JVER

The Journal of Vocational Education Research

Published Three Times a Year by the
American Vocational Educational
Research Association

Volume 28
No. 2
2003

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Volume 28, Issue 2 • 2003

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Journal of Vocational Education Research, 28(2), pp. 125-140.

Job Stress and Burnout among Industrial and Technical Teacher Educators

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Abstract

This study examined job stress and burnout among a random sample of 133 industrial and technical teacher educators. The Job Stress Survey (JSS) developed by Spielberger and Vagg (1999) measured stress; the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) developed by Maslach and Jackson (1996) measured burnout. Stepwise multiple regression was used to determine the amount of variance in job stress and burnout levels predicted by demographic characteristics. Participants perceived stressors related to lack of organizational support as more severe than stressors related to the job itself. Also, participants reported an average degree of burnout. Demographic characteristics did not explain a large amount of variance in levels of job stress or burnout. Findings from this study have implications for designing interventions for job stress and burnout in industrial and technical teacher education.

Introduction

Numerous studies have examined job stress among postsecondary faculty (Barnes, Agago, & Coombs, 1998; Blackburn & Bently, 1993; Blix, Cruise, Mitchell, & Blix, 1994; Bowden, 2000; Dey, 1994; Gmelch, Wilke, & Lovrich, 1986; Lease, 1999; Marcy, 1996; Olsen, 1993; Seiler & Pearson, 1985; Smith, Anderson, & Lovrich, 1995; Thompson & Dey, 1998; Thorsen, 1996). This proliferation of research has focused much-deserved attention on the need to understand stress and its multifarious effects on postsecondary faculty. The current study contributes to the body of research by addressing a previously unstudied element of the population, industrial and technical teacher educators.

Studying stress relative to industrial and technical teacher educators has implications for improving understanding of job stress, as well as for enhancing the working life of industrial and technical teacher educators. Although considerable research has studied stress, further research is warranted to identify new factors that might mediate job stress. Examining previously unstudied populations within postsecondary education could help researchers identify such new factors. Because of differences among disciplines regarding salaries, class size, and publishing and tenure expectations, it is important to study samples from a single disciplinary type

(Biglan, 1973). Therefore, insights gained from examining stress among industrial and technical teacher educators have potential to impact staff development and retention strategies relative to the specific discipline, whereas previous insights might have limited applicability.

Theoretical Framework

The most widely accepted framework for conducting research on job stress has been person-environment (PE) fit theory (Edwards & Cooper, 1990; Spielberger & Vagg, 1999). Formalized by several researchers (French & Caplan, 1972; French, Caplan, & Harrison, 1982; French, Rogers, & Cobb, 1974; Harrison, 1978), PE fit theory asserts that the interaction between an individual and his or her environment determines whether or not a situation is stressful for that person. If the fit between an individual and environment is incompatible, stress results.

There are several distinctions relative to fit, the first obviously being between the individual and the environment (Edwards, Caplan, & Harrison, 1998). Other distinctions are between (a) objective representation and subjective representation and (b) demands and abilities. Stress can occur if there is a mismatch between the *reality* of the work environment (objective) and an individual's *perceptions* of the work environment (subjective). Likewise, lack of fit between the demands placed on individuals and their abilities to meet those demands can result in stress.

Review of Literature

Job Stress

Past research on job stress among postsecondary faculty has identified numerous sources and variables affecting stress levels. Among sources of stress identified by college faculty, certain patterns have emerged. For example, researchers have consistently reported time pressures (Astin, 1993; Barnes et al., 1998; Gmelch et al., 1986; Olsen, 1993; Smith et al., 1995; Thompson & Dey, 1998), high self-expectations (Gmelch et al.; Smith et al.), and research and publication demands (Astin; Blix et al., 1994; Smith et al.) as significant sources of job stress. In addition, the frequent technological advances of modern society along with the ongoing change that those advances spur have yielded increased stress. Approximately two thirds of United States college faculty members reported that keeping up with information technology (IT) was stressful for them (Sax, Astin, Korn, & Gilmartin, 1999).

In one notable study, Gmelch and colleagues (1986) examined dimensions of stress among 1,920 professors from 80 postsecondary institutions. Using factor analysis, they identified five dimensions of perceived stress: reward and recognition, time constraints, departmental influence, professional identity, and student interaction. The most important dimension was reward and recognition, which

accounted for 55% of common variance. This dimension highlights the effects of inadequate rewards and recognition on professors' stress levels. The results indicated a discrepancy between performance expectations placed on faculty and the amount of effort required to meet those expectations. Identification of this dimension of job stress is unique to postsecondary faculty.

Researchers also have identified several demographic variables that affect stress levels among postsecondary faculty members. Gender is one such variable. In general, female faculty members have reported higher levels of stress than their male counterparts (Blackburn & Bently, 1993; Blix et al., 1994; Sax et al., 1999; Smith et al., 1995; Thompson & Dey, 1998). Another variable accounting for differences in stress levels is ethnicity. In studies by Dey (1994), Smith and Witt (1993), and Thompson and Dey, non-White faculty members reported higher levels of stress than White faculty members. Tenure status also has accounted for differences in individual stress levels, with researchers such as Gmelch et al. (1986) and Marcy (1996) reporting that untenured faculty had higher levels of stress than tenured faculty members. Similarly, Blix et al. found that postsecondary faculty with less than 10 years of experience had higher stress levels than faculty with more than 20 years of experience. Smith et al. found that stress levels differed among faculty in different academic disciplines.

Effects of stress are detrimental to the well-being of postsecondary faculty. In a study by Blix et al. (1994), 48% of participants reported health problems related to stress, and 84% reported a decrease in productivity because of stress. Moreover, postsecondary faculty who have reported high levels of stress have also been more likely to report intent to leave academia than faculty with low levels of stress (Barnes et al., 1998). Barnes et al. suggested that higher education must combat stress-related problems if it is to attract and retain high-caliber faculty members.

Job Burnout

Excessive, prolonged stress can lead to *job burnout* (Maslach & Schaufeli, 1993). The concept of burnout emerged in the mid-1970s when Freudenberger (1974) noted a propensity among human service workers to experience a depletion of physical and mental resources. Burnout lacked definitional clarity until the development of a widely accepted instrument for its measurement, the Maslach Burnout Inventory (MBI; Cordes & Dougherty, 1993). The MBI conceptualized burnout as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with people in some capacity" (Maslach, Jackson, & Leiter, 1996, p. 4).

Verified by numerous researchers (Boles, Dean, Ricks, Short, & Wang, 2000; Green, Walkey, & Taylor, 1991; Lee & Ashforth, 1993), the three-dimensional (i.e., emotional exhaustion, depersonalization, and reduced personal accomplishment) structure of burnout is an integral component of the MBI definition. Each dimension

represents a different construct. Emotional exhaustion refers to a feeling of being unable to psychologically give of oneself due to a depletion of emotional resources. Depersonalization describes the development of impersonal, cynical feelings toward recipients of one's services. Reduced personal accomplishment indicates a diminished feeling of competence and achievement in working with others.

Instead of being viewed as a dichotomous variable, burnout—as conceptualized by Maslach and Jackson (1996)—is seen as a continuous variable ranging from a low to high degree of experienced feeling in each of the three dimensions. Whereas low degrees of emotional exhaustion and depersonalization and a high degree of personal accomplishment reflect a low level of burnout, high degrees of emotional exhaustion and depersonalization coupled with a low degree of personal accomplishment reflect a high level of burnout. Average degrees of all three dimensions represent a moderate level of burnout.

In studying burnout among postsecondary faculty, researchers have identified several significant variables. Among these were demographic characteristics; Byrne and Hall (1989) found that demographic variables had a stronger impact on postsecondary educators than they had on educators at other levels (i.e., elementary, intermediate, or secondary). However, differences exist among disciplines. For example, Dillon and Tanner (1995) found that members of the mass communications professorate did not report statistically significant differences in levels of burnout relative to demographic characteristics, but Jackson (1993) found significant differences in levels of burnout relative to such factors as gender, age, marital status, tenure status, academic rank, and predominant workload activity among pharmacy school faculty.

Purpose of Study

The purpose of this study was to explore job stress and burnout among industrial and technical teacher educators. Specifically, we addressed four research questions:

1. What is the level of job stress among industrial and technical teacher educators?
2. What is the level of burnout among industrial and technical teacher educators?
3. What demographic characteristics predict differences in levels of job stress among industrial and technical teacher educators?
4. What demographic characteristics predict differences in levels of burnout among industrial and technical teacher educators?

Method

Population and Sample

Industrial and technical teacher educators in the United States composed the population for the study. The sampling frame was the 2000-2001 *Industrial Teacher Education Directory* published by the National Association of Industrial and Technical Teacher Educators and the Council on Technology Teacher Education. The *Directory* listed 1,752 industrial and technical teacher educators, excluding department heads, coordinators, and other administrators. Using random procedures, we drew a sample of 347 industrial and technical teacher educators. This exceeded the sample size of 317 recommended by Krejcie and Morgan (1970) for a population of 1,800. A total of 133 respondents returned instruments for a response rate of 38.3%.

Instrumentation

Job Stress. We used the Job Stress Survey (JSS; Spielberger & Vagg, 1999) to assess stress levels. The JSS measures the severity and frequency of occurrence of 30 common workplace stressors. Respondents rate the severity of each stressor on a 9-point scale by comparing it to an event perceived as producing an average amount of stress (i.e., "Assignment of disagreeable duties"), which has been assigned the midpoint value of 5. Then, respondents report on a scale of 0 to 9+ days how often each stressor has occurred in the past 6 months.

The JSS consists of three scales: (a) Job Stress Index (JS-X) measures an individual's overall stress level; (b) Job Stress Severity (JS-S) represents an individual's average intensity rating for the 30 stressors; and (c) Job Stress Frequency (JS-F) indicates the average frequency of occurrence for the 30 stressors within the past 6 months. The JSS also has six subscales: (a) Job Pressure Index (JP-X) assesses the combined severity and frequency of 10 stressor events reflecting pressures directly related to the job's structure, design, or duties; (b) Job Pressure Severity (JP-S) measures an individual's average level of severity of the 10 stressors associated with job pressures; (c) Job Pressure Frequency (JP-F) indicates the average frequency of occurrence of the 10 stressors related to job pressures; (d) Lack of Organizational Support Index (LS-X) measures the combined severity and frequency of occurrence for 10 stressor events related to organizational policies or other people involved with the organization; (e) Lack of Organizational Support Severity (LS-S) indicates the average level of severity an individual perceives in regard to the 10 stressors related to lack of organizational support; and (f) Lack of Organizational Support Frequency (LS-F) reflects the average frequency of occurrence of the 10 stressor events involving lack of organizational support. Coefficient alphas for the scales and subscales of the JSS range from a low of .80 for JP-X and LS-X to a high of .89 for JS-S and JS-F.

Job Burnout. We chose the Maslach Burnout Inventory Human Services Survey (MBI-HSS; Maslach & Jackson, 1996) to measure burnout because it is the most widely accepted and frequently used burnout instrument in current research (Maslach & Schaufeli, 1993; Schaufeli, Enzmann, & Girault, 1993). The MBI-HSS contains 22 items comprising three subscales: emotional exhaustion, depersonalization, and personal accomplishment. Respondents indicate the frequency that they experience feelings related to each of the subscales on a scale from 0 (*never*) to 6 (*every day*). Maslach and Jackson recommended that scores from the three subscales be considered separately. The scores can be compared to normative data provided in the *MBI Manual*, or they can be correlated with other variables. Schaufeli and Van Dierendonck (1993) determined that the MBI-HSS was a reliable and valid indicator of burnout, and Cronbach's coefficient alphas of .90, .79, and .71 have been reported for the emotional exhaustion, depersonalization, and personal accomplishment subscales, respectively (Maslach & Jackson).

Instead of using the Human Services Survey, we could have chosen another version of the MBI, such as the Educators Survey (MBI-ES; Maslach, Jackson, & Schwab, 1996), which also has been found to be a valid and reliable measurement tool for burnout (Gold, 1984; Iwanicki & Schwab, 1981). As the name indicates, the Educators Survey is intended for use with individuals in educational professions. Thus, it might seem that the MBI-ES would be a better choice for a study involving industrial and technical teacher educators. However, we selected the MBI-HSS rather than the MBI-ES for two primary reasons. One, the MBI-HSS provides criteria for categorization of scores into high, average, or low levels of burnout relative to postsecondary educators (Maslach & Jackson, 1996). Two, the current study's population did not match the intended population of the MBI-ES. The MBI-ES addresses educators on the elementary, middle, and high school levels rather than those on the postsecondary level. Maslach et al. (1996) acknowledged, "Probably the most valuable use of the MBI-ES is at the school district level" (p. 29).

