

## PROFESSIONAL CURRENCY AMONG MIDCAREER COLLEGE FACULTY: FAMILY AND WORK FACTORS

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This study examined work and family factors that differentiate midcareer faculty members who were current from less current faculty with regard to the disciplinary knowledge base. The sample included 97 faculty (69 males, 28 females; 72 English, 25 Engineering) and their spouses. Cluster analyses of the work and family variables identified faculty subgroups within discipline. ANCOVAs showed a significant relationship between the clustered work-family profiles and levels of currency. *Family differences:* Current faculty and spouses reported spending more time on family-related responsibilities and experiencing greater stress from combined work-family responsibilities. Current Engineering faculty reported less flexibility in reallocating family responsibilities. *Work differences:* Faculty reported a greater commitment to their careers and to professional development: They reported higher scores on the Inner Work Standards scale; current English faculty read more professional journals and spent more time on research; current Engineering faculty spent more time on research and had more publications.

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A major challenge for colleges and universities today is the facilitation of continued professional growth and development in faculty members who are at midcareer or senior levels. This concern derives from the changing age structure of faculty in U.S. institutions of higher education, and from the rapid technological change and knowledge explosion occurring in most disciplines.

There was a significant expansion in the number of faculty members in the 1960s and 1970s, in response to the enrollment of the large baby boom cohorts in higher education (Clark, Corcoran, and Lewis, 1986; Corcoran and Clark, 1985). These same faculty members are now reaching the midcareer stage in their professional lives (Clark and Corcoran, 1987). In the early 1970s, approximately a third of all full-time faculty were under the age of 35. By the early 1980s, only 13% of faculty were under 35. While middle-age faculty (ages 35–

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49) made up 40% of the professoriate in the 1970s, approximately 58% of the professoriate were middle age in the 1980s (Watson and Quazi with Stokes, 1985). A recent study (McGuire and Price, 1989) indicated that the median age of faculty was 45; their mean age was 45.7 years. Fields that have large proportions of older, more senior faculty include engineering, the humanities and letters, mathematics, the life sciences, and the physical sciences (Lozier and Dooris, 1987).

In addition to the changing age structure of college faculty, women are entering the work force, the professional ranks, and the professoriate in greater numbers. More than 70% of mothers of school-aged children and more than 55% of mothers of children under the age of six are in the workforce (U.S. Bureau of Labor Statistics, 1986). Among middle-age women with children, over 65% are in the work force (U.S. Bureau of the Census, 1984). The literature suggests that household and childcare responsibilities are increasingly shared by both spouses in dual-career marriages (Berardo, Shehan, and Leslie, 1987; Rapoport and Rapoport, 1976; Staines and Pleck, 1983). As men increasingly assume family roles, they also experience work-family strain and conflict (Burden and Googins, 1987).

Professionals in the midcareer stages begin to experience the middle generation "squeeze," involving not only the demands of parenting but also responsibilities for caring for older generations (Brody, 1985). This squeeze is also occurring at the time of maximum responsibility and productivity in one's professional development. Strains resulting from juggling both work and family responsibilities include providing regular and short-term child- and elder-care, fatigue, absenteeism, and reduced work productivity (Spedding, 1987; Taylor and Spencer, 1988).

In an effort to address these work-family strains, about 3,000 of the 6,000,000 (0.05%) companies in the United States (including corporations, hospitals, and a few academic institutions) have instituted some form of family-sensitive work policies and benefits (Ford Foundation, 1989). These efforts have usually occurred among larger, more service-oriented, and/or high-tech industries, or among businesses that employ a large proportion of women or provide family-oriented products or services (Friedman, 1987). Policies are quite varied, including on-site childcare, vouchers and reimbursement for childcare and elder-care, paid and unpaid parental and family leave policies, alternative work schedules and flexitime, information and referral services, and parenting and family-life education seminars (Spedding, 1987).

Given the changing age and gender structure of college faculty, there is a growing need to examine those factors that both enhance and limit the maintenance of professional competence at midcareer. Of particular interest are data on the needs and strains experienced by the most competent and productive midcareer faculty members. With these increased work-family demands, the threat of professional obsolescence is of particular concern to senior faculty

members. Professional obsolescence occurs when there is an increasing discrepancy between the knowledge and skills possessed by the faculty member and the knowledge and skills considered current within the profession (Ferdinand, 1966). The study of professional competence must involve consideration of factors outside the work environment, as well as variables within the work context (Claxton and Murrell, 1984). Faculty members report considerable stress due to the spillover between academic and personal life; and the tension between work and private life has been found to constrain level of professional aspirations (Near and Sorcinelli, 1986).

While there is beginning to be an awareness of the need to tailor employee benefits to the changing demography of professionals, there has been little research examining the specific needs and strains experienced by the most productive and competent members of the faculty. First, this study examines work and family factors that differentiated between midcareer faculty members who were most current versus less current in their professions. Second, the study considers the implications of these factors for facilitating the maintenance of professional competence in midcareer faculty. The study focused on faculty members in two disciplines, English and Engineering, whose primary responsibility was teaching. Given the study's focus on maintenance of professional currency at midcareer, these two disciplines were chosen to represent a field particularly susceptible to rapid technological change (Engineering), and a field more slowly impacted by technological change (English).

## METHODS

### Sample

The sample was selected from the 60 public and private two- and four-year colleges in Pennsylvania and eastern Ohio that had an Engineering department. A total of 97 couples completed the study. The sample ( $N = 194$ ) included 97 faculty members ( $M = 69$ ;  $F = 28$ ) and their spouses ( $M = 28$ ;  $F = 69$ ). The faculty members represented the disciplines of English ( $N = 72$ ) and Engineering ( $N = 25$ ), and taught at two- and four-year colleges throughout Pennsylvania and eastern Ohio. Faculty members' mean age was 46.8 years ( $s = 8.1$ ); their spouses' mean age was 45.2 years ( $s = 8.5$ ). The sample represented senior faculty in that 82.5% of the sample was tenured; they had been tenured an average of 8.8 years ( $s = 5.8$ ). Faculty members had been employed at their current institutions for an average of 14.6 years ( $s = 5.9$ ). There were no significant differences between English and Engineering faculty members in age, length of tenure, or number of years employed at the institution. Eighty-six percent of the couples had children, with a mean of 2.3 children (range = 0–7;  $s = 1.6$ ). The mean age of the youngest child was 14.2 years ( $s = 8.4$ ).

### *English Faculty*

Mean age of the English faculty ( $M = 44$ ;  $F = 28$ ) was 46.1 years ( $s = 7.6$ ). The majority (80.6%) were tenured, and had been employed at their current institutions for an average of 14.4 years ( $s = 6.1$ ). There were no significant differences by gender in age, years of employment, or tenure.

### *Engineering Faculty*

Since Engineering is a nontraditional field for women, and since it is more lucrative to work in industry than in academia, there were no midcareer female Engineers employed at the schools participating in this study. Mean age of the 25 male engineers was 48.8 years ( $s = 9.3$ ). Faculty members had been employed at their current institutions for an average of 15.1 years ( $s = 5.3$ ), and 88% were tenured.

## Procedure

### *Data Collection*

One-hour interviews were conducted with faculty members, focusing on faculty work responsibilities, professional activities, and assessment of level of professional currency. Mail questionnaires were completed by both the faculty member and the spouse. The questionnaires focused on the following topics: work attitudes, work-family role saliency, family time, family-role flexibility, and work-family strain.

### *Subject Recruitment and Maintenance*

Subjects were selected according to the following criteria: (1) They were full-time faculty members in Engineering or English departments. (2) Faculty were tenured or near tenure status. (3) They taught the introductory undergraduate course in their discipline. In Engineering, the introductory course was Engineering Graphics, including computer-assisted graphics. The introductory course in English was English Composition. These courses were chosen since they are considered to represent a basic knowledge base in each of the two disciplines; in addition, the teaching requirements (e.g., lecturing; amount of class assignments) were similar. (4) Only married faculty members were included, since family responsibilities of the spouse were examined.

Presidents at the eligible schools received a letter requesting the permission to contact married, full-time, midcareer faculty and spouses in their departments of Engineering and English; 48 institutions (80%) agreed to participate.

The respective department heads provided the researchers with a list of all qualified faculty members ( $n = 196$ ). These faculty were asked to participate in an in-depth interview, and the faculty member and spouse were asked to complete questionnaires on their family roles. The faculty member and spouse completed separate questionnaires.

Sixty-seven percent ( $n = 131$ ) of nominated faculty agreed to participate in the study. All of these faculty completed the interview and 97 couples completed and returned the questionnaires. This resulted in a 74% (75% for English and 71.4% for Engineering) completion rate for both interviews and questionnaires.

In order to determine whether subject attrition (associated with not completing the questionnaires) would affect the generalizability of the study, a *t*-test analysis of the interview data was conducted. There were no significant differences on variables examined between those who completed the questionnaires and those who did not. Of particular importance, no significant differences were found between the two groups on the level of professional currency. In addition, no group differences were found for the variables: type of institution, age of faculty member, years since tenure, years employed at the college, years since terminal degree, number of departmental and institutional members, number of off-campus colleagues, student-faculty ratio, time spent in research and in teaching, number of professional publications, membership and participation in professional organizations, number of journals read, age of youngest child, and number of children. Therefore, subject attrition should not have affected generalizability of the findings.

## Measures

### *Professional Currency Scales*

A scale was developed for each discipline to assess level of currency with regard to the knowledge base associated with the introductory course. Development of the scales involved two phases. First, text analyses were conducted on introductory-level textbooks used in 1970 and 1984; major changes in content over this 14-year period were identified. In the second phase, "expert" faculty teaching the introductory course in each discipline were interviewed regarding the content changes identified and asked to add other important changes. A questionnaire was then developed to examine faculty's awareness of these changes in the knowledge base, and the currency of the subject matter taught in the subject's introductory classes.

For the English scale, content changes focused on the process of writing, including audience awareness, invention, and rewriting. Higher scores were given to the responses that were most current. This 12-item scale has item-total correlations ranging from .26 to .60 with an alpha level of .74.

The Engineering scale assessed subjects' knowledge and facility with micro-

and mainframe computers, as related to engineering graphics (e.g., programming skill, use of software packages). At the time the study was conducted, computer graphics was being introduced into the engineering graphics curriculum. The faculty member's level of computer literacy was identified as the major innovation in the curriculum over the period studied. Four-point scales were used to differentiate the individual's level of computer knowledge. Higher scores reflect greater computer skill. This 38-item scale has item-total correlations ranging from .10 to .83 with an alpha level of .91.

#### *Work Attitudes Inventory*

The 15-item inventory was designed for this study (Willis and Tosti-Vasey, 1985), and involved 7-point Likert-type items with responses ranging from "strongly agree" to "strongly disagree." Two factors were identified via a principle components item factor analysis: Job Satisfaction and Inner Work Standards. The *Job Satisfaction Scale* assessed subjects' satisfaction with their career and their current position. The *Inner Work Standards Scale* focused on the subject's commitment to work and professional development, and assessed personal (inner) criteria for satisfactory job performance. Item-total correlations for both of the scales were high ( $r = .41$  to  $.65$ ;  $p < .0001$  for Inner Work Standards and  $r = .37$  to  $.70$ ;  $p < .0001$  for Job Satisfaction).

#### *Work-Family Strain*

An expanded version of the Job-Family Role Strain Scale (Bohen and Viveros-Long, 1981) was designed for this study and was used to evaluate the degree of self-reported stress resulting from both family and work obligations. The respondent indicated on a five-point Likert-type scale how often he or she felt various types of strains. A high score indicates higher combined job-family role strain. Item-total correlations as well as the reliability estimate were high for the revised scale ( $r = .60$  to  $.84$  with an alpha of  $.94$ ).

#### *Family Role Inflexibility*

This measure is an eight-item Likert-type scale dealing with the ease or difficulty in dealing with home and family management tasks when work and family responsibilities conflict. Five items deal with household chores, while the other three deal with children and elder-care. A high score signifies greater inflexibility, in that the subject reported fewer viable alternatives to deal with conflicts between work and family responsibilities. The item-total correlations and reliability estimate were high ( $r = .40$  to  $.70$  with an alpha of  $.83$ ).

## RESULTS

### Development of Subject Clusters

Since a large number of work and family variables were examined, there was the likelihood of spurious relationships being found between these variables and the faculty member's professional currency status. To reduce the likelihood of such spurious relationships, clusters of faculty members within each discipline were formed on the basis of similarity of work and family variables, independent of level of professional currency. Ward's cluster analyses were conducted separately for English and Engineering faculty (SAS Institute, Inc., 1985; Ward, 1963). Then, the clusters were compared for differences in level of currency of professional knowledge. Finally, work and family factors that differentiated current versus less current clusters of faculty members were examined.

Having considered alternative statistical procedures for identifying relevant independent factors associated with professional currency, cluster analysis was judged the most appropriate. Regression analyses and factor analyses are among the most commonly used statistical methods to assess changes or differences in independent variables (Filsinger, 1990). However, using either of these methods on the large number of variables present in this study would have increased the likelihood of identifying spurious relationships. Cluster analysis, in contrast, examines similarities among the sample; this method allows one to group subjects together in terms of communality across a number of variables (Filsinger, 1990). This type of analysis: (1) is capable of utilizing salient characteristics of the cases to categorize people into groups or typologies (McKinney, 1966) and (2) allows one to predict the group membership more accurately than if one were to base membership solely on the basis of single variables (Tryon and Bailey, 1970).

Thus, the first step in data analyses was the identification of subgroups (clusters) of subjects within each discipline, which differed in work and family characteristics. The work variables included in the cluster analyses were: type of academic institution (two- versus four-year), student-faculty ratio, age, years since terminal degree received, years employed at institution, work time, research time, job satisfaction, inner work standards, number of journals read, number of professional publications, number of professional-association memberships (national and regional), number of conferences attended annually (national and regional), and number of colleagues (on- and off-campus). The family variables included were: family earner status (dual- vs. single-earner), spouse's professional status, spouse's work time, faculty member's family time, spouse's family time, proportion of time spent in childcare, elder-care, and housework by the faculty member and the spouse, number of children, work-family strain, and family-role inflexibility. The Professional Currency scale was not included in the cluster analyses.

### *English Faculty*

Three clusters were identified within the English faculty. Cluster A included 21 males and 11 females. Cluster B included 6 males and 7 females. Cluster C included 17 males and 10 females.

### *Engineering Faculty*

Two clusters were identified within the Engineering faculty. Cluster D included 16 males. Cluster E included 9 males.

## Cluster Differences in Professional Currency

Having identified subgroups of faculty sharing common work and family characteristics, we then examined whether these subgroups differed in level of professional currency. To examine subgroup differences in level of professional currency, analyses of covariance were conducted, covarying on years since receiving the terminal professional degree. Years since terminal degree, rather than age, was used as the covariate, since this variable is more directly related to the professional currency issue.

### *English Faculty*

A 3-cluster (A, B, C)  $\times$  2-gender (male, female) ANCOVA indicated that there was a trend toward a main effect for cluster,  $F(2,65) = 2.55$ ;  $p < .08$ . Posthoc analyses indicated significant differences in professional currency between Cluster B and Cluster C. Cluster B was significantly higher ( $x = 56.9$ ;  $S = 7.1$ ) than Cluster C in the level of professional currency ( $x = 51.0$ ;  $S = 6.5$ ). Neither the gender main effect nor the gender  $\times$  cluster interaction was significant. In addition, years since terminal degree received did not differ significantly with level of professional currency.

### *Engineering Faculty*

A 2-Cluster (D, E) ANCOVA indicated that there was a main effect for cluster on level of professional currency,  $F(1,22) = 4.31$ ;  $p < .05$ . Cluster E was significantly higher ( $x = 48.4$ ;  $S = 12.2$ ) than Cluster D ( $x = 38.1$ ;  $S = 9.4$ ) in the level of professional currency. In addition, there was a trend for years since terminal degree received to vary with level of professional currency,  $F(1,22) = 3.17$ ;  $p < .089$ ; faculty who had received their degree more recently were more likely to be professionally current.



## COMPARISONS OF FAMILY CHARACTERISTICS

The mean scores on family variables significantly differentiating the more professionally current samples from the professionally less current samples are shown in Table 1. Means for the total sample within each discipline are also shown for comparison.

### *English Faculty*

English faculty in the current group had younger children,  $F(1,38) = 31.81$ ;  $p < .0001$ ), than the subjects in the less current group (see Table 1). There were also significant differences between the current and the less current groups in both the absolute amount of time spent in family labor and in the proportion of time spent in housework and childcare. Current English faculty spent significantly more absolute time in family labor,  $F(1,38) = 13.35$ ;  $p < .001$ , than the less current faculty. The current group also spent proportionately more time in childcare,  $F(1,38) = 22.18$ ;  $p < .0001$ , and proportionately less time in household chores,  $F(1,38) = 28.96$ ;  $p < .0001$ , than the less current group.

