An Analysis of the Relationships Between the Perceived Organizational Climate and Professional Burnout in Libraries and Computing Centers in West Virginia Public Higher Education Institutions

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ABSTRACT

An Analysis of the Relationships Between the Perceived Organizational Climate and Professional Burnout in Libraries and Computing Centers in West Virginia Public Higher Education Institutions

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The purpose of this study was to determine the relationships between the perceived organizational climate and professional burnout in libraries and computing services units in West Virginia higher education. Research questions were defined to investigate the differences between libraries and computing services units in the perceived organizational climate, professional burnout, organizational climate vs. burnout, demographics vs. organizational climate, demographics vs. burnout, and the combined effects of demographics and organizational climate upon burnout. The Work Environment Scale (WES) Form R, third edition, the Maslach Burnout Inventory (MBI) HSS, third edition, and a demographic questionnaire measured the organizational climate, burnout, and demographics. Standard research methods were used to collect, analyze, and report on the data. The research population was the 521 library and computing services staff and faculty employees of the West Virginia public higher education institutions. Correlation and ANOVA techniques were used. Findings included: (a) significant differences in gender distribution, percentage of supervisors, marital status, and faculty classification, but not in occurrence of direct client contact, age, education, or years in their profession or position, (b) significant divergences from the published norms for each measure of the WES or MBI toward a positive environment, except a significantly lower level of personal accomplishment compared to the
postsecondary education norms (c) significant differences in the organizational climate measures of Work Pressure, Clarity, and the Work Stressors Index, (d) no significant differences in burnout measures, (e) a significant relationship between positive environmental characteristics and lowered burnout indicators in both groups, (f) consistent relationships between demographics and organizational climate with other reported studies, (g) consistent relationships between demographics and burnout measures with other studies except no relationship with gender and a positive relationship between education and burnout, and (h) the Relationships dimension of the WES was the most important factor related to lower burnout measures for both units, however the WES Personal Growth dimension and general experience seemed to have a larger relationship with decreased burnout in computing services and the WES System Maintenance and Change dimension and being married have a larger relationship with decreased burnout in libraries
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CHAPTER I

INTRODUCTION TO THE PROBLEM

Introduction

Organizations are changing. Traditional bureaucratic organizational forms are changing to flexible forms which allow them to meet unique demands. As a result the nature of work is different now. So too are the workers, the work environment, and the work pressures that make up the core of these organizations different.

Higher Education is not exempt from these trends. It is likewise under tremendous pressure to change and adapt to meet the changing needs and demands of society and an equally changing world (Duderstadt, 1999). Compilations of these pressures generally have at least two forces listed: dramatic changes in the Higher Education business environment, and the introduction of information technology (D. Jones, 2001). Institutional reactions to these two forces are changing the way internal service units operate. These changes, though inevitable, are taking place today at a much accelerated pace (D. Conner, 1996). The psychological well being of those workers unprepared for or unable to cope with an environment of constant and radical change and the resultant constant stress is in question. The existence of constant change can result in high levels of stress (Patenaude, 1998). The existence of chronic stress upon an individual can result in varying levels of professional burnout (Winnubst, 1993b). The effects of the environment in these situations might play a more important part than personal characteristics (Cherniss, 1980b). The presence of stress
and burnout in the workplace may lower the effectiveness of the employee, which, in turn, lowers the efficiency and effectiveness of the organization. Inefficiency and ineffectiveness are obvious challenges to the professed goals of increased efficiency and effectiveness promised by the introduction of technology and other organizational changes into the workplace. This juxtaposition of goals and outcomes should raise questions in any organizational researcher.

Two service units of particular importance to higher education today are the library and computing services. These two units, perhaps more than others in the institution, are struggling with these new work environments to meet the demands of their clients. How are they dealing with these demands? Very little research specific to the environments of these two important units is available. Therefore, a study to compare the relationship of organizational climate and burnout between the library and computing services units seems warranted. This paper outlines the background, theoretical and research foundations, a methodology, and the results of a study to investigate the relationships that might exist between library and computing service units in West Virginia public higher education institutions. The expected outcomes of this investigation were baseline data on the current library and computing services organizational climates; a similar comparison of the level of professional burnout of the employees of these two units; an analysis of the relationships between the organizational climate and burnout within and between these units; an analysis of these relationships and their possible theoretical connection to operational effectiveness; and ultimately recommendations for improving the working relationships between these two units.
Background

The Changing Nature of Work

Organizations are changing. Traditional, bureaucratic organizational forms are changing to flexible, responsive forms which allow them to meet their unique customer demands and thus to succeed. In order to meet customer demands, businesses are shifting their strategy from high volume to high value (Reich, 1992), learning and adapting to a changing business environment (Kanter, 1989a), striving to eliminate bureaucracy (Reich, 1992), empowering workers (Bahrami, 1982; Cascio, 1995; Kanter, 1989b), and changing the very concept of the job (Bridges, 1994b).

As a result of these new organizational forms, the nature of work is also changing. Work is now too fluid and idiosyncratic to be called a job (Bridges, 1994b). Jobs are too rigid to permit an organization to respond quickly to change (Bridges, 1994a, 1994b). Instead, employees may define their work by regularly renegotiating their work objectives with their manager. Work relationships are now more fluid as cross functional project groups become the norm and employees move from project to project, from group to group (Reich, 1992). Today a different set of characteristics are expected in new employees, and new types of workers are making up the core of these organizations. These new work characteristics include (Cascio, 1995):

Continuous change – Post-industrial workers must adapt quickly to changes in tasks, products, roles, team members, and organizational structure (Cascio, 1995; Davidow & Malone, 1992; Toffler, 1980). For these workers, organizational change is no longer periodic or episodic, it is continuous and constant (D. Conner, 1996).
**Empowerment** – Post-industrial organizations require large numbers of highly skilled, reliable, and educated workers (Davidow & Malone, 1992). To enable quick decision-making, these workers are empowered. They have a great deal of autonomy, authority, resources, and discretion for taking initiatives (Bahrami, 1982; Cascio, 1995; Kanter, 1989a).

**Continuous learning** – Post-industrial organizations expect workers to be continually learning (Cascio, 1995). Those who do not are threatened with rapid obsolescence (Bridges, 1994b; Victor & Stephens, 1994).

