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AUTHOR Chiogioji, Eleanor N.; Pritz, Sandra G.  
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ABSTRACT

The Department of Energy (DOE) has implemented a coherent recruitment, training, and professional development program to provide the technical talent necessary to run DOE's many complex operations. Designed to provide recently graduated, entry-level engineers and scientists the learning and experience requisite to effective job performance and successful career development, the Technical Intern Program (TIP) is also oriented toward instilling in these newly hired graduates a DOE corporate "culture" of technical professionalism. TIP is a 2- to 3-year training program that provides interns the academic and practical, hands-on experience that will broaden their understanding of energy-related issues and strengthen their technical capabilities. Integral to TIP is the DOE Mentoring Program, aimed at providing the senior managers who serve as mentors to interns the knowledge and skills requisite to effective mentoring. Developed by the Center on Education and Training for Employment, the Mentoring Program consists of four workshops for mentors, supervisors, interns, and teams. The methodology used to develop this customized, client-oriented program has four parts: gain an understanding of the organization and its goals and expectations for the program; tap the research base; design the program, matching the relevant research to the organizational needs; and follow up and modify the program. After 1 year of operation, the Mentoring Program appears to be beneficial. The program flourishes where administration and line manager support is strong and visible. (YLB)

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MENTORING TO SUPPORT THE MISSION OF A GOVERNMENT AGENCY

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Eleanor N. Chiggioji, Ph.D.  
U. S. Department of Energy

Sandra G. Pritz, M.A.  
Center on Education and Training for Employment  
The Ohio State University

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By the year 2000, there will be over 100,000 fewer graduates with science and engineering degrees than there were in 1984. For the U. S. Department of Energy (DOE), which currently employs some 70,000 scientific and technical specialists, the decline in available human resources in science and engineering is problematic: it undermines the Department's effort to staff itself with the highly qualified technical specialists needed to carry out its mission and responsibilities.

The recruitment, training, and professional development of engineers and scientists at the Department of Energy have constituted, at best, a fragmented effort. Because of widely differing missions and dissimilar functions among the Department's component Program Offices, the geographical distances between field organizations and Headquarters, and periodic uncertainty about the Department's future, individual Program Offices and field organizations have from the outset exercised autonomy in defining their respective training and development goals and strategies for meeting those goals. This absence of coherence and integration in the Department's approach to staffing has resulted in inter-Office competition for new hires and university support; intra-Office "raiding" of employees to fill program vacancies; and variability across Program Offices in the amount, relevance, and quality of training provided to technical personnel--in other words, general cost-ineffectiveness to the Department.

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The Office of Personnel Management (OPM) report, Recruitment and Work Force Development at the U. S. Department of Energy (May 1990), underscores the problem, pointing out that there is no integrated, departmentwide recruitment program strategy, no "corporate" responsibility for extant recruitment programs, and no firm commitment of either fiscal or human resources to carry out a quality recruitment program; that the several intern programs have varying degrees of success and insufficient coordination between them to promote a "corporate" spirit among new employees; and that an emphasis on training and development is imperative to the Department's ability to compete for technical and scarce skills in the market place. In presenting its 18 recommendations for implementing much-needed changes in DOE, OPM calls for a "more long-term, departmentwide approach" to recruitment and development of DOE's work force. The development and implementation of a concerted technical training effort is clearly recognized as an important priority for the Department.

The absence of such a program, given the immediacy of the Department's diminishing ability to recruit and retain scientists and engineers, was characterized by Admiral Watkins in his Secretary of Energy Notice, SEN-21-90 (16 April 1990), as "one of the Department's most serious problems [sic]." To resolve that problem, the Secretary announced his intention of implementing a coherent recruitment, training, and professional development program that would provide the Department with the technical talent necessary to run DOE's many complex operations. The vehicles for accomplishing this end include internships for beginning DOE professionals, advanced training for incumbent engineers and scientists, and a training center that would provide focus for this effort.

