

DID HE JUMP — OR WAS HE PUSHED?

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Contemporary training literature is filled with discussions of executive development training programs. Most of the problems discussed are viewed from the vantage point of management. The executive trainee is faced with problems which demand careful scrutiny, also.

Professional engineers are frequently selected for training because of demonstrated management potentials. While it is true that many engineers do have these potentials and may develop capabilities for administrative operation, it also is true that far too many engineers selected for executive development wither on the vine and never reach maturity in the management area.

Factors Slighted

It is the intent of this article to discuss certain factors which are often slighted by management, in the hope that such a discussion will increase the number of those making the transition successfully.

The primary area is that of the psychological problems which confront a selected engineer. The major difficulty probably developed early in the life of the individual, especially if he was pushed into the engineering profession rather than having embarked upon it of his own free will. It is impossible for a high school graduate to evaluate his

own potentials for success in engineering or any other profession at the time he applies for college entrance.

Mediocre Engineers

Many young men are pushed into engineering schools who do not possess the aptitude, the desire, or the potentials for development into more than mediocre technologists. The mediocrity and lack of interest on the part of an engineer after years of practice often may be traced directly to the fact that he applies himself only as required to meet his minimum salary requirements. As long as engineering provides that minimum, he will follow the path of least resistance and continue to work in that field.

This problem does not exist for the rare individual who chooses engineering as a profession because of its strong attraction in his youth; the individual who became an honor student in college; the one who eventually developed into an outstanding technical authority. The other values of such an individual to industry, as an engineer, normally preclude his selection by management for conversion to an administrator through executive development training.

The resultant of the forces which act upon engineers selected for executive development do not appear to be greatly

different from those which act upon a high school student selected for an engineering education, and may be expressed in the form of the title of this article: "Did he jump—or was he pushed?"

When management proposes to convert an engineer into an administrator, adverse psychological conditions may be established. The experienced engineer is fundamentally a technician; normally he has had little or no training in the theory of business administration and has had little opportunity for practice in that field. He may not consider business administration professionally equal to engineering, although he may know that such work requires a college degree for qualification.

Must Understand

Unless the nature, merit, dignity and potential rewards of outstanding administrative work are understood by the engineer as completely as are the opportunities in his own field, he may oppose his selection as a possible indication that he has failed as an engineer.

Engineers are prone to believe that the field of administration does not involve what they define as technical problems. They are reluctant to accept theoretical concepts which cannot be expressed mathematically; they feel that unless formulae and empirical rules can be invoked to solve a problem, it is inherently non-technical. At this stage of development of administrative theory it is obviously impossible to express administrative concepts in mathematical symbols as employed by engineers.

The fact that any one of several possible solutions to a problem may be acceptable to an administrator is at first thought unacceptable to an engineer. To him, two plus two equals four—yesterday, today, and probably forever. Only when he understands that the factors two plus two, as applied to an administrative problem, have entirely different significance than when applied to engineering, can the engineer begin to be happy with the multiple solution concept.

Solution By Formulae

The engineer has learned to lean on accepted technical authority to back up his decisions. Most of his daily problems can be solved by the application of formulae or empirical rules, or by a logical extrapolation thereof. As a result, an engineer is disturbed when he finds that administrative authorities do not always agree with what he has been told are basic management principles. These principles parallel the engineer's beloved formulae, insofar as his point of view is concerned. Lack of exact agreement inevitably causes him to question the validity of both authorities and principles.

Each administrative problem, since it deals with human beings either directly or indirectly, has inherent factors which differ from those of every other problem. When the engineer acquires enough knowledge of administrative principles to understand and accept these conditions, and can understand also why today's solution may not be acceptable

tomorrow, he is well on his way toward grasping the true nature of business administration.

Areas involving psychology, social problems and human relations are strange pastures to the average engineer. He realizes that before he can explore and absorb knowledge in these areas, he must first collect data concerning the fundamentals involved. Heretofore he has considered these areas as a part of a specialized art or profession quite dissimilar culturally from his own field. He should recognize the difficulties which must be overcome if he is to learn a new profession; he should not differentiate between difficulty of learning administration, for example, and learning engineering, law, or medicine professionally.

Many engineers, especially if they have become reasonably successful in their profession, are very reluctant to take the step from engineering to administration because they hesitate to risk the loss of respect of contemporaries in their own field.

May Choose Withdrawal

After an engineer has progressed from an educated apprentice to a recognized authority within the group with which he works, and after he has acquired technical skills such that decision-making has become second-nature to him, the psychological barriers raised by his selection for executive development can appear nearly impenetrable. He knows that he is a good engineer—he is not certain that he can become an equally good or better administrator. He may choose to withdraw from further con-

sideration of the possible outcome of the proposed conversion due to domination by a fear factor.

The obligation of management in this kind of a situation is clear. An engineer selected for executive development must be convinced that it is only because he is a respected and successful engineer, in whom both his superiors and inferiors have complete confidence, that he has been offered the opportunity to learn additional skills in administration.

He must understand that his demonstrated ability to initiate action and to make important decisions affecting others and his willingness to evaluate problems analytically, has marked him as potential administrative timber. If he will buy this philosophy, one of the most dense psychological barriers becomes transparent and he will become more than eager to make the suggested change in his profession.

Scientific Approach

Education of the trainee in administration should follow lines of scientific approach for greatest acceptability to the engineer. Administrative leaders must be able to define the basic principles of management, human relations, and other areas of management operation. Generalities are futile—especially when the engineer first sets out on a safari into the administrative jungle. Generalities are acceptable to the engineer only after he has gained real comprehension of the philosophy of administration.

Some engineers already have an excellent practical knowledge of administrative and management principles.

If they do possess this knowledge, but have not been attracted to administrative work, it may be because they have analyzed the relative personal satisfactions and futures available in each field and have decided that engineering is best for them. Management must, therefore, offer incentives attractive enough to overcome his conclusions. Such incentives must be tangible as well as psychological. The qualified engineer knows a great deal about the economics of earning a living!

Self-Evident Fallacy

An engineer who is only mediocre in his profession may be operating at this level because he believes there is a lack of opportunity for advancement within his own organization. The fallacy of this is self-evident, but the effect is the same as if the condition were valid. His mediocrity is evidenced to some degree by his refusal or failure to volunteer for executive development even if offered the opportunity.

This engineer may be motivated by fear of failure; he fears possible subsequent censure or ridicule. The step is too great a risk for such men to take. They will not jump. If they are pushed, they feel that they will then be in a position to blame someone else for their selection in event of failure. In related instances the cause of this motivation may be an honest recognition of their own limitations; they may be under the influence of a subconscious inferiority complex.

In some organizations it is company policy to leave a capable engineer in his own field because this is more profitable

to management. Many engineers, having reached a level which will yield an income sufficient to satisfy their immediate needs, will choose to remain at that level rather than accept additional responsibility and the monetary rewards which would accompany such advancement. Motivations involved in such cases should be explored with great care and subtlety before the selecting finger is pointed toward them. One or more essential characteristics may be completely lacking in such men. Hidden limitations are very important factors.

Middle-to-upper level engineers, who, without formal approval by their superiors, select themselves for advancement through executive development are entirely different creatures to those just discussed. Such individuals normally may be classified in either of two distinct types. Only one of these types is desirable for selection.

Continued Study

The fact that a man continues to study of his own volition after receipt of his bachelor's degree in engineering is rarely, per se, an indication of either potentials or desires for advancement through executive development. What he studies, however, is of utmost significance. Many graduate engineers are not particularly interested in administration; they confine their acquisition of new knowledge to technological developments in hope of becoming better engineers. They reason that, if opportunity offers, they will be prepared to step into the shoes of engineers senior to themselves.

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Such men have good potentials as future top-engineers and management should be cautious about diverting them from their preferred goal.

Every effort should be made to analyse the psychological motives which drive an engineer to voluntary study before selecting him, or before approving his own self-selection for executive development. If his continued study has been pointed only toward provision of an escape from his daily routine and the boredom of his job, it is possible that he will welcome the opportunity to explore administration if it can be shown that such exploration might enhance his future. He may be eager to exchange his interest in literature or languages, for example, for an interest in the principles of business administration.

On the other hand, if his continuing voluntary study has been pointed toward perfection of techniques in, say, creative art, he may be completely averse to exchanging the pleasure he derives from creative work for the mental effort required for his conversion from an engineer to an administrator.