**Increased responsibility** – Post-industrial workers must be willing to accept responsibility and must be able to handle even larger tasks (Toffler, 1980).

**Increased scope** – Post-industrial workers take on broader responsibilities and a wider purview of activities (Davidow & Malone, 1992).

**Teamwork** – Post-industrial workers will only succeed if they can work well with others, given the high degree of coordination required by these organizations (Davidow & Malone, 1992). They must be able to understand how their work dovetails with that of others and be able to participate in self-managed work teams (Toffler, 1980).

These new types of workers are often referred to as knowledge workers. Knowledge workers resist the command and control model of management. They are colleagues and associates rather than subordinates and must be managed as such (Reich, 1992). Organizations attract these workers with extrinsic rewards – high salaries, profit sharing, stock options, and other more intangible benefits (Reich, 1992). However, there is a great possibility for work overload because post-industrial organizations lack any system to inform workers when they have done enough (Ashkenas, Ulrich, Jick, & Kerr, 1995; Kanter, 1989b).
Increasing pressure also comes with the loss of boundaries that define roles, status, and security because workers must stretch beyond what has, in the past, been a well defined specific “job” role (D. D. Davis, 1995). This environment of continual change produces high levels of stress and burnout (Patenaude, 1998).

*The Changing Environment in Higher Education*

Our world is changing from an economy and society built upon industry to one centered upon knowledge. Knowledge has become the key strategic resource and the educated person the holder of the key (Bloch, 1988). Knowledge is inexhaustible and the more it is used the more it multiplies and can be absorbed and used by the educated mind. As a result, the institutions and social units that create, educate, and disseminate knowledge are very important to our society (Bok, 1990).

Higher Education is changing and reacting to this knowledge environment. This decade will be a period of significant transformation for Higher Education. It will need to respond to the needs of a changing society and world. Developing a capacity for change and ridding itself of unnecessary processes and administrative structures will be a critical challenge (Duderstadt, 1999).

Two specific pressures confronting Higher Education are the changing business environment, specifically the changing expectations of the clients of Higher Education; and the introduction of information technology and its consequences (D. Jones, 2001). The clients of Higher Education are more varied that one might expect. Jones (2001) lists students, employers, communities, and the state as the clients of Higher Education, and notes that the expectations of all have changed radically and increased in scope. Likewise, the introduction
and infusion of information technology throughout the institution has had a significant impact upon the processes of education, and operation.

**The Rise of Importance of Computing and Technology within Higher Education**

The drive toward the knowledge-based global society has been fueled by information technologies such as computers and communications networks. Technology has increased our capacity to communicate and to know things (Duderstadt, 2001). An important element in the information technology formula of Higher Education is the computing and networking services unit. It is also a good example of the new organizational form. The rise to a position of importance on most campuses in just over three decades has left the computing services units in an atmosphere of constantly increasing change, innovation, uncertainty, customer demand, responsibility, and scope, while simultaneously existing on limited resources. The use of project teams and a climate of high expectations, long hours, and constant learning is the norm. The struggle of the past two decades to attract sufficient qualified workers into this rapidly expanding sector has created an environment and culture of rapid change, and independence. The consistent high level of expectations by management and customers provides a concomitant high level of stress.

**The Changing Environment of the Library in Higher Education**

Stress is no stranger to today’s librarians and library staff either. The library profession is currently experiencing changes that are unparalleled in their collective memory. The pressures on the traditional library environment to accelerate to the pace required by the new students, scholars, and workers of today’s technocracy are greater than ever. They are
likely causing a level of uncertainty and stress not seen in recent memory.

*The Realignment of Computing Services and Libraries*

A specific example of organizational adaptation and post-industrial realignments affecting today’s higher education is a change in the alignment of functions, reporting structures, and relationships that is taking place within information organizations. The various organizational and institutional activities related to information processing, storage, organization, and retrieval are merging and coalescing. While many of the traditional functions of the library, information center, or media center of the past remain, the forms, activities, and, in most cases, even some of the functions are rapidly changing. The insertion of modern computing, communications, and “personal assistant” technologies into the traditional library environment is creating a new institutional entity. Given these trends, it would seem advantageous to predict (and perhaps avoid) any conflicts or workplace stress that might arise from differences in these units as they work more closely, are co-located, or perhaps merged.

*The Model*

The conceptual model used in this study is patterned after the work of Moos (1994b)(see Figure 1). In this model the work environment characteristics combine with the personal factors to influence the work stressors, coping responses, and the outcomes. The presence of bi-directional arrows depicts the feedback mechanisms that exist among the various factors.
Figure 1. Theoretical model of Organizational and Personal Factors and Outcomes (adapted from Moos, 1994b, p. 29).

Figure 2 shows the conceptual model of the interactions of similar components in the model of burnout as proposed by Maslach, Jackson and Leiter (1996). This figure depicts distinct predictors for each of the three subscales of the Maslach Burnout Inventory – Human Services Survey (MBI-HSS), including a path from Emotional Exhaustion to Depersonalization as the key relationship among the MBI-HSS subscales. In general, predictors of burnout include both the demands of work and the lack of various resources (Maslach et al., 1996).
Figure 2. Structural Model of Burnout  (adapted from Maslach, Jackson and Leiter, 1996, p. 36).

Figure 3 depicts the unified model proposed for this study. One can relatively easily map the Resources and Demands of the burnout model (Figure 2) to the environmental and personal factors of the stress model (Figure 1). As described above the existence of a constant stress that overtaxes either the organizational environment support factors, the personal resources, or the coping strategies of the individual can lead to burnout and a resultant lowering of morale, performance, and quality of service and other outcomes.
Researchers and practitioners generally accept that organizations and, in fact, units within an organization are imbued with a characteristic culture. They, likewise, generally accept that conflicts arise between mismatched employee personality characteristics and their organizational culture as well as between whole organizations with dissimilar cultures. Therefore, it is possible that conflict will occur between units within an organization having dissimilar cultures. On the other hand, one might postulate that two units that work well together or perhaps just work very closely together might have or develop similar cultures.

