

Personal View: Achieving Technical Excellence

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ORGANIZATIONS today face increasing levels of competition and high levels of uncertainty regarding the future. Often, in contrast to the past, their competition originates from international, rather than just regional or local sources. This trend will continue.

In response, many are 'changing the way things are done around here'. Organizational goals and objectives are being clarified and articulated for the workforce. Bureaucratic methods of the past are being revised or abandoned in favour of mechanisms intended to foster innovation, flexibility and entrepreneurship among the workforce. Focus is shifting to achieving excellence in key activities supporting the organization's core business and major goals (rather than unquestioning acquiescence to outdated approaches that no longer clearly add value).

Organizations that successfully emphasize excellence in key activities *and* that have developed processes and a culture to support it effectively, are very demanding environments to work in. They are also far more challenging, invigorating and rewarding than the 'command and control' organizations of the past. In these organizations, people make the processes work; the organization provides the framework for mobilizing, applying and optimizing creative talents, expertise and skills.

Clearly, increasing numbers of organizations are seeking to transform themselves in order to survive in a more competitive global economy. These changes have important implications for engineering professionals and scientists. They also offer new opportunities.

Organizations at advanced stages of this transformation process know that long-term success relies on being able to attract and retain the best people. Further, the best results will be achieved through formalized mechanisms to:

1. accelerate the development of new professionals; and
2. provide a systematic framework for continued development of all professionals so they may contribute to their full potential.

In most organizations, traditional approaches to developing professionals rely heavily on a job-

analysis approach that emphasizes identifying the major tasks of a job and then providing a professional with the skills and knowledge to master the tasks. Development is almost entirely dependent on on-the-job activities and formal courses selected to build on existing technical skills and knowledge.

Several years ago, a few companies sought to develop a faster, more flexible and self-directed process that would be better suited to the more dynamic, focused and team-oriented organizations of the future. Mobil Oil Corporation was one of those companies. This research sought to identify the following:

1. The most important individual tasks in the work of mid-level engineers, and from these tasks, the knowledge and skills that are basic to *high performance*.
2. The personal characteristics of individuals who became successful and *outstanding engineers*.

This would then provide the basis for more comprehensive and accelerated development systems for engineers. Over the years, a wide range of technical disciplines throughout various Mobil divisions, companies and affiliates throughout the world have been included in these studies.

'The research concluded that twenty-five technical tasks generic to all engineering disciplines, plus the mastery of a varying number of other sub-tasks for each engineering specialty are essential to meet minimum performance criteria' [1]. These tasks can be broadly categorized as technical tasks, administrative tasks and communication tasks. The research also found that technical task mastery alone does not account for the difference between average and superior job performance.

The research clearly demonstrated that 'the difference between average and superior performers lies not so much in *what* the individual knows but in *how* this knowledge is applied. This does not imply that technical knowledge and skills are not important; they are prerequisites to effective performance' [1].

For example, in the research into loss prevention engineering, 'fifteen non-technical personal characteristics or job-competencies were identified

which *do* differentiate between average and outstanding mid-level engineers' [1]. A job competency is 'an underlying characteristic of a person which results in effective and/or superior performance in a job' [2]. 'Competencies, as defined by W. E. Jenkins of Mobil Oil Corporation, are the characteristics that are shown by research to be related to superior performance' [3]. Figure 1 describes the process used to get a faster and better job-person fit.

The study demonstrated that in addition to a high level of technical expertise, 15 competencies are consistently utilized and exhibited by the most effective loss-prevention engineers. These competencies are associated with professionalism, achievement, problem solving, a 'service' orientation and a concern for influence and impact. The detailed model describes each of the 15 competencies in observable terms, thereby providing a basis for determining and assessing their presence. In the very broadest terms, effective loss-prevention engineers exhibit the following:

- **Professionalism**—These professionals respond to requests and projects with a sense of urgency, consistently strive to meet deadlines and provide the correct amount of detail in their completed staff work.
- **Achievement**—They are highly motivated to achieve and consistently demonstrate initiative in identifying areas for improvement, taking action to ensure the best possible outcome and initiating action to achieve best results for the organization as a whole. They have taken the time to understand clearly management goals, priorities and business concerns. They continuously seek ways to reduce costs and increase team and personal effectiveness.
- **Problem solving**—In problem solving, they accurately define the parameters of a problem, then formulate effective strategies for gathering pertinent information. Their approaches are systematic and they effectively utilize past

knowledge and experience in dealing with current problems. They exhibit strong levels of conceptual thinking and forward thinking and typically look for innovative or unconventional solutions.

- **Service orientation**—They have a well-developed sense of 'service orientation' and consistently strive to meet fully the loss-prevention-related needs of the teams they work with and their 'clients' within the organization.
- **Influence**—They exert influence within the organization by knowing where to go and whom to deal with to meet efficiently an objective. They utilize strong communication skills and interpersonal skills to achieve important results and find mutually acceptable solutions. They are assertive and persistent in seeking ways to persuade others on important issues.

The outstanding loss-prevention engineer exhibits these characteristics more often and more completely to achieve optimum results. The relationship between these competencies and the three broad categories of tasks is depicted in the diagram in Figure 2.

Results of this research defining key tasks and competencies have been applied in developing an assessment system which enables self-assessment by the developing engineer and monitoring by the engineering supervisor or department manager. As Boyatzis points out, this is an important part of the self-directed process as 'it is through this realization between the real and ideal that people can perceive and feel a need for change' [4].

The research clearly demonstrates that task-training for engineers, scientists and professionals is relatively straightforward as it builds on well-developed skills and knowledge gained during their academic progression. Strengthening and developing some of the competencies is more difficult. Some competencies are difficult to 'teach' and require skilfully applied 'coaching' and/or mentoring. Knowing which competencies are less amen-

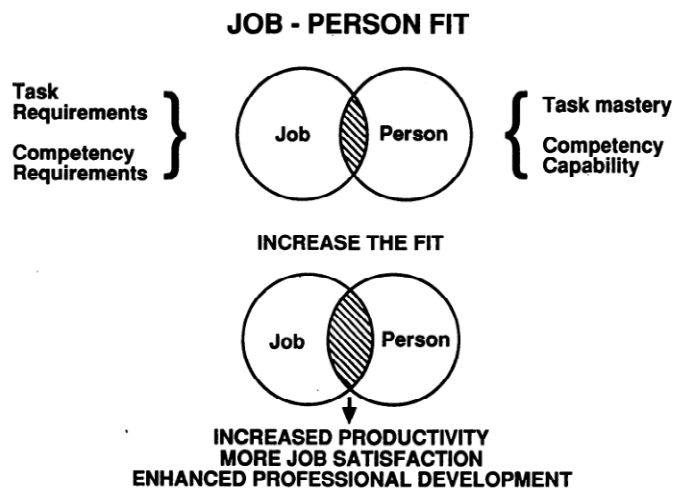


Fig. 1. Accelerating professional development by increasing the job-person fit.

RELATIONSHIP BETWEEN COMPETENCIES AND TASKS

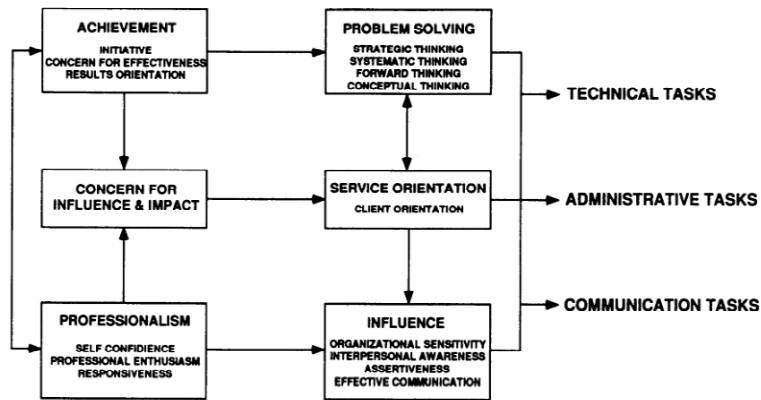


Fig. 2. The relationship between competencies and the three main categories of tasks is considered in formulating development action plans.

able to traditional methods and how to determine accurately to what degree a developing engineer or job candidate possesses each competency provides a clear advantage in selecting and developing the best loss-prevention engineers. It accelerates the

development process and helps engineers achieve higher levels of job satisfaction by achieving technical excellence more often in their job performance.

References

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