposed Professional Development Appraisal (PDA)

<u>Characteristic</u>	<u>Typical MPA</u>	<u>Proposed PDA</u>
Purposes	Evaluation, Feedback and Reward	Individual Skills and Character Development
Frequency	At Least Annually	At Least Annually
Approach to Rewards	"Fair" Distribution of Resources	Internalization of Reward Structure
Process	Evaluate Performance against Corporate Needs	Judge Individual Growth against Professional Discipline
Procedure	Non-judgmental, Objective, Standardized	Judgmental, Subjective, Customized
Who Does Appraisal	Corporate Superiors, at times as a Committee	Single Professional Mentor
Who Does Feedback	Immediate Superior	Professional Mentor
Appeal Procedure	Higher Levels of Corporation	Professional Society
Human Model	Motivate through Rewards/Instrumental	Inner Commitment/Altruistic
Competition or Cooperation	Emphasizes Competition, Individual Actions and Rewards	Emphasizes Social Responsibility, Cooperation
Responsibility for Guidelines and Policy	Corporate Management	Professional Society

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Don Wilson is a Distinguished Member of Professional Staff of Bellcore in Morristown, New Jersey. He obtained a PhD in Physics in 1963 from Rutgers University. He was with AT&T Bell Labs from 1951 to 1984 where he worked on semiconductor materials and device research, and the study of interconnection roles in telecommunication systems. Don joined Bellcore in 1984, where he has continued his work in developing packaging and interconnection concepts for communication systems. Don has been professionally active, also, with IEEE, APS, and local sounding board networks. He is also a member of Phi Beta Kappa and Sigma Xi.

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Roland Mueser is retired from AT&T Bell Laboratories in Mountain Lakes NJ and is presently working on two books. In the first he is studying the culture of the Bell Laboratories 1950-1980 (with Don Wilson). The second is a profile of long distance hikers on the Appalachian Trail.

Mueser received his SB in Physics from Harvard. He was Associate Professor of Engineering Research at Pennsylvania State University prior to joining the Bell Laboratories. He specialized in acoustics, systems engineering, psychophysics and studies of technical innovation. He has published 25 articles and two books.

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