The relationship between organizational culture and organizational climate has been the subject of much debate in the literature but researchers generally agree that they are closely associated. Organizational culture is quite an ethereal concept and, as such, is very

**Organizational Climate and Culture**
difficult to measure (Denison, 1996). Conversely, organizational climate is variously defined as the perceptions of the environment by the members of an organization. Some maintain a component of the organizational climate is the organizational culture (Tagiuri, Litwin, Barnes, & Harvard University. Graduate School of Business Administration., 1968). Others believe that organizational climate is a component of the organizational culture (Cooke & Szumal, 1993; Moran & Volkwein, 1992). Because climate is much easier to measure, and is largely influenced by and closely related to the organizational culture, it is an excellent candidate as a proxy for the study of organizational culture, in addition to its intrinsic qualities.

The Relationship of Organizational Climate and Culture to Organizational Effectiveness

The direct links between organizational culture and organizational effectiveness are tenuous. Discussion of the issue is limited to associations because no significant body of experimental research in which the variables are fully controlled exists. Much of the research on organizational culture, in both corporate and educational organizations, is related to the effectiveness of the organizations. Many studies describe relationships between performance and the organizational culture within the company. Comparable support exists for the similar thesis in education (R. G. Owens, 1998).

A substantial and growing body of empirical evidence indicates that the effectiveness of these organizations is significantly influenced by the quality and characteristics of the organizational culture. Further, by delineating the critical factors involved, the concepts arising from this body of research make it possible to plan and manage organizational culture purposefully (R. G. Owens, 1998).
Stein and Bloom suggest that environmental press or social demands of environments are important influences on people’s behavior (cited in Insel & Moos, 1974a). According to Moos (1974; 1976), climate has been regarded as the most important mediating factor of structural influences on people’s behavior. Empirical findings support climate as a significant influence on organizational performance as well as the motivation of employees (Moran & Volkwein, 1992). Moos (1974) argues that climate is more directly related to worker productivity than salary, physical status of workers, and formal communication networks. This finding, though, is more evident in mental health treatment environments (Moos, 1974). According to Moos (1974), the influence of an organization on its workers’ behavior depends on worker roles in the hierarchy, demographic and background characteristics, and social climate.

Thus, the direct connections between culture and climate and effectiveness, though tenuous, are compelling and provide an incentive for further study. However, perhaps even more important to the operational efficiencies of an organization than the direct effects of climate and culture is an indirect effect of the stress in some organizations and the development of a pathology of burnout among the employees.

**Stress and Coping**

Stress arises from any interaction between an individual and the environment when the individual perceives the situation as threatening, challenging or possibly damaging. Essentially, the individual perceives that a situation may tax or exceed the individual’s resources (Lazarus, 1977). Hans Selye (1950) conducted the initial research on stress. Selye’s
work was based on the premise that any activity or emotion can cause stress, which will require some type of change or adaptation from the individual. The definition of stress used by Selye is “the non-specific response of the body to any demand,” (1976, p.15). Selye’s theory is that some stress is necessary to maintain life, but if the non-specific response places increased demands for adaptation, the effects on the individual may be damaging or excessive.

After conducting extensive animal and human research, Selye (1976) identified a predictable pattern of responses to stress that he termed the general adaptation syndrome (GAS). He identified three stages to this syndrome. The first stage is the alarm stage, the immediate stress response. The individual perceives a stressor that causes the body to begin a physiological response. This response is automatic and unconscious. It is at this point that the individual initiates the “flight or fight” response to the stimuli. The second stage is the stage of resistance. This is the stage where adaptation and coping occur. After using a large amount of the individual’s available energy, the body enters the last stage. This third and final stage is termed exhaustion.

Discussion of stress and adaptation requires careful analysis of the concept of coping. Lazarus (1977) defines coping as a reaction to stressors. This reaction is the individual’s attempt to master conditions of harm, threat or challenge (Goosen & Bush, 1979). Coping mechanisms are “those direct, active tendencies aimed at eliminating a stressful event,” (Lazarus, 1977, p. 8).

With chronic change and uncertainty comes chronic stress on the worker. If the stress
level is high enough, the individual’s coping styles inadequate, or the resources of the individual and the social environment are insufficient, burnout can be the result (Winnubst, 1993b).

**Professional Burnout**

Burnout first appeared in the literature in 1974 describing the emotional and physical exhaustion experienced by caregivers in a drug abuse care center (Freudemberger, 1974a). Subsequently it was recognized that others such as the self-employed professional in private practice, counselors, and nurses shared a common condition (Riggar, 1985). Long recognized as a phenomenon in the human service profession, burnout research has expanded to other professions (Winnubst, 1993b). Executives manifesting attitude change, fatigue, and decreased performance have been labeled burnouts (Cahoon & Rowney, 1984; Greenberger, 1981; Levinson, 1981).

Burnout is defined as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishments that can occur among individuals who work face-to-face with people (Maslach, 1976). Other physical symptoms may include anxiety, nervousness, fatigue, insomnia, headaches, backaches, substance abuse, and depression (Spicuzza & DeVoe, 1982). These physical symptoms often lead to organizational pathologies such as employee turnover, absenteeism, poor morale and lowered productivity (Maslach & Jackson, 1981).

Other researchers characterize burnout as negative attitudes and behavior in response to job stressors (i.e. not necessarily face-to-face client contact) and thus suggest that it is also
important to understand organizational variables (Cherniss, 1980b; Hasenfeld, 1992). The extent of negative changes in mood and behavior are strongly influenced by the nature of the work setting (Cherniss, 1980b). Some aspects of the work environment have been found to be more important than poor coping strategies in creating ill health among workers (Karasek & Theorell, 1990). This is underscored by findings that burnout is positively correlated with negative aspects of climate and culture (Jaffe, 1995).

Burnout is a type of strain that has an influence on many organizational efficiency and effectiveness measures such as absenteeism, turnover, job dissatisfaction and the quality of job performance (Maslach & Jackson, 1981). As such it is important to understand the relationships of worker environment, worker stress, and professional burnout.

