

# New-Job Immersion Without Drowning

By David B. Youst and Laurence Lipsett

*The engineering training manager at Corning Glass and an industrial psychologist reveal their plan for getting new technical employees up to speed.*

Engineering graduates, no matter how bright, usually require a long period before their work is fully up to speed in a new company. The individualized approach to new-job training described in this article shortens start-up learning time and builds task-management skills that last.

New employees don't get much accomplished until they start to build relationships with key co-workers, suppliers, customers, and supervisors. They also have to learn specific departmental technologies and how to follow required procedures, get necessary support services, and manage new-job immersion without drowning.

William Decker, a former president and engineering director of Corning Glass Works, says, "The surest success at Corning is the person who learns to use the total resources of the company to accomplish work objectives. The surest failure believes the job can be done alone."

Corning's individualized approach, SMART Engineering, is built on the foundation of two very successful programs—the Corporate Orientation System and the SMART Process for

---

**"The surest success is the person who learns to use the total resources of the company to accomplish work objectives. The surest failure believes the job can be done alone"**

---

new plant supervisors. SMART is an acronym for self-managed awareness, responsibility, and technical competence.

The Corporate System requires attending 10 modules spanning 25 to 30 hours in a three-month period. It involves structured contacts with supervisors and key questions designed to guide comprehension of seminar material and to stimulate continuing discussions.

The SMART Process for new plant supervisors is centered on key questions about operations and on an oral peer-review panel that certifies completion of the process.

Both programs, highly respected within the company, appeal to corporate engineering directors who want new engineers to avoid the time-wasting "sink or swim" approach that was once considered unavoidable. At Corn-

ing, the integration and training of new engineers often is interrupted and complicated by frequent travel to domestic and international plants and by project team assignments managed by various functional and project managers. In addition, many separate functional and departmental specialties apply to a wide array of Corning's 60,000-product research and manufacturing problems. SMART works because it is flexible, adaptable, and individualized to meet the needs of diverse employees.

## Features

SMART Engineering is not a one-shot, time-bound session. It is a multistep process that promotes organizational as well as individual development. Groups of managers are charged with developing key questions to provide new engineers the experiences, contacts, skills, and information for their start-up and long-term career effectiveness. The managerial discussions have a major impact on the organization, often providing both the "heat" and "light" on important issues. They help build eventual consensus with a "manage by prevention" focus—providing new employees the knowledge and resources to solve problems before they come up.

All new employees must take responsibility for their own learning. The SMART Engineering process

*Youst is engineering training manager at Corning Glass Works, 12 Pinewood Circle, Corning, NY 14830. Lipsett is an industrial psychologist in private practice.*

Invest in  
your future!



## EARN YOUR B.A., M.A., OR Ph.D. DURING OFF-WORK HOURS

- Approved by California Dept. of Education.
- Directed independent study.
- No classroom attendance.
- Set your own pace.
- Designed for the mid-career professional.
- Credit for previous college-level classes.

**NEWPORT UNIVERSITY**  
3720 Campus Drive  
Newport Beach, CA 92660  
(714) 756-8297

Circle No. 109 on Reader Service Card

## Reprints Available

Custom reprints of articles from *Training & Development Journal* are available for those ordering 50 copies or more. Reprints have the same full 8½" x 11" format as the *Journal* (except those articles published before 1969), are printed on 50# white offset paper stock, saddle-stitched, with cover furnished.

For more information and quotes on prices, please contact the Order Department, ASTD—(703) 683-8129.

*Training &  
Development  
Journal*

Circle No. 175 on Reader Service Card

provides common questions to answer, although each participant goes about the process independently. Answering the questions requires visits to plants, research areas, and out-of-the-way (but vital) building facilities, and meetings with seasoned experts, project receivers, and members of associated departments. Handouts, other printed materials, and videotapes are used extensively. Teamwork and coaching among participants is encouraged throughout. The last two stages of the process are an oral peer-review session and service as a reviewer on subsequent review panels.

### How does it work?

SMART Engineering question books are organized with the most immediate issues featured in a section called "Support Systems and Services." Engineers who are in early stages of their careers and have never participated in a formal start-up program help formulate questions on safety, security, and essential services. Other major sections of the book concentrate on individual departments, the organization and mission of divisions, purchasing and finance, project practices, research and manufacturing technologies, and manufacturing facilities at Corning.

A few sample questions from the SMART question book:

■ Under what conditions would statisticians be involved in the design of engineering experiments? Where do you go to get statistical help?

■ Where do you find a record of current in-force supplier/consultant non-disclosure agreements? What are your responsibilities for the security of proprietary materials and information?

■ What is matrix management? Why do we use it in corporate engineering? What are the responsibilities of your functional (organizational) manager? Your project (task) manager? Diagram the organization showing names of both kinds of your managers.

■ Read the materials on weekly expense accounts and obtain the appropriate form from the service center. What expense items must be supported by a receipt or expense record?

Formal presentations on such topics as safety, building operations, and computer resources are offered through the SMART program. Participants who may be on the road when a presentation is first offered can catch it the next month or seek out the

answers independently. Certain employees in the company, designated as contact people, are prepared to answer questions from SMART participants, although everyone is viewed as a potential resource.

Exploratory activities include plant interviews with a seasoned engineer and a production manager. Such interviews help new engineers get to know their environment, along with its problems and satisfactions. As the new engineers visualize themselves in different work environments and learn the career paths of their new contacts, the sessions often have lasting career-development value. Written resources on relevant technical topics are made available, such as the characteristics

---

**The attitude of the review  
committee is developmental  
rather than punitive,  
collegial rather than  
authoritarian**

---

of Corning glass products that new electrical and mechanical engineers should know. Personal meetings with company experts provide additional depth and context for the technical material. Through those contacts, the process reinforces teamwork and efficiency in getting out the information, along with the idea that teamwork is essential for productivity in a high-tech environment.

After a SMART participant has completed the question book, he or she goes to a peer-review meeting to get certified. Before the meeting, committee members read the answers and establish criteria for satisfactory completion. The committee then meets with the participant to discuss a few of the questions. The attitude of the review committee is developmental rather than punitive, collegial rather than authoritarian. Only two percent of participants have been requested to do additional work or return to the panel, which indicates the effectiveness of the SMART Process. Engineers who complete the process become certified, and each is expected to serve as a reviewer in three or four subsequent sessions. In turn, the reviewers gain from the process, which serves to reinforce their own learning.

## Evaluation

One informal study of the effectiveness of plant-based SMART found that start-up time was cut in half, from six to three weeks. During the two-year period ending in January 1987, more than 300 new employees enrolled in SMART Engineering. Most submitted evaluative questionnaires when they were certified, and many 1986 participants completed a simple three-month, post-certification questionnaire. Brief interviews were held with 30 of 60 new hires during one four-month period, and 19 of their supervisors answered questionnaires. In all, six separate studies produced exceptionally consistent responses.

Overall, ratings of participants and supervisors were favorable. More than 85 percent cited improved start-up effectiveness or improved networks and relationships with key co-workers, suppliers, and customers. In a study that asked which presentation was most helpful, 37 percent cited improved understanding of purchasing procedures, problems, and ethics.

Some participants, mostly recent college graduates, identified travel and project responsibilities that conflicted with SMART Engineering priorities as significant problems. Procedures were revised in several ways during the two-year period, such as tailoring the program to each person and not requiring the employees to take part in activities they and their supervisors did not consider important or relevant to job responsibilities. Those changes helped reduce the priority concerns from an initial 20 percent response to less than 10 percent. Participants were encouraged to anticipate travel time and to build in, with the consent of their supervisors, a more generous time-allotment for training.

Supervisor responses in the study cited above and in general managerial reviews were exceptionally supportive.

## Implications for trainers

The development and success of the SMART Engineering Process has many important implications for training.

■ Items to be learned are derived from the needs of the organization. They come from problems faced by new employees and needs identified by managers who agree with their peers about the key questions important in their departments.

■ The process encourages active involvement of participants by raising questions that can only be answered by drawing on a variety of sources and personal contacts.

■ For employees with competing travel schedules or job obligations, the SMART method permits flexibility in finding time for the training.

■ The review process ensures completion of the learning.

■ Learning for the reviewers continues as the review process reinforces their knowledge. Plus, they stay updated about ongoing organizational changes.

■ Feedback through the review process and formal evaluations provides a basis for continuing revision as needed.

■ Personal contacts throughout the organization help develop an appreciation of and identification with its culture.

■ Versions of the SMART Engineering Process can be used successfully for start-up training for technicians, secretaries, engineering specialists, and geographically distributed staff groups.

## Incidental benefits

The SMART Process encourages frequent contacts between supervisors and new subordinates, providing an opportunity for coaching and bonding. Supervisors benefit from the first-hand contact with new employees, hearing concerns directly and opening their own doors for follow-up contacts. As in any large company, career paths at Corning can take varied directions, and at the start, SMART participants get an overview of company information and career opportunities that might not be evident for years to engineers who never left their individual departments.

The SMART Engineering Process teaches new engineers to take personal responsibility for their career growth and to develop professional habits that are critical to career success. Ensuring that new employees know how to use the total resources of the company shortens start-up learning time and builds in task-management skills that allow them to adapt to the pressures of a new job without drowning.

## DECISION ANALYSIS TRAINERS Kepner-Tregoe, Learning Intl, Alamo, BPI

*"The perfect software for decision analysis. I'm using it myself in a new series of classes."*

**Dr. Charles Kepner**  
Charles Kepner Associates

*"Highly recommended"*

**Ezra Shapiro, BYTE**

*"I'm hooked"*

**Esther Dyson, FORBES**

Students will get a better payback on your training with DECISION PAD PC software. It makes the methodology easy to use. They return to their job able to put decision analysis to work regularly.

A decision matrix comes alive in plain English with instant updates, graphics, what-if testing and reports everyone will understand. Easy graphical operation.

DECISION PAD has fast become the leader -- *practical software* created by an experienced line manager.

Our Free Introduction Kit below lets you give students who already use PCs a quick look, enough for them to decide whether to try DECISION PAD on its *no-risk guarantee*.

Think of it like this: you are teaching people a great way to pound nails -- might as well show them the best hammer too.

Decision Pad & Kepner-Tregoe are Registered Trademarks

**FREE INTRODUCTION KIT + DEMO DISK**  
CALL TODAY 800-237-4565, Ext 133 or 415-851-8496  
or just attach your business card and mail to  
Apian Software Box 1224 Menlo Park, CA 94026



Circle No. 135 on Reader Service Card