Spouses' family-time involvement also differed between these two groups of English faculty. Spouses of current faculty spent significantly more absolute time in family labor,  $F(1,38) = 12.44$ ;  $p < .01$ , proportionately more time in childcare,  $F(1,38) = 14.43$ ;  $p < .001$ , and proportionately less time in household chores,  $F(1,38) = 18.01$ ;  $p < .0001$ , than the spouses of less current faculty.

There were differences between professionally current and less current English faculty in their levels of work-family role strain. Professionally current English faculty reported a higher level of combined work-family role strain,  $F(1,38) = 12.96$ ;  $p < .001$ , than did the professionally less current subjects. That is, current faculty reported feeling more stress associated with juggling work and family responsibilities. There were no significant differences between current and less current English faculty in family role inflexibility, spousal work time, spousal job type, family-earner status, or work-family role saliency. While current faculty experienced more stress due to work and family conflicts, the level of their commitment to family and work (i.e., work-family role saliency) did not differ from less current faculty.

### *Engineering Faculty*

In general, characteristics differentiating professionally less current Engineering faculty were similar to those just reported for English faculty. Engineering subjects in the current group had fewer,  $F(1,23) = 7.18$ ;  $p < .05$ , and

TABLE 1. Family Variables Differentiating Professionally Current and Less Current Faculty

Variable	Discipline											
	English						Engineering					
	Total <i>n</i> = 70		Current <i>n</i> = 13		Less Current <i>n</i> = 27		Total <i>n</i> = 25		Current <i>n</i> = 9		Less Current <i>n</i> = 16	
<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	
Family labor	19.7	12.2	28.2	14.0	14.8	9.1***	12.6	8.6	15.8	10.4	10.7	7.1
Family family time	26.2	19.5	33.3	21.7	14.9	11.4**	33.9	20.4	41.0	21.4	29.9	19.4
Spouse family time	19.4	20.2	35.4	25.6	7.6	12.9***	14.7	20.4	35.7	19.8	2.9	6.6***
Childcare—faculty <sup>a</sup>	18.4	21.5	39.7	28.6	10.3	19.8***	11.6	17.9	31.6	16.2	0.4	1.1***
Childcare—spouse <sup>a</sup>	76.5	21.2	60.1	20.2	89.9	14.2***	77.8	22.8	60.5	23.2	87.5	16.2***
Housework—faculty <sup>a</sup>	78.6	21.1	57.1	25.3	88.7	20.5***	83.2	19.2	66.2	17.7	92.7	12.5***
Housework—spouse <sup>a</sup>												
Older variables												
Number of children	2.2	1.7	1.1	0.8	1.9	1.8	2.6	1.2	1.8	1.2	3.0	1.0*
Age of Youngest <sup>b</sup>	13.3	7.7	3.3	2.9	16.8	7.2***	16.5	9.8	3.9	3.6	22.7	3.7***
Work-family strain	38.7	7.4	39.6	4.8	33.3	5.3***	38.7	7.6	43.0	7.0	36.3	7.1*
Family role inflexibility	15.0	5.7	17.3	5.3	14.0	9.1	13.7	5.0	16.3	4.6	12.2	4.7*

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; \*\*\*\* $p < .0001$ .

<sup>a</sup>Means reflect proportion of total family time spent in children or housework.

<sup>b</sup>Sample size for faculty having children: English Total  $N = 58$ ; English Current  $N = 10$ ; English Less Current  $N = 17$ ; Engineering Total  $N = 24$ ; Engineering Current  $N = 8$ ; Engineering Less Current  $N = 16$ .

younger children,  $F(1,22) = 139.40$ ;  $p < .0001$ , than the subjects in the less current group (see Table 1). There were also significant differences between the current and the less current groups in the proportion of time spent in housework and childcare. The current group spent proportionately more time in childcare,  $F(1,23) = 37.64$ ;  $p < .0001$ , and proportionately less time in household chores,  $F(1,23) = 11.71$ ;  $p < .01$ , than the less current group. However, there were no significant differences in the absolute amount of time spent in family labor between the current and less current groups.

Wives' family-time involvement also differed between these two groups of Engineering faculty. The wives of the current faculty spent proportionately more time in childcare,  $F(1,23) = 61.39$ ;  $p < .0001$ , and proportionately less time in household chores,  $F(1,23) = 19.11$ ;  $p < .001$ , than the wives of less current faculty. Again, there were no significant differences in the absolute amount of time spent in family labor between the wives of current and less current engineering faculty.

There were differences between professionally current and less current Engineering faculty in their levels of work-family role strain and family role inflexibility. Similar to current English faculty, professionally current Engineering faculty reported a higher level of combined work-family role strain,  $F(1,23) = 5.31$ ;  $p < .05$ , than did the professionally less current subjects. They also reported a greater level of family role inflexibility,  $F(1,23) = 4.51$ ;  $p < .05$ , than did the professionally less current subjects. There were no significant differences between current and less current faculty in spousal job type, spousal work time, family-earner status, or work-family role saliency.

## COMPARISONS OF WORK CHARACTERISTICS

The mean scores on work variables significantly differentiating the more and less professionally current subjects within each discipline are shown in Table 2. Means for the total sample within each discipline are also shown.

### *English Faculty*

The current English faculty were more likely to teach at a four-year rather than a two-year college,  $F(1,38) = 11.92$ ;  $p < .01$ , compared to less current faculty (see Table 2). Professionally current subjects were more professionally active. They read more journals,  $F(1,38) = 13.21$ ;  $p < .001$ , and spent more time in research,  $F(1,38) = 13.68$ ;  $p < .001$ . They also reported greater commitment to work and higher internal work standards,  $F(1,38) = 13.22$ ;  $p < .001$ . There were no significant differences between the current and obsolete English faculty in the number of departmental or off-campus colleagues

**TABLE 2. Work Variables Differentiating Professionally Current and Less Current Faculty**

Variable	Discipline											
	English						Engineering					
	Total <i>n</i> = 70		Current <i>n</i> = 13		Less Current <i>n</i> = 27		Total <i>n</i> = 25		Current <i>n</i> = 9		Less Current <i>n</i> = 16	
<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	<i>x</i>	<i>s</i>	
<b>Status</b>												
Type of school <sup>a</sup>	2.9	1.0	3.9	0.6	2.8	1.0**	2.2	0.7	2.7	1.0	2.0	0.0*
Student-faculty ratio	37.0	33.6	24.9	13.5	30.6	30.6	50.2	44.4	25.2	19.3	64.3	48.7*
<b>Work</b>												
Research time	6.0	6.7	9.5	6.9	3.0	4.2***	2.5	5.0	6.2	6.8	0.4	1.3**
Inner work standards	38.8	6.3	43.6	3.8	36.9	7.2***	34.8	5.6	38.1	6.0	32.9	4.6
<b>Professional activities</b>												
Number of journals read	4.6	2.9	6.4	1.9	3.3	2.8***	2.8	1.6	3.3	1.3	2.4	1.7
Number of publications	3.1	5.9	5.9	4.4	2.8	6.5	1.0	2.6	2.6	4.0	0.1	0.5*

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001.

<sup>a</sup>Two-year school coded as 2; four-year school coded as 4.

<sup>b</sup>Covariate used in analysis of covariance.

(either combined or separately), number of publications, attendance at national or regional conferences (either combined or separately), job satisfaction, or faculty work time.

### *Engineering Faculty*

The more current Engineering group had taught at their present institution for a shorter period of time,  $F(1,23) = 25.86$ ;  $p < .0001$ , and had been tenured more recently,  $F(1,23) = 28.93$ ;  $p < .0001$ , than the less current male faculty (see Table 2). In addition, current male Engineering faculty were more likely to teach at a four-year rather than a two-year college,  $F(1,23) = 7.36$ ;  $p < .05$ , and to teach at an institution with a smaller student-faculty ratio,  $F(1,23) = 5.25$ ;  $p < .05$ , than were the less current faculty.

More current Engineering faculty were more professionally active. They spent more time in research,  $F(1,23) = 11.21$ ;  $p < .01$ , and published more regularly,  $F(1,23) = 6.02$ ;  $p < .05$ . They also reported greater work commitment and higher internal work standards,  $F(1,23) = 5.89$ ;  $p < .05$ . There were no significant differences between the current and less current Engineering faculty in the number of departmental or off-campus colleagues (either combined or separately), number of years since receiving the terminal degree, attendance at national or regional conferences (either combined or separately), job satisfaction, or faculty work time.

## DISCUSSION

Faculty who were involved in the dramatic growth in higher education in the 1960s and 1970s are now in midcareer. As a result, more colleges and universities are becoming involved in and concerned with faculty competency or "vitality" (Claxton and Murrell, 1984; Lozier and Dooris, 1989). Discussion regarding mechanisms for retaining competent midcareer faculty members is now occurring (see Willis and Dubin, 1990, for a general discussion of the issues).

Given this need to retain competent faculty, one needs to know the strains and developmental needs of this faculty. The maintenance of professional competence involves an interaction of person and environmental variables (Dubin, 1987; Willis and Dubin, 1990). Prior literature on maintaining professional competence in highly technical fields, such as engineering, has given considerable attention to work environment variables that enhance or limit professional updating (Farr, Ensore, Steiner, and Kozlowski, 1984; Fossum and Arvey, 1990; Willis and Tosti-Vasey, 1990).

There is growing recognition that both personal and work factors are important (Sorcinelli and Near, 1989). Lawrence and Blackburn (Blackburn and

Lawrence, 1986; Lawrence and Blackburn, 1988) studied the quality of faculty job performance as a function of age. They noted that characteristics of individuals and their environments change throughout the life course; these changes interact with each other, affecting patterns of development in both individuals and faculty cohorts.

In a similar vein, Clark and Corcoran found that "vital" female faculty report a need for strong collegial and institutional support for combining career and family. When support was not available, their advancement was limited to a relatively low level of achievement (Clark and Corcoran, 1986). Among both men and women, Corcoran and Clark (1985) found that academic institutions need to address faculty competency by viewing faculty vitality as involving both aspects of the institution—such as policies, programs, benefits, and institutional resources—and the individual in an interaction with each other. They summarized their research on faculty productivity and aging by stating,

... few effects are attributable to aging per se. Many factors and conditions that have little to do with [biological] aging affect productivity, including life styles, the paradigmatic nature of academic fields, work interests, preferences for teaching or for research, and expectations generated by the organizational context and culture. (Clark and Corcoran, 1987, p. 29)

In this study, the needs and strains of faculty appear to cut across discipline, with highly diverse disciplines reporting similar factors affecting competency. *Both* work and family variables differentiated between professionally current and less current faculty members in English and Engineering. Specifically, current faculty members in both disciplines reported spending considerable time in family responsibilities, which result in increased work-family role strain. The strain was also reflected in the finding that competent faculty members reported more time spent in research and publishing and in a higher commitment to their work than less up-to-date faculty members. The findings of this study and that of previous literature indicate that maintaining professional currency in mid-career is a dynamic process involving both work and nonwork variables.

These findings suggest that programs designed to reduce work-family role strain might be of particular benefit to competent faculty. Academic administrators must therefore recognize and address these issues of relevance for professional updating and retention of competent faculty. Greater support of family-oriented programs, such as childcare, elder-care information and referral services, more flexibility in leave policies, and employee assistance programs for faculty and their families, are needed.

Corporate cost-benefit studies have found that when institutions formally acknowledge the work-family interface through family-sensitive benefits, policies, and programs, employee productivity increases and problems with recruitment, retention, absenteeism, tardiness, and strain are reduced (Ford Founda-

tion, 1989; Raabe and Gessner, 1988; Spedding, 1987). There are three major types of family support that academic institutions might consider:

1. Policies that allow faculty to schedule time for parenting and elder-care. These could include formal, family sick-leave policies and alternative work-time arrangements that allow faculty to meet both their work obligations and their child/elder-care needs.
2. Policies that facilitate midcareer faculty's ability to obtain quality care for dependent family members. These could include employer-provided care, financial subsidies to college-based or community-based programs, and information and referral services. An interesting variation on this type of policy might be subsidized assistance for either periodic childcare or elder-care that allows the faculty member a chance to attend professional meetings, training programs, and/or to do off-campus research.
3. Family-life education programs, pamphlets, and counseling services. Parent education, information on community resources, and work-family time management information and counseling are some of the possible topic areas that would be useful to midcareer faculty facing these work-family concerns (Raabe and Gessner, 1988).

In order for these programs to work, academic institutions will need to remember three things (Friedman, 1987). First, no one solution meets all faculty members' family needs. Programs must be tailored to the specific needs of the faculty on each campus. Thus, midcareer faculty will need to be involved in the planning and design of these programs. Second, even if a college or university can not immediately initiate a full-fledged work-family program to improve faculty vitality, any support from the employing institution can help. Third, colleges alone will not be able to solve all of the work-family strain. Linkages with the individual faculty, faculty committees, the community, and local, state, and national government will also help. By viewing these work-family issues within an interactive environment, these programs may thus assist colleges and universities in recruiting and retaining the most competent faculty.

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