**Climate and Burnout in Libraries and Computing Services**

The scarce discussion of the relationships of the library and computing services in the literature on organizational climate or professional burnout; the growing propensity to “connect” these two units, particularly in higher education; and the growing interdependence of the two units suggests that more information is needed about the relationship between these two strategically important institutional units. Therefore, this study was devised to describe the perceived organizational climates of the libraries and computing services units in West Virginia public higher education institutions. Similarly, this study was designed to examine the level of professional burnout of employees of the libraries and computing services units of West Virginia public higher education institutions. Finally, the direct relationships between the organizational climate characteristics and burnout levels, and any mediating or moderating effects of the organizational climate characteristics or selected demographic
characteristics were analyzed.

**Statement of the Problem**

The following problem statement was adopted to guide this investigation: What are the characteristics of the organizational climate, the rate of professional burnout, the demographic profile, and the interactions of these factors between the library and computing services units of West Virginia public higher education institutions?

**Research Questions**

The following specific research questions were similarly adopted:

1. In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?

2. In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel?

3. In what ways, if any, are the perceived organizational climates of the library and computing services units related to levels of professional burnout found in these units?

4. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?

5. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?

6. In what ways, if any, do the demographic characteristics or the organizational climate
characteristics moderate or mediate the level of professional burnout of the employees of the library and computing services units?

**Operational Definitions**

The following operational definitions were adopted for the various concepts, measurements, variables, and instruments to further refine and delimit the study:

**Organizational Climate**

Organizational Climate is the subjects’ responses on the ten first order scores (Involvement, Coworker Cohesion, Supervisor Support, Autonomy, Task Orientation, Work Pressure, Clarity, Managerial Control, Innovation, and Physical Comfort), and two summary indices – the Work Stressors Index (WSI) (the sum of Work Pressure, Managerial Control, and reverse scored Autonomy and Clarity) and Work Relationships Index (WRI) (the sum of Involvement, Coworker Cohesion, and Supervisor Support) – of the *Work Environment Scale (WES)* Form R, third edition (Moos, 1994b). The subjects were asked to respond to the WES in the context of their perceptions of the existing work climate.

**Professional Burnout**

Professional Burnout is defined as the subjects’ responses to the three subscales (Emotional Exhaustion, Depersonalization, and Personal Accomplishment) of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), third edition (Maslach et al., 1996).

- A *high degree of burnout* is reflected in high scores on the Emotional Exhaustion and Depersonalization subscales and in low scores on the Personal Accomplishment subscale.
• An average degree of burnout is reflected in average scores on the three subscales

• A low degree of burnout is reflected in low scores on the Emotional Exhaustion and Depersonalization subscales and in high scores on the Personal Accomplishment subscale (Maslach et al., 1996, p. 5).

At present, scores are considered high if they are in the upper third of the normative distribution, average if they are in the middle third and low if they are in the lower third. The numerical cut-off points are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Categorization of MBI Scores</th>
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<tr>
<td>MBI Subscales</td>
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<tr>
<td>Overall Sample</td>
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<tr>
<td>Emotional Exhaustion</td>
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<td>Depersonalization</td>
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<td>Personal Accomplishment</td>
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<tr>
<td>Post-secondary Education</td>
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<tr>
<td>Emotional Exhaustion</td>
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<tr>
<td>Depersonalization</td>
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<td>Personal Accomplishment</td>
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(adapted from Maslach et al., 1996, p. 6)

West Virginia Public Higher Education Institution

A West Virginia public higher education institution is a publicly supported, free standing, accredited 2 year or 4 year college or university in the state of West Virginia. Specifically this includes: West Virginia University, Marshall University, WV School of Osteopathic Medicine, Fairmont State College, West Virginia State College, Shepherd
College, Glenville State College, West Liberty State College, Bluefield State College, Concord College, Potomac State College, Southern West Virginia Community and Technical College, Eastern West Virginia Community and Technical College, and West Virginia Northern Community College.

**Computing Services**

Computing Services is defined as the organizational unit within the college or university that is responsible for the ongoing management and support of the computing, telecommunications, and network systems of the college or university.

**Library Services**

Library Services, or the Library, is operationally defined as the organizational unit within the college or university that is responsible for the ongoing management and support of the library resources of the college or university.

**Demographic Variables**

Demographic variables include the participants’ answers to the following questions:

- What is your age?
- What is your Gender?
- How many years, total, have you been in your profession?
- How many years have you been in your current position?
- Do you supervise others?
- Are you considered faculty or staff?
• Are you employed in Libraries or Computing Services?
• How many years of formal education beyond High School have you had?
• Do you have regular direct face-to-face contact with individuals that could be considered the clients of your service activities, e.g., faculty, students, staff, visitors, coworkers, etc.?
• What is your marital status?

Significance of the Study

The purpose of this study is to identify any differences in organizational climate that exist between the library and the computing services unit related to a potential decrease in organizational efficiencies and reduced outcomes that are caused by higher levels of professional burnout within the staff. The ability to identify and quantify these differences is important as more institutions attempt the merger of these and other information entities. There is a growing trend in higher education to effect the merger of the various information units within the organization. The mergers could include any combination of the information carriers (telephones, television, networking, and mail services), information processors (the academic, research, and administrative computing centers), and information warehouses (libraries and media centers). Even though all three groups are in the same fundamental business of information transmission, storage, retrieval, and processing, each probably exhibits its own personality.

It would be beneficial to be able to quantify differences in the climate and levels of burnout between these two units in order to measure the heterogeneity or the homogeneity of units destined for merger or undergoing merger. This study provides data useful to institutional presidents, vice presidents, provosts, chief information officers, library deans and
directors, and computing service directors involved in the planning, organizing, coordination, resource allocation, and administration of computing services and libraries in higher education institutions (Barnard, 1979; Gulick & Urwick, 1969; Katz, 1974). This study also provides data useful to researchers and others interested in the patterns of burnout and organizational climate between units within higher education institutions. The study’s descriptive data should be useful to anyone concerned about the future of libraries and computer centers as colleges and universities attempt to adapt to emerging organizational trends, economic constraints, educational needs, changing student demographics, and competition.

No other study could be identified in the literature that, like this study, collected and analyzed data about the organizational climate and patterns of burnout between computing and library services units. Therefore, this study adds to the knowledge in the field of management and administration of libraries, computing services, and merged units.