It is possible that acquisition of administrative skills, even with incentives for advancement, can not provide him with the psychological satisfactions which he presently obtains or hopes soon to obtain through participation in creative art.

The maladjusted, incompetent engineer, frustrated and unhappy, is prone to select himself for executive development training in the hope of finding an

escape from engineering without suffering a loss of face. With a little of the luck on which he always depends, he hopes to make a new start among people who do not know about his past failures.

On The Move

Despite the fact that this type of person does not possess potentials for executive development, the records show that all too often he is able to worm himself into a training program without his true motives being discovered. Soon, however, he is on the move again. He is still unhappy, still frustrated, and still unwilling to heed the advice of the very people with whom he had hopes of associating himself professionally.

Perhaps the most valuable type of engineer for executive development is the individual who has already considered a sufficient number of the total factors involved to drive him to select himself for training as executive material. He may or may not have been continuing his formal education. He probably is active to some extent in civic and social affairs and this activity involves some degree of leadership within the groups with which he has associated himself. His motives are closely related to ambition. The rewards he has gained may or may not be tangible, but the satisfactions he has experienced never can be measured in economic credits.

There are many reasons why an engineer may be willing to embrace administration. When interest in administration is evidenced, management should explore that interest carefully. In some organizations, income opportunities may cause an engineer to turn to administration as a more lucrative field of endeavor.

An income barrier in the career of an ambitious engineer will cause him to evaluate his own aptitudes for other fields of work. If he decides that administration and management offer greater future monetary rewards than does engineering, he will be apt to forsake engineering in the belief that he is bettering his opportunities. It is the responsibility of management to determine whether such a decision on the part of the self-selected engineer is valid.

Selection methods which include measurements of growth-potentials, I.Q., adaptability, social outlook, political and religious tendencies, and various human relation factors are valuable yardsticks for this measurement. Screening also may include evaluation of the candidate's ability to express himself verbally and on paper, his reactions to various psychological pressures, his physical appearance and bearing, habits of dress, general health, and application of customary manners, courtesies, etc.

Responsibility for selection, or approval of self-selection often is delegated to a committee. When such techniques are employed, it is important that both the applicant and each member of the committee understand that soon the aspirant may become an understudy or competitor of any member of the committee. If the committee believes, after interviewing the candidate, that he has the necessary potentials for executive development and that he would make a valuable addition to the organizational unit of which any committee member is a part, it is almost a certainty that a successful selection will result.

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Management must be understood to be making only a tentative selection. Fulfillment must depend on the actual degree of development attained by the selected engineer. It is at this stage of the selection process that management can be of the most help to the candidate, for at this time the weaknesses of the applicant in scholastic and human relations areas can be most clearly discerned by this committee of his peers. It is important that each member of the committee be senior to the applicant insofar as his position in the organization is concerned.

It is psychologically important that efforts be made at time of selection to identify as accurately as possible all areas of administrative theory and operation with which an engineer already may be familiar. It would be discouraging for an engineer to be forced to wade through oceans of reading and to sit through hours of lectures and discussions on subject matter concerning which he already has as good working knowledge.

His opinion of techniques of administrative training, of administrators as a whole, and especially his opinion of those responsible for his individual training program, will be undermined if he is forced to follow repetitive courses. It is not too unusual to find an engineer qualified to expound on administrative principles and operating techniques. Experienced, high-level instructors and leaders are essential tools for an effective executive development program.

The tendency of modern administrative authorities to hold to a liberal philosophy is disturbing to most engineers. They are prone to be conservative in

their social outlook. They are normally staunch believers in a democratic state in which there are sufficient incentives that the college graduate and authority in a technical field may expect greater monetary return than even the skilled workers who depend on his output for application of their labor.

The engineering profession has not yet found competition so tough that it will readily concede to collective bargaining agents the right to negotiate their salary arrangements for them.

The problems discussed touch only a few which exist for engineers selected for conversion to administrators through formal training in executive development. Each individual is beset with his own bushel of psychological problems. These problems require decisions which he alone can make. It behooves management to learn all it can concerning the psychological outlook and motives of all candidates considered for executive development if a reasonable degree of successful selection is to result.

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