Demographics. Data on the demographic characteristics of respondents were gathered via a demographic questionnaire developed by the researchers. Characteristics addressed by the questionnaire were (a) age, (b) gender, (c) marital status, (d) ethnicity, (e) years in current position, (f) years working in industrial/technical teacher education, (g) tenure status, (h) academic rank, (i) employment status, and (j) typical workload during last year. These characteristics were chosen based upon a review of related literature.

Data Collection

The sample population received via mail the JSS, the MBI-HSS, the demographic questionnaire, a cover letter, and a pre-addressed, stamped return envelope. The cover letter contained an explanation of the purpose of the study and a description of procedures used to facilitate tracking of feedback. Questionnaires were

numerically coded to limit follow-up notifications, per procedures recommended by Dillman (2000). Survey responses were kept confidential. Three weeks after the initial mailing, members of the sample who had not returned instruments received an email request for completion and return of survey instruments; individuals for whom no working email address could be located received follow-up letters through the mail.

Data Analysis

Completed surveys were scored according to the directions in each instrument's user manual. Analysis procedures included generation of descriptive statistics to identify levels of job stress and burnout experienced by industrial and technical teacher educators and stepwise multiple regression to determine variables that predicted differences in levels of job stress and burnout. In cases where respondents did not answer a question, data were treated as missing values.

Results

Respondents were mostly men (84.5%, $n = 109$) and employed on a full-time basis (98.5%, $n = 128$). The most common age range of respondents was 51-60 years of age (43.6%, $n = 58$), followed by 41-50 years of age (27.1%, $n = 36$), 60+ years of age (20.3%, $n = 27$), and 31-40 years of age (6.0%, $n = 8$). Three percent ($n = 4$) of respondents did not indicate their age. The most common ethnicity of respondents was White (83.5%, $n = 106$), followed by African American (4.7%, $n = 6$), Hispanic (3.1%, $n = 4$), and Native American (2.4%, $n = 3$). In addition, 3.1% ($n = 4$) of respondents marked "Other" for ethnicity. Regarding years in current position, responses were distributed fairly evenly: 4.5% ($n = 6$) of respondents reported being in their current position for 2 years or less, 12.0% ($n = 16$) for 2-5 years, 18.8% ($n = 25$) for 6-10 years, 21.1% ($n = 28$) for 11-15 years, 12.0% ($n = 16$) for 16-20 years, 11.3% ($n = 15$) for 21-25 years, and 17.3% ($n = 23$) for 26+ years. Three percent ($n = 4$) of respondents did not report the number of years they had been in their current positions. Regarding typical workload, the average percentage of time devoted to teaching was 58.6%, to service 13.8%, to research 12.2%, to administration 11.5%, and to other activities 3.9%. Table 1 contains other demographic characteristics of respondents.

Responses from the JSS were analyzed using descriptive statistics. Table 2 displays the means and standard deviations for each scale and sub-scale. A score of 5 represents a moderate amount of stress for JS-S, JS-F, JP-S, JP-F, LS-S, and LS-F. The possible score range for the JS-X is 0-79.8, and the possible score range for JP-X and LS-X is 0-81 (Spielberger & Vagg, 1999).

Table 1

Respondents' Demographic Characteristics

Category	*n*	%
Marital status		
Married	113	85.0
Divorced	10	7.5
Widow/er	2	1.5
Single	4	3.0
Missing values	4	3.0
Years working in industrial/technical teacher education		
2 years or less	1	0.8
2-5 years	7	5.3
6-10 years	17	12.8
11-15 years	22	16.5
16-20 years	16	12.0
21-25 years	22	16.5
26 years or more	41	30.8
Missing values	7	5.3
Tenure status		
Tenured	101	75.9
On tenure track	24	18.0
Non-tenure track	5	3.8
Missing values	3	2.3
Academic rank		
Instructor	1	0.8
Assistant professor	20	15.0
Associate professor	58	43.6
Full professor	49	36.8
Other	2	1.5
Missing values	3	2.3