Society places a great value on access to information. Computing and library services units provide this needed access. Higher education administrators, faculty, and governing boards are tasked to ensure access to information that is effective and efficient. To accomplish this task they must have current research outcomes that can reliably guide their decisions. Department heads, deans, and administrators are responsible for coordinating efforts to deliver education and acquire and access the needed information resources. No one person is capable of completing all of the tasks required, and the process requires the coordination of the efforts of administrators, authors, publishers, faculty, librarians, technologists, and students. Many people with different roles and technical expertise are required. Therefore, a
division of labor is necessary. Organizational theory states that when division of labor is inescapable, coordination becomes mandatory (Gulick & Urwick, 1937). Studies that clarify these processes will aid those who play a role in the process of offering services.

Additionally, deans and administrators are responsible for reporting requirements. The dominant word in higher education in the 1990's was assessment (Peterson, Dill, & Mets, 1997). In the 2000’s it appears to be accountability. State legislatures and governing boards are requiring institutions to look carefully at what they do, how they do it, and what efficiencies exist. In many states the rising costs of health care and criminal justice systems have reduced the resources for education. Colleges and universities must prove their worth and demonstrate efficiencies and effectiveness. This entails extensive assessment programs and reports. This study will help administrators meet this need. This study will also help university presidents, provosts and state governing boards as they engage in strategic planning on a statewide level. Access to higher education and information resources remains a key issue in higher education. Administrators involved in higher education already realize the effects of student dissatisfaction. Students are quick to criticize programs and courses that do not meet their needs. They are even faster to point out to fellow students which courses and instructors to avoid. Poor student satisfaction can lead to the end of a program, course, or delivery system.

Higher education presidents, chancellors, and administrative budget officers are continually concerned about the current growing cost of higher education, and the trend of cutbacks of public support in the United States is forcing many students to put costs first in seeking an education and to act as consumers in a market economy (Hiltz, 1993). Academic
institutions are investing enormous amounts of scarce dollars in libraries, information resources, computing, video, telecommunications and faculty development (M. L. Conner et al., 1995). In addition, students are paying higher tuitions for these services (Boettcher, 1998). One major reason for this investment is to implement changes in educational strategies. A failure in the support services strategy could have far reaching implications on an institution's viability. Many educators, learners, and benefactors urgently need to know whether their investments in technology are actually supporting changes in their strategies, and, if so, whether these changed educational strategies are achieving the desired results (NEA, 1999).

Because global statements about "what works" are of limited utility and validity, and because the local situation changes on a regular basis, there is no substitute for self evaluation (Ehrman, 1996).

Presidents, administrators, faculty, and particularly students are interested in the success of online courses due to the potential positive impact on access to education and educational resources. Access, however, can have both a positive and negative impact on the institution. The computing and networking technology for distance education is creating a free market and exposing all universities and colleges to competition. Students can now cross geographical barriers and take courses in any state or, for that matter, any country (McManus, 1997). A learning infrastructure based on digital technology offers more than just education as usual on the Internet. It offers a set of extraordinary new tools: self-paced, multimedia modules that deliver leading pedagogy; in-depth outcome assessments; and online interaction with fellow students and teachers that facilitate continuous feedback and improvement (Rivard, 1995). The cost for creating, supporting and training in the online environment and
the provision of libraries and computing support resources, requires strong management strategies. Planning is a critical component for all campus administrators involved in the implementation of a successful computing and information delivery program. A change process must occur by designing and evolving the technical and information infrastructure, providing administrative support and leadership, providing systematic faculty development, and assessing performance for continuous improvement of course delivery and services (Dirr, 1999). Academic and financial officers can utilize these findings for planning university resources and coordinating strategic planning in the area of technology, reporting results to external and internal interested constituents, and providing the appropriate budget for a successful information technology program.

**Methodology**

An attempt was made to obtain responses from the entire population of computing services workers and library workers in the public higher education institutions of West Virginia. The expected N for the libraries was 281 and for computing services 240.

A single multi-page bubble sheet questionnaire was generated that contains all of the questions from the demographic section, the WES and the MBI. This helped to simplify and speed the data collection.

General descriptive statistics have been used to provide a general characterization of the return characteristics. Correlation and Analysis of Variance (ANOVA) techniques were used to investigate the various relationships between organizational climate variables, demographic characteristics, burnout levels, and to investigate the relationships between variables to the conceptual model.
Limitations and Assumptions

This study is limited because it is a one-shot case study design with a convenience population and there is a possibility of bias due to the limited population and return size (Campbell & Stanley, 1966). The ability to generalize from the data will be limited (Kerlinger, 1986) particularly as the Appalachian Region has been recognized as having a unique culture (Toth, 1991) and because the study is limited to public institutions of higher education in the state of West Virginia based on the population selected. Campbell and Stanley (1963) further caution researchers engaged in the study of education to be cognizant of threats to external validity. There is always the possibility that the validity demonstrated will hold true only for this particular population due to unknown factors.

The findings of the study are also limited to the reliability and validity of the survey and the accuracy of respondents’ self perceptions, biases and memory (Kerlinger, 1986). This study is dependent upon the instruments measuring characteristics that can be directly related to personality and the workplace. Specifically, the results assume that the Work Environment Scale (WES) is an adequate measure of organizational environmental climate, and that the Maslach Burnout Inventory (MBI) is an adequate measure of professional burnout within the organization. It is further assumed that the participants understood the directions and content of the various survey forms and responded honestly.

Researchers examine attitudes and use the information as a tool to see order and consistency in what people say, think, and do in an attempt to predict future behavior. “An attitude is not something we can examine and measure in the same way we can examine the cells of a person’s skin or measure the rate of her heartbeat” (Hennerson, 1987, p. 11).
Examining complex attitudes as this study does is a complex process. Henerson et al., (1987) urges researchers to not be dissuaded because the task is difficult, but cautions them to remember they are relying on inference, since it is impossible to measure attitudes directly.

Though the task is difficult when researchers seek to measure attitudes, the survey instrument can yield vital information. The beliefs, opinions, attitudes, and feelings that respondents have about cognitive objects are important (Kerlinger, 1986). Researchers, however, need to be cautious because a respondent’s desires, values, and needs may influence the respondent’s answers. In other words, a respondent might give answers that reveal what they believe is the desired answer, rather than the actual answer (Kerlinger, 1986).