Aimed at developing the knowledge and skills of technically-trained professionals who staff the Department's technically-oriented offices at Headquarters and in the field, the program's thrust is to facilitate the Department's "growing" its own engineers and scientists. And implicit in the Department's concept of "growth" is the promotion of its modus operandi--the manner in which the agency, as a corporate entity, accomplishes its technical mission. The DOE Technical Intern Program embodies both "agendas." Designed to provide recently-graduated, entry-level engineers and scientists the learning and experience requisite to effective job performance and successful career development, the Technical Intern Program is also oriented toward instilling in these newly-hired graduates a DOE corporate "culture" of technical professionalism.

The DOE Technical Intern Program is a two- to three-year training program that provides interns the academic as well as practical, hands-on experience that will broaden their understanding of energy-related issues and strengthen their technical capabilities. The first year of training consists of orientation courses to the Department and to its Program Offices, technical courses on engineering and operation fundamentals, advanced specialty courses in areas such as nuclear reactors and radiological/environmental protection, and an assignment at DOE Headquarters. The second year consists of a 6-12 month assignment to an operating entity (e.g., a nuclear utility or a DOE National Laboratory) and/or to a specific project at Headquarters or in the field, for hands-on apprenticeship. Year 3 consists of graduate study at a selected university. Graduate study may be offered in Year 2, as in the Office of New Production Reactors (NP) Intern Program, or it may be offered as an option for eligible interns, as in the Defense Programs (DP) Career Intern Program. Conceptualized as a "generic" program, the DOE Technical Intern

Program is yet broad enough to allow individual Program Offices to modify with program-specific components that would be more appropriate to their missions.

Integral to the Technical Intern Program is the DOE Mentoring Program, aimed at providing the senior managers who serve as mentors to interns the knowledge and skills requisite to effective mentoring. The Mentoring Program is designed to broaden the mentors' understanding of (1) the responsibilities incumbent upon them as they guide the academic and work performance/progress of their interns; (2) their roles in empowering others with their knowledge, experience, and expertise, gained over the span of their careers; (3) the importance of communicating to their interns their vision of what can and must be accomplished within the organization; and (4) the benefits to be gained for themselves and their interns, for their Program Office, and for the Department overall. The Mentoring Program is also oriented toward providing the interns' supervisors an understanding of (1) the role of the mentor in helping the Department to build a technically proficient staff; (2) his/her own part in building a successful mentor-intern-supervisor triad relationship; and (3) the benefits that would accrue to themselves and their staff, to their respective programs, and to the Department overall. Together, mentors and supervisors comprise an efficient conduit for transmitting to the intern the Department's "culture" or for effecting "cultural change" to accommodate a changing DOE mission.

As developed by the Center on Education and Training for Employment (CETE), The Ohio State University, the Mentoring Program consists of four workshops:

- A one-day workshop for mentors, which involves them in discussing and analyzing how best to develop a constructive mentor-intern relationship;

- A one-half-day workshop for supervisors, which focuses on how the mentoring program will contribute to and intersect with the intern's job performance and how to monitor progress within each intern's individual development plan;
- A two-hour intern meeting, which presents information similar to that provided to the mentors, this time focusing on what interns can do to derive the maximum benefit from the mentoring relationship;
- A three-hour guided work session in which teams--mentor, supervisor, and intern--work on individual development plans to guide and structure the intern experience and provide a baseline for assessing intern progress.

In addition, some Program Offices have opted to include a facilitated intern/mentor interaction session, to get acquainted as part of the "matching" process. Beyond the sessions, CETE maintains a follow-up hotline and monitors the progress of the relationships through mail surveys.

The methodology used at CETE for developing such a program--a customized client-oriented program--is four-pronged:

- Gain an understanding of the organization and its goals and expectations for the program.
- Tap the research base.
- Design the program, matching the relevant research to the organizational needs.

- Follow up and modify the program, based on what is learned along the way.

This process is a constantly reiterative one, which enables the program to stay dynamically abreast of an organization whose culture is itself dynamic.

### The Organization and Programmatic Goals

The goals and expectations for the program, as described above, were conveyed to the developers through a series of meetings with DOE personnel. Included in the discussions were the individuals who would be responsible for the program within their Program Office as well as the education and training analyst responsible for coherence and basic consistency of the program across DOE.

### The Research Base

An integral part of The Ohio State University's College of Education, CETE has the world's largest holdings of employment-related educational material and is also the ERIC Center for Adult, Career, and Vocational Education. Drawing heavily on its extensive resources, CETE developed a framework of characteristics that would comprise a sound mentoring program:

- Clearly communicated program objectives;
- Visible support from top management;
- Policies pertaining to confidentiality between mentors and interns, the selection of mentors for interns, and the duration of mentor/intern relationships.

In addition, CETE provided DOE with options for the variables (e.g., mentor functions, implementation strategies, and modes of interaction) that define a

comprehensive mentoring program. Workshop participants, as a group, select the options they consider suitable for their respective programs.

### Program Design

The mentoring workshops are designed to elicit from the group what can work for them, to help the group articulate it as shared consensus, and to explore ways in which these decisions can be meaningfully implemented. Each group of participants generates its own set of definitions and priorities, providing program-specific variations on a more "generic" mentoring program whose structure addresses the broader agency goals.

Recognizing the importance of effective communication in the mentoring relationship, CETE built in a component for developing the participants' interpersonal skills. Participants are asked to complete the Myers-Briggs Personality Preference Indicator, the results of which are used in the workshop to develop modes of interaction that are based on some understanding of characteristic personality types.

Recognizing the importance of "triad teamwork," CETE developed guidelines for ensuring that the mentor is neither the intern's supervisor nor in the supervisory chain of command and that the mentor is a senior manager or technical expert. Workshop participants discuss the potential barriers to constructive, harmonious relationships and the strategies for breaking down these barriers. They also discuss strategies for strengthening the triadic relationship.

Again, recognizing the importance of pairing an intern with the "right" mentor, CETE based the "matching" process on information provided by the participants. The sources of that information include the brief autobiographical sketch provided by interns and mentors before attending the



workshops and the priority listing by each intern and mentor of the persons with whom they feel they can establish a positive relationship, compiled during the facilitated intern/mentor interaction session. The Myers-Briggs indicators are used primarily to preclude situations in which communication between intern and mentor might prove difficult.

Finally, recognizing the importance of the intern's Individual Development Plan (IDP) to his/her career path, CETE requires that intern, mentor, and supervisor meet to develop that plan cooperatively. This three-hour guided workshop, together with other meetings scheduled as needed to review and revise the IDP, affords the intern individualized guidance and the opportunity to learn from experienced staff.

#### Program Modification

Follow-up surveys are used to ascertain whether the mentor and intern are getting together regularly and whether both are comfortable with the relationship as it is developing. Either party can request that a telephone call be made to him/her, to discuss potential or real problems. CETE provides a "hot line" to help resolve these problems.

To date, follow-up surveys have been sent out once to each "class" of mentors and interns who have participated in the workshops. The response rate was higher than 85%, and the feedback was largely positive, with both mentors and interns generally concurring on the efficacy of the workshops for fostering the desired productive relationship. For the two mentor-intern relationships that have not been as successful, due primarily to the mentors' difficulty in devoting enough time to develop a working rapport with their interns, "help sessions" are in progress. CETE has been in telephone communication with the parties involved.

Provisions for tracking long-term results and plans for expanding the program to other DOE Program Offices, as they establish their own technical intern programs, are being developed. Program modifications, which, at present are only projected, will be based on the "lessons learned" or on changes in organizational priorities.

In the one year that the DOE Mentoring Program has been in operation, a total of approximately 90 mentors, interns, and supervisors have participated in the workshops. As has been pointed out, early indications are that the experience has been beneficial, but as might be expected, the program flourishes where administration support in the respective Program Office is strong and visible. More important, because the interns are technical interns--i.e., engineers and scientists--who are the future managers of the Department's technical operations, line manager support is imperative to the success of the program. Continued Departmental commitment to the mentoring program will enable the agency to capitalize on its substantial investment in human resources. Further, the expansion of the program will enable mentors, supervisors, and interns--together--to promote the culture of technical professionalism necessary to the accomplishment of the Department of Energy's mission.

Dr. Eleanor N. Chiogioji  
U. S. Department of Energy  
1000 Independence Avenue, S. W.  
Washington, D. C. 20585  
(202) 586-7950

Sandra G. Pritz  
Center on Education and  
Training for Employment  
The Ohio State University  
1900 Kenny Road  
Columbus, OH 43210-1090  
(800) 848-4815