To determine the level of burnout among industrial and technical teacher educators, responses from the MBI-HSS were analyzed using descriptive statistics. The mean score for emotional exhaustion was 19.28 (SD = 11.33). The mean score for depersonalization was 6.15 (SD = 5.75). The mean score for personal

Table 2

Means and Standard Deviations for the JSS

Scale/sub-scale	*N*	*M*	*SD*
Job Stress Index (JS-X)	130	20.67	12.68
Job Stress Severity (JS-S)	133	4.64	1.54
Job Stress Frequency (JS-F)	130	3.66	1.80
Job Pressure Index (JP-X)	128	24.37	15.65
Job Pressure Severity (JP-S)	129	4.59	1.63
Job Pressure Frequency (JP-F)	129	4.64	2.36
Lack of Organizational Support Index (LS-X)	128	21.53	18.57
Lack of Organizational Support Severity (LS-S)	129	5.18	1.79
Lack of Organizational Support Frequency (LS-F)	129	3.31	2.26

Note. The possible score range for the JS-X is 0 (low degree of stress) to 79.8 (high degree of stress), and the possible score range for JP-X and LS-X is 0 (low degree of stress) to 81 (high degree of stress). A score of 5 represents a moderate amount of stress for JS-S, JS-F, JP-S, JP-F, LS-S, and LS-F.

accomplishment was 37.27 (*SD* = 7.75). Maslach and Jackson (1996) provided criteria for categorization of MBI-HSS scores into low, average, and high degrees of experienced burnout for postsecondary educators. For emotional exhaustion, scores $\leq$ 13 represent a low degree of burnout; scores 14-23 represent an average degree of burnout, and scores $\geq$ 24 represent a high degree of burnout. Scores of $\leq$ 2, 3-8, and $\geq$ 9 in depersonalization represent, respectively, low, average, and high degrees of burnout. Scores of $\geq$ 43, 36-30, and $\leq$ 35 in personal accomplishment represent, respectively, low, average, and high degrees of burnout. Using these criteria, industrial and technical teacher educators reported an average degree of burnout for all three dimensions of burnout.

Stepwise multiple regression analysis was used to determine which demographic characteristics predicted differences in levels of job stress among industrial and technical teacher educators and how much difference each predicted. The predictor variables for this analysis were the demographic characteristics reported on the demographic questionnaire; the dependent variables were the scales and sub-scales of the JSS. Although no significant predictors were found for LS-X or LS-F, significant predictors were identified for all of the other scales and sub-scales. The significant predictors and the amount of difference they predicted are presented in Table 3.

Stepwise multiple regression analysis was also used to determine which demographic characteristics predicted differences in levels of burnout among

industrial and technical teacher educators and how much difference each predicted. The predictor variables for this analysis were the demographic characteristics reported on the demographic questionnaire; the dependent variables were the sub-scales of the MBI-HSS. Only gender and amount of time devoted to research significantly predicted burnout, predicting differences in emotional exhaustion and personal accomplishment, respectively. Gender explained 4.2% (SE = 11.02) of the variance in emotional exhaustion, and research activity explained 2.7% (SE = 7.59) of the variance in personal accomplishment.

Table 3

Model Summaries for JSS Sub-Scales

Predictor variable	Predictor(s)	R	R^2	Adjusted R^2	SE
JS-X	Yrs current position	.22	.05	.04	12.50
JS-S	Yrs current position	.19	.04	.03	1.57
JS-F	Age	.26	.07	.06	1.74
	Age, teaching	.31	.10	.08	1.71
JP-X	Age	.37	.14	.13	14.72
	Age, gender	.43	.13	.17	14.37
	Age, gender, administration	.47	.22	.20	14.09
JP-S	Yrs current position	.28	.08	.07	1.62
	Yrs current position, tenure	.34	.11	.10	1.59
	Yrs current position, tenure, gender	.38	.14	.12	1.57
JP-F	Teaching	.37	.14	.13	2.17
	Teaching, age	.47	.22	.21	2.07
LS-S	Employment status	.21	.04	.03	1.78

Note. JS-X = Job Stress Index, JS-S = Job Stress Severity (JS-S), JS-F = Job Stress Frequency, JP-X = Job Pressure Index, JP-S = Job Pressure Severity, JP-F = Job Pressure Frequency, LS-X = Lack of Organizational Support Index, LS-S = Lack of Organizational Support Severity, LS-F = Lack of Organizational Support Frequency.

Discussion

Among the subscales of the JSS, LS-S had the highest mean (M = 5.18), indicating that respondents perceived that stress relative to lack of organizational

support was more severe than stress related to job pressures as measured by JP-S (M = 4.59). Stressors reflecting lack of organizational support include difficulties with supervisors or coworkers and organizational policies and procedures (Spielberger & Vagg, 1999). In contrast, stressors related to job pressures reflect specific aspects of the job itself. Interestingly, although respondents rated stressors relative to lack of organizational support as the most severe, they also indicated that those stressors occurred less frequently (as measured by LS-F; M = 3.31) than stressors related to job pressures (as measured by JP-F; M = 4.64). Thus, while lack of organizational support stressors may not occur frequently, when they do occur, they are perceived as severe.

In the context of PE fit theory, findings relative to severity of lack of organizational support stressors could indicate a mismatch between an individual and the environment. Findings regarding job pressure stressors—which respondents indicated occurred more frequently than lack of organizational support stressors but were perceived as being less severe than lack of organizational support stressors—could indicate presence of fit between demands and abilities. Although the job itself exerts numerous demands, industrial and technical teacher educators feel prepared and competent to meet those demands.

Regarding the level of burnout among industrial and technical teacher educators, respondents scored in the average range for all three subscales of the MBI-HSS relative to the normative sample of postsecondary educators (Maslach & Jackson, 1996). This finding has both positive and negative implications. On the positive side, it suggests that industrial and technical teacher educators do not suffer from high levels of burnout. However, as it also suggests that they do not have low burnout, there could be factors within industrial and technical teacher education that put faculty at-risk for developing burnout.

Regarding the demographic characteristics that predicted job stress among industrial and technical teacher educators, several variables were significant. Years in current position was first in the regression equation for JS-X, JS-S, and JP-S. Likewise, age entered the regression equation first for JS-F and JP-X and second for JP-F. This finding was in line with results from other studies that indicated that stress among postsecondary faculty decreased as faculty members aged (Gmelch et al., 1986; Marcy, 1996), perhaps indicating that faculty members develop increased skills to deal with job pressures as they spend more time in a position and as they age. Furthermore, gender was found to be a significant predictor for JP-X and JP-S, which supports other findings relative to the relationship between stress and gender (Blackburn & Bently, 1993; Blix et al., 1994; Sax et al., 1999; Smith et al., 1995; Thompson & Dey, 1998). Interestingly, ethnicity did not enter the regression equation as a significant predictor of job stress in any of the JSS' subscales, which contradicts earlier findings (Dey, 1994; Smith & Witt, 1993; Thompson & Dey).

Although demographic characteristics predicted variance relative to job stress, the amount of predicted variance was relatively small. The model accounting for the most difference in any of the JSS subscales—teaching followed by age for JP-F—had an adjusted R^2 value of only .207. Thus, nearly 80% of the variance can be attributed to factors other than demographic characteristics. For the other subscales, the percentage of unexplained variance was even greater. The relatively small amount of explained variance might be good news for administrators seeking to address job stress issues among industrial and technical teacher educators. Whereas little could be done to address demographic characteristics, other factors accounting for variance might be amenable to intervention.

Regarding demographic characteristics predictive of burnout among industrial and technical teacher educators, the study yielded a paucity of significant results. This paucity was reflected in the number of demographic characteristics that were significant predictors of burnout as well as by the amount of variance predicted by those characteristics. Only gender predicted variance in emotional exhaustion (adjusted R^2 = .042), and only amount of time devoted to conducting research predicted variance in personal accomplishment (adjusted R^2 = .027). No demographic characteristic predicted variance in depersonalization. Therefore, factors accounting for over 95% of the variance in burnout levels among industrial and technical teacher educators have yet to be identified.

Conclusions and Recommendations

Results from this study indicate that factors other than demographic characteristics explain a large amount of the variance in industrial and technical teacher educators' levels of job stress and burnout. Also, results indicate that industrial and technical teacher educators view stressors related to lack of organizational support as more severe than stressors related to job pressures. These findings have implications for addressing job stress in industrial and technical teacher education.

Because demographic characteristics do not explain a large amount of variance in industrial and technical teacher educators' levels of job stress and burnout, other variables should be examined for their effects on job stress. Since respondents reported that they perceive lack of organizational support stressors as more severe than any other type of stressor, a logical starting point for identifying factors impacting job stress is at the organizational level. This assumption is supported by research on job satisfaction among industrial and technical teacher educators that also indicates that organizational policies and procedures could benefit from review (Brewer & McMahan-Landers, 2003). Administrators should investigate how lack of organizational support affects industrial and technical teacher educators. Do industrial and technical teacher educators perceive lack of organizational support resulting from lack of communication from supervisors? Or, is there discord among

coworkers? Are there specific policies and procedures that cause stress for industrial and technical teacher educators? When administrators know the answers to those questions, they can eliminate, change, or create policies and procedures aimed at having a positive effect on job stress levels. Moreover, they can use answers to those questions to implement staff development strategies and to design interventions to assist industrial and technical teacher educators in dealing with job stress.

Relative to burnout, this study determined that industrial and technical teacher educators experience an average degree of emotional exhaustion, depersonalization, and personal accomplishment. Furthermore, demographic characteristics account for little of the variance in burnout scores among this population. Therefore, additional research is warranted to gain an increased understanding of burnout among industrial and technical teacher educators. Because burnout has been viewed as the result of chronic stress (Maslach & Schaufeli, 1993), findings from this study relative to job stress among industrial and technical teacher educators could be used to guide future research endeavors regarding burnout in this population. Thus, effective interventions might be designed around organizational policies and procedures.

On the positive side, industrial and technical teacher educators indicated that, although stressors related to job pressures occur more frequently than stressors related to lack of organizational support, job pressure stressors are not perceived as severe. This suggests that industrial and technical teacher educators are successful at coping with the demands placed on them by the job itself. However, while industrial and technical teacher educators are competent at handling the pressures associated with the job itself, stressors stemming from lack of organization support could undermine that competence, thus causing industrial and technical teacher education to lose some of its most valuable resources—its faculty.

References

Astin, A. W. (1993). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Barnes, L. L. B., Agago, M. O., & Coombs, W. T. (1998). Effects of job-related stress on faculty intention to leave academia. *Research in Higher Education, 39,* 457-469.

Biglan, A. (1973). The characteristics of subject matter in different academic areas. *Journal of Applied Psychology, 57,* 195-203.

Blackburn, R. T., & Bently, R. J. (1993). Faculty research productivity: Some moderators of associated stressors. *Research in Higher Education, 34,* 725-745.

Blix, A. G., Cruise, R. J., Mitchell, B. M., & Blix, G. G. (1994). Occupational stress among university teachers. *Educational Research, 36,* 157- 169.

Boles, J. S., Dean, D. H., Ricks, J. M., Short, J. C., & Wang, G. (2000). The dimensionality of the Maslach Burnout Inventory across small business owners and educators. *Journal of Vocational Behavior, 56*(1), 12-34.

Bowden, R. G. (2000). The professoriate: Humor coping, job stress, and faculty burnout (Doctoral dissertation, University of Denver, 2000). *Dissertation Abstracts International, 61*, 517.

Brewer, E. W., & McMahan-Landers, J. (2003). Job satisfaction among industrial and technical teacher educators. *Journal of Industrial Teacher Education, 40*(2).

Byrne, B. M., & Hall, L. M. (1989, March). *An investigation of factors contributing to teacher burnout: The elementary, intermediate, secondary, and postsecondary school environments.* Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco.

Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review, 18*, 621-656.

Dey, E. (1994). Dimensions of faculty stress: A recent survey. *Review of Higher Education, 17*, 305-322.

Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons.

Dillon, J. F., & Tanner, G. R. (1995). Dimensions of career burnout among educators. *Journal and Mass Communication Educator, 50*(2), 4-13.

Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28-67). New York: Oxford University Press.

Edwards, J. R., & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. *Journal of Organizational Behavior, 11*, 293-307.

Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues, 30*, 159-165.

French, J. R. P., Jr., & Caplan, R. D. (1972). Organizational stress and individual strain. In A. J. Marrow (Ed.), *The failure of success* (pp. 30-66). New York: Amacom.

French, J. R. P., Jr., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain.* London: Wiley.