A particular limitation of this study, however, is the population size and distribution. For reasons not investigated here, there are very real differences in the demographic makeup of the two units. Computing Services typically has a high male to female ratio and similarly the Library typically has a high female to male ratio. Also, by attempting to extend these techniques to two units within the same organization, it is possible that the current interactions and the immersion of both units into the common university climate will mask any distinctions.

**Summary**

In this section a short background of the theory and literature related to changing work environments, changing environments for higher education, changing environments for libraries and computing services units, a theoretical model relating organizational environments to burnout, organizational climate, stress and professional burnout and their relationships have been presented. A six-part problem statement defining the study with
operational definitions for the various variables was introduced. The study attempts to quantify differences or similarities between the library and computing services in the higher education environment using organizational climate and levels of professional burnout as measures. A set of limitations and assumptions were acknowledged and discussed. Finally, the rationale for and the significance of this study was presented. Identifying and characterizing differences and similarities between libraries and computing services units is important because a current trend in higher education today is a merger of these and other information units. Information gathered during this study should be helpful to a variety of administrators and managers in higher education as they perform their various functions.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

In this chapter a review of the relevant research and literature of the changing work environment, the changing environment of higher education, and the changing environment of the library and computing services units is presented. Then a theoretical model relating organizational environment (organizational climate and culture), stress and coping, and burnout is presented, followed by a detailed review of each of these subjects. Finally, a review of the burnout and organizational climate research specific to libraries and computing services is presented.

The Changing Work Environment

Organizations are changing. Traditional, rigid, bureaucratic organizational forms are changing to flexible, responsive forms which allow them to meet their unique customer demands and thus to prosper. As a result of these new organizational forms, the nature of work is different now. So, too, are the workers and expectations of these organizations different. Patenaude (1998) has provided an excellent review:

New ways of organizing work

Organizations are facing many forces in their environments, such as global competition, the impact of information technology, and the re-engineering of business
processes. Those organizations which are succeeding in being competitive and profitable are doing so by shifting their business strategy from high volume to high value (Reich, 1992). They create high value by serving the unique needs of particular customers.

Organizations need to be able to learn and adapt to the demands of a rapidly changing business environment (Kanter, 1989a). They succeed by instantly producing products or services, customized according to customer demand (Davidow & Malone, 1992). To be this flexible and responsive, organizations cannot simply improve existing processes. They must strive to eliminate bureaucracy (Reich, 1992). Organizations must evolve or they will not be able to compete (Kanter, 1989a). As a result, many organizations are adopting more fluid and dynamic organizational structures and work roles (Ashkenas et al., 1995; Davidow & Malone, 1992; C. Handy, 1991; Howard, 1995a). Managers are restructuring organizations to permit greater innovation and responsiveness to change. Hierarchies are becoming flatter and the use of cross-functional teams is more frequent. Routine work is now outsourced, contracted, or given to part-time or temporary employees, as needed (Reich, 1992). The full-time employees that remain create a core workforce with the requisite competencies to fulfill the ever broadening, ever-increasing demands of customers (C. Handy, 1991).

In the literature, authors describe the new organizational forms as virtual, boundaryless, project-based, and dejobbed (e.g., Ashkenas et al., 1995; Bridges, 1994b; Davidow & Malone, 1992; D. D. Davis, 1995). For this study these organizations will be referred to as *post-industrial organizations*, a term used by Howard (1995a). For a review of the history leading to the emergence of post-industrial organizations, the reader is referred to several excellent publications on the history of work (Howard, 1995a), the rise and fall of the
job as a way of organizing work (Bridges, 1994b), and the history of project-based work (Anell, 1994).

In post-industrial organizations, job responsibilities regularly shift, as do lines of authority. It is a challenge to study this topic because there is no guide that can describe the nature of work in post-industrial organizations (Ries, 1995). The primary characteristic is that workers must adapt and respond quickly to changing customer demands. That is, their “job requirements are always temporary and transient…The dynamic amorphousness of the organization’s environment requires matching dynamic amorphousness within the organization and dynamic amorphousness in work roles” (D. D. Davis, 1996).

Post industrial organizations may simply have work that is too fluid and idiosyncratic to be called jobs (Bridges, 1994b). Many post-industrial organizations, such as the advertising agency Chiat & Day, operate without job descriptions (Bridges, 1994b). Many others have experienced the disappearance of the job: Microsoft, IBM, CIBC, Nike, Price Waterhouse Consulting, Chevron, Allied Signal, Anderson Consulting, IDEO Product Development, Job Boss Software, Intel, Hewlett Packard, EDS, Conde Nast Publications, Sun Microsystems, and Apple Computer (Bridges, 1994b; MacGowan, 1995). They are reorganizing work by unbundling jobs into broader chunks of work that change over time (Cascio, 1995).

Jobs are too rigid to permit an organization to respond quickly to change. As long as workers are spending their energy “doing their job,” they will not be focused on the customer, be self-managers, or be empowerable (Bridges, 1994a, 1994b). Instead, employees may define their work by regularly renegotiating their work objectives with their manager. They may have responsibilities to accomplish or objectives as targets. In post-industrial
organizations, boundaries are permeable and permit the workers to focus on the customer (Ashkenas et al., 1995). Freed from the need to do job duties and a defining job title, workers are also free of “job-mindedness” (Bridges, 1994b). In other words, the workers are free to concentrate on the work that needs to be done.

They may become owners of specific organizational efforts. Ownership may occur because (1) there are no job descriptions to define who should do the work, and (2) there are no job descriptions to get in the way of someone who sees work that needs to be done (Bridges, 1994b).

Handy (1994) compared the organization of work in post-industrial organizations to an inverted doughnut. There is a tightly defined core surrounded by discretionary space. As well, the space is larger for more competent employees. Professionals have always worked on the system of the donut because their professional norms are expected to keep them in line.

The need to respond quickly to change and be innovative is also influencing many organizations to adopt project teams (Reich, 1992). Workers from throughout the organization come together to work as a cross-functional team for the development of a product at organizations such as Microsoft and IDEO (Bridges, 1994b). Workers in project-based organizations have multiple and dynamic roles.

In a fast-moving organization like Intel, a person who is hired will likely be assigned to a project. The project changes over time and the person’s responsibilities and tasks change with it. Then the person is assigned to another project (well before the first one is finished), and then maybe to still another. These additional projects (which also keep evolving) require working under several team leaders, keeping different schedules, being in various places, and performing a number of tasks. …In such a situation, people no longer take their cues from a job description or from a supervisor’s instructions. The signals come from the changing demands of the project itself. (Bridges, 1994b,
Employees move from project to project, knowing that the organization will keep assigning them to projects for as long as they add value to the organization. Organizations may draw on their core employees to form project teams in a manner that is similar to outsourcing. This enables the organization to draw on a pool of people with knowledge of the organization and assign them according to changing needs.

**The major characteristics of Work in the New Organizational Forms**

Cascio (1995) described the changes that are occurring in the world of work as a revolution, which will result in a redefinition of work itself. The following section reviews the most salient characteristics of work for full-time employees in post-industrial organizations based of descriptions in the literature. The characteristics are summarized in Table 2.

<table>
<thead>
<tr>
<th>Table 2. The main characteristics of work in post-industrial organizations</th>
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<tr>
<td>Continuous Change</td>
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<tr>
<td>Empowerment</td>
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<td>Continuous Learning</td>
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**Continuous Change**

Post-industrial workers must adapt quickly to changes in tasks, products, roles, team members, and organizational structure (Cascio, 1995; Davidow & Malone, 1992; Toffler, 1980). For these workers, organizational change is no longer periodic or episodic, it is continuous and constant (D. Conner, 1996). They report an increase in the number of disruptions; in how quickly change must be accomplished; and in the complexity of the changes expected (D. Conner, 1996). According to Davidow and Malone (1992), the
unpredictability of life in the post-industrial organization presents the greatest challenge to workers and management. Kanter (1989a) adds that the uncertainty in our work lives is greater than ever before. This environment of continual change produces high levels of stress and burnout (Patenaude, 1998).

**Empowerment**

Post-industrial organizations require large numbers of highly skilled, reliable, and educated workers (Davidow & Malone, 1992). Drucker (1989) refer to these people as knowledge workers. He describes these workers as specialists who know that they are more knowledgeable in their areas of expertise than their bosses (Drucker, 1989).

To enable quick decision-making, these workers are empowered. They have a great deal of autonomy, authority, resources, and discretion for taking initiatives (Bahrami, 1982; Cascio, 1995; Kanter, 1989a). Workers call on their managers for inspiration and support (Mohrman & Cohen, 1995). Managers are more concerned with enabling workers than with preventing errors (Filipczak, 1992). Consequently, managers improve the outcome by ensuring that workers are well trained, by acting as coaches, and by improving processes (Cascio, 1995; Davidow & Malone, 1992). Managers must raise the level of worker competence so that workers can be trusted to do “what they are not told or even what they can’t be told” (Cornuelle, 1990, p. 47).

Empowered workers are given more trust because they have more accurate information and are more competent (Ashkenas et al., 1995). Workers may experience less stress because they have greater control (Howard, 1995b). Workers may also thrive in an environment of reduced bureaucracy where an employee’s ideas are heard (Ries, 1995).
Indeed, …

there is much discussion about the empowering, challenging, and equalizing advantages of the new organizational form. But there is also a justified fear and loathing. Bureaucracy may have lead to alienation and anomie; we tend to overlook the fact that bureaucracy also fostered procedural if not substantive justice for workers. (Victor & Stephens, 1994, p. 481)

**Continuous Learning**

For workers to make decisions, they must be enabled. Post-industrial organizations expect workers to be continually learning (Cascio, 1995). Those who do not are threatened with rapid obsolescence because new skills will be necessary for them to get the next assignment (Bridges, 1994b; Victor & Stephens, 1994). Workers who refuse training face the threat of dismissal (Murray, 1989).

**Increased Responsibility**

Post-industrial workers must be willing to accept responsibility and must be able to handle even larger tasks (Toffler, 1980). “Workers content to put in their hours, to do their work, and go home may suddenly find themselves saddled with responsibility and control they never desired” (Davidow & Malone, 1992, p. 7).

**Increased Scope**

Work in post-industrial organizations is less repetitive (Toffler, 1980). Workers take on broader responsibilities and a wider purview of activities (Davidow & Malone, 1992). Post-industrial organizations emphasize cross-training and rely heavily on a core of *multi-specialists* (Cascio, 1995; C. Handy, 1991).
Teamwork

Given the high degree of coordination in post-industrial organizations, workers will only succeed if they can work well with others (Davidow & Malone, 1992). First, they must be able to understand how their work dovetails with that of others (Toffler, 1980). They cannot rely on managers to make sure their work fits with the work of other workers: they have to integrate and coordinate their work among themselves (Mohrman, 1996). Second, they must participate in self-managed work teams (Cascio, 1995). To work well with others may mean expressing one’s views and disagreeing with others openly. Workers are favored if they question authority, exercise discretion, and demand that their work be socially responsible (Toffler, 1980). Workers in post-industrial organizations cannot escape the demand to interact with others (Victor & Stephens, 1994).

Knowledge Workers

Knowledge workers resist the command and control model of management. They are colleagues and associates rather than subordinates and must be managed as such. They work with people and their computers. They manipulate data, words, and oral and visual representations. Their roles consist of problem solving, problem identifying, or brokering new problems (Reich, 1992). An organization’s only true competitive advantage is their skills (C. Handy, 1991; Reich, 1992).

Organizations attract these workers with extrinsic rewards. They may offer high salaries or a share in the profits from a project’s success (Reich, 1992). Organizations may offer knowledge workers desirable fringe benefits. For example, at Microsoft workers have access to state-of-the-art equipment, can work flexible hours, deal with little bureaucracy, and
work in a creative environment (Filipczak, 1992). In addition, many knowledge workers find their work intrinsically rewarding. Many enjoy their work, as it often involves “puzzles, experiments, games, a significant amount of chatter, and substantial discretion over what to do next” (Reich, 1992, p. 222). These organizations are places where there is great potential for exciting work (Kanter, 1989a).

However, there is also great opportunity for work overload (Kanter, 1989a). These organizations demand hard work, long hours, commitment, and flexibility (C. Handy, 1991; Kanter, 1989a). Post-industrial organizations only retain workers who are driven and want “to change the world” (Filipczak, 1992, p. 44). Workers who do not accept high levels of responsibility and continuous learning have no place in this organization. Workers have to accept “free-floating demands of the hyperflexible workplace” (Victor & Stephens, 1994). For example, at companies such as Microsoft, employees have access to the building 24 hours day and may have a portable computer as well. They may work anytime-anyplace (Johansen & Swigart, 1994). Although they are not expected to be present at the office from 9 a.m. to 5 p.m., they may need to work 24 hours a day to complete a project for a deadline (Bridges, 1994a; Cascio, 1995) At home or at the office, night or day, there is no hiding place for these workers.

Given that defining roles creates rigidity, post-industrial organizations lack any system to inform workers when they have done enough (Ashkenas et al., 1995; Kanter, 1989a). However, it is made clear in performance reviews that “just doing one’s job” is at best satisfactory performance. The loss of boundaries means that workers must stretch beyond their specific roles (D. D. Davis, 1995). Workers are no longer protected by rigid barriers that
define their roles, status, and security. They can no longer hide by saying, “That’s not my job.” To the contrary, employees are regularly expected to work beyond any limits that a job could set (Bridges, 1994a). A good performance review is not about pleasing one’s boss anymore. Workers must produce accomplishments that result in products or services that please customers (Mohrman, 1996).

If there is no place to hide from work and no visible finish line, then when do workers rest? Given that workers will move from one project to another, they are responsible for setting their own pace (Bridges, 1994b; Toffler, 1980). They will work when opportunities arise, and rest or take vacations when opportunities arise. They will act very much like independent professionals.

**Continuous Change and its Effects**

At this point, the literature describing the various organizational structures, the characteristics of work, and the nature of the workers in post-industrial organizations has been reviewed. While the preceding literature review identified several salient characteristics of work in post-industrial organizations, perhaps the greatest new challenge to workers and management is continuous change.

Continuous change has received little academic scrutiny, unlike most of the other characteristics. Two studies which included measures of the effect of continuous change on workers were found. Using longitudinal case study data and a sociological approach, Schellenberg (1996) studied the reactions of engineers in a turbulent environment. She found that cumulative organizational reorganizations had a significant impact on voluntary turnover. In addition, she found that the persistence of instability rather than the magnitude of the
disruption strained workers’ ability to cope. Similarly, in a study of 180 workers at a post-industrial organization, Patenaude (1998) was able to demonstrate that continuous change (both in frequency and pace) leads to increased emotional exhaustion.

Currently, management books emphasize the importance of adopting a dynamic organizational structure for competitive reasons, yet they give little consideration to the impact of a continually changing work environment on the experience of the workers (e.g., Davidow & Malone, 1992; Drucker, 1989).

It is well documented that change is a source of stress (Hall, Goodale, Rabinowitz, & Morgan, 1978; P. R. Jackson, Stafford, Banks, & Warr, 1983; Schellenberg, 1996; Thoits, 1983). However, past research investigated change as an acute variable, which is one of a short or limited duration. In contrast, continuous change is a chronic variable, one that is present for an ongoing, extended period of time. This distinction is important because Pratt and Barling (1988) have found that the effects of chronic stress differ from the effects of acute stress. If acute change is a source of acute stress, then it is likely that chronic change would be a source of chronic stress and, as will be soon presented, possibly burnout.

**Changes in Higher Education**

The world is in the middle of a societal change from an economy based on manufacturing and industry to a post-industrial society. A new system and a new economy based upon the creation, dissemination, and application of knowledge is emerging. The global society is at the dawn of the age of knowledge. In this new age the principal strategic resource for the creation of wealth is education, ideas, and knowledge itself (Bloch, 1988).

Knowledge is not like the resources of the industrial age. Knowledge multiplies the
more it is used and when properly preserved, replicated, and combined can be sustained perpetually. Knowledge is not available to all. It is the educated mind that is the factory of today and the future. As society becomes more knowledge-intensive, it becomes more dependent upon those institutions such as higher education that create, disseminate, and apply knowledge, that build and mould the factories of the future. (Bok, 1990).

The next decade will represent a period of significant transformation for colleges and universities as we respond to the challenges of serving a changing society and a profoundly changed world. Perhaps the most critical challenges facing most institutions will be to develop the capacity for change; to remove the constraints that prevent institutions from responding to the needs of rapidly changing societies; to remove unnecessary processes and administrative structures; to question existing premises and arrangements; and to challenge, excite, and embolden all members of the campus community to embark on what I believe will be a great adventure.(Duderstadt, 1999, p. 1)

Two specific pressures confronting higher education are the changing business environment, specifically the changing expectations of the clients of higher education; and the introduction of information technology and its consequences (D. Jones, 2001). The clients of higher education are more varied than one might expect. Jones (2001) listed students, employers, communities, and the state as the clients of higher education and notes that the expectations of all have changed radically and increased in scope. Likewise, the introduction and infusion of information technology throughout the institution has had a significant impact upon the processes and operation of education.

Jones (2001) suggested that the students are looking for access to programs and technology, and asking hard questions about both access to courses and programs that they want and their ability to afford them. They are looking for convenience, for instruction when and where they want it, and for universal transferability of credits as they shop for their
concept of the best deal. Employers too are looking for students that know things but, more than that, can apply this knowledge. The perennial debate over the liberal arts education, knowledge skills, and the competency based degrees is still taking place. The academic semester means nothing to an employer with a training need. Students and employers are paying much higher fees for the convenience of education at their pace.

Jones (2001) also suggested that the communities that surround the college or university have high expectations of a higher quality of life and economic development opportunities. Pressure is on higher education and the state to supply these outlets in every community. Finally the state itself, on behalf of society, is a very demanding client of higher education. It wants higher education to help with the expansion and diversification of the economy, to play a role in improving K-12 education, and to assist in solving the problems of other state agencies. These demands on higher education are enormous and the second force Jones speaks of, information technology, is expected to assist in meeting these expectations.

**The Rise of Importance of Computing and Technology within Higher Education**

Our rapid evolution into a knowledge-based, global society has been driven in part by the emergence of powerful new technologies such as computers and communications networks. Technology has vastly increased our capacity to know and do things, and to communicate and collaborate with others. It allows us to transmit information quickly and widely, linking distant places and diverse areas of endeavor in productive new ