

9.11 Conclusion

Many "rules of thumb" are derived from experience. They are common sense heuristics that are all reasonable and intuitively correct.

Knowing what is needed to become (a) an effective engineer, (b) a good engineering manager, or (c) an excellent engineering leader is a very good start. The next step is to learn the skills and capabilities to shape one's own attitudes, and to acquire the attributes needed to become an effectual engineer, good engineering manager, or excellent engineering leader. The third step is to lead and contribute in creating competitive advantages in strategic differentiations and operational excellence for the enterprise.

To be successful, one must practice, practice, and practice until the preferred behavior becomes second nature.

QUESTIONS

1. How can engineering managers make the best use of tools such as the Myers-Briggs Type Indicator (MBTI) to assist in selecting project leaders or assigning employees to teams to ensure the likelihood of avoiding personality conflicts that could otherwise hinder team success?
2. Engineering managers may be called on to resolve conflicts between employees, departments, vendors, and business partners, as well as to handle customer complaints. What are the recommended guidelines for handling complaints? Please elaborate.
3. Hoffman (1989) believes that a management education program should have three elements:
 - a. *Behavioral*: People skills, motivation, team building, communication, and delegation
 - b. *Cognitive*: Production, marketing, finance, and control
 - c. *Environmental*: Markets, competition, customers, political, social, and economical environment in which the organization operates

The importance of the first two elements should be self-evident. Explain why the third element, environmental, is important.
4. How is engineering management different from management in general?
5. How does a manager or leader become a good superior? What should the superior do and not do?
6. Does the job of managing a high-technology function (e.g., an engineering design department) differ from that of managing a low-technology function (e.g., a hotel)? Explain the specific details of the jobs.
7. What rules and principles can guide managers to have successful people management skills?
8. There are so-called unwritten laws of engineering that recommend acceptable conduct and behavior for engineers in industry. How important are these unwritten laws to individual engineers, and where can these laws be located?

9. Some engineers and managers are known to have more difficulties in interpersonal relations than others. These difficulties may arise due to personality, chemistry, value system, priority, tolerance, competition, and other such factors. How can they improve their interpersonal skills?
10. In your opinion, what are the characteristics common to many future engineering leaders? Please explain.

Appendices

Appendix 9.A: Ten Factors for Survival and Success in Industry (Alexander and Watson 2013)

To be successful in corporate America, one needs to pay attention to the following common sense success factors:

1. *Excellent performance*: Make sure that all assignments are performed well, as "You are only as good as your last performance." Pay attention to ensure that both the performance and its impact are properly recorded and made known to the people in the organization who might affect your career growth. Self-promote as needed.
2. *Personality*: Project a mature, easy to work with, positive, reasonable, and flexible personality. How one acts and behaves is important.
3. *Communication skills*: Of all aspects of communication, the written form is the most difficult to master. Check the writing advice offered by Hick (2013), with respect to readability, correctness, appropriateness, and thought. Consult the book by Strunk (2015), with respect to style.
4. *Technical skills and ability*: Keep your individual capabilities (e.g., analysis, design, integration, product development, and software tools application) current and marketable.
5. *Human relations skills*: Constantly review ways of interacting with people and make sure that you are creating and maintaining acceptable working relationships. Avoid being labeled as "not able to work well with other people."
6. *Significant work experience and assignments*: Seek diversified business and engineering exposure and high-impact assignments to build up your experience portfolio. Doing so will increase your ability to add value to the organization.
7. *Self-control*: Improve your ability to stay cool and withstand pressure and stress by, for example, taking courses in leadership training. According to a *CNN News* report in 2001, a British military training camp was offering training services to business executives, subjecting the executives to a high-pressure artificial military environment to toughen them up for handling the real-world business environment.
8. *Personal appearance*: Follow the example of superiors to fit yourself into the corporate image. *Dress for success*.