French, J. R. P., Jr., Rogers, W., & Cobb, S. (1974). Adjustment as person-environment fit. In G. V. Coelho, D. A. Hamburg, & J. E. Adams (Eds.), *Coping and adaptation* (pp. 316-333). New York: Basic Books.

Gmelch, W. H., Wilke, P. K., & Lovrich, N. P. (1986). Dimensions of stress among university faculty: Factor analytic results from a national study. *Research in Higher Education, 24*, 266-286.

Gold, Y. (1984). The factorial validity of the Maslach Burnout Inventory in a sample of California elementary and junior high school classroom teachers. *Educational and Psychological Measurement, 44*, 1009-1016.

Green, D. E., Walkey, F. H., & Taylor, A. J. W. (1991). The three-factor structure of the Maslach Burnout Inventory: A multicultural, multinational, confirmatory study. *Journal of Social Behavior and Personality, 6*, 453-472.

Harrison, R. V. (1978). Person-environment fit and job stress. In C. L. Cooper & R. Payne (Eds.), *Stress at work* (pp. 175-205). New York: Wiley.

Iwanicki, E. F., & Schwab, R. L. (1981). A cross-validational study of the Maslach Burnout Inventory. *Educational and Psychological Measurement, 41*, 1167-1174.

Jackson, R. A. (1993). An analysis of burnout among school of pharmacy faculty. *American Journal of Pharmaceutical Education, 57*(1), 9-17.

Krejcie, R. V., & Morgan, D. V. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*, 607-610.

Lease, S. H. (1999). Occupational role stressors, coping, support, and hardiness as predictors of strain in academic faculty: An emphasis on new and female faculty. *Research in Higher Education, 40*, 285-307.

Lee, R. T., & Ashforth, B. E. (1993). A further examination of managerial burnout: Toward an integrated model. *Journal of Organizational Behavior, 14*, 3-20.

Marcy, T. (1996, May). *Stress, strain, and coping resources among faculty at a research university during financial decline.* Paper presented at the Annual Forum of the Association for Institutional Research, Albuquerque, NM. (ERIC Document Reproduction Service No. ED397724)

Maslach, C., & Jackson, S. E. (1996). *Maslach burnout inventory—Human services survey*. Palo Alto, CA: Consulting Psychologists Press.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *MBI manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

Maslach, C., Jackson, S. E., & Schwab, R. L. (1996). *Maslach Burnout Inventory—Educators Survey*. Palo Alto, CA: Consulting Psychologists Press.

Maslach, C., & Schaufeli, W. B. (1993). Historical and conceptual development of burnout. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 1-18). Washington, DC: Taylor & Francis.

Olsen, D. (1993). Work satisfaction and stress in the first and third year of academic appointment. *Journal of Higher Education, 64*, 453-471.

Sax, L. J., Astin, A. W., Korn, W. S., & Gilmartin, S. K. (1999). *The American college teacher: National norms for the 1998-1999 HERI faculty survey.* Los

Angeles: Higher Education Research Institute. (ERIC Document Reproduction Service No. ED435272)

Schaufeli, W. B., Enzmann, D., & Girault, N. (1993). Measurement of burnout: A review. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 199-215). Washington, DC: Taylor and Francis.

Schaufeli, W. B., & Van Dierendonck, D. (1993). The construct validity of two burnout measures. *Journal of Organizational Behavior, 14*, 631-647.

Seiler, R. E., & Pearson, D. A. (1985). Dysfunctional stress among university faculty. *Educational Research Quarterly, 9*(2), 15-26.

Smith, E., Anderson, J. L., & Lovrich, N. P. (1995). The multiple sources of workplace stress among land-grant university faculty. *Research in Higher Education, 36*, 261-282.

Smith, E., & Witt, S. L. (1993). A comparative study of occupational stress among African American and White university faculty: A research note. *Research in Higher Education, 34*, 229-241.

Spielberger, C. D., & Vagg, P. R. (1999). *Job stress survey: Professional manual.* Odessa, FL: Psychological Assessment Resources.

Thompson, C. J., & Dey, E. L. (1998). Pushed to the margins: Sources of stress for African American college and university faculty. *Journal of Higher Education, 69*, 324-345.

Thorsen, E. J. (1996). Stress in academe: What bothers professors? *Higher Education, 31*, 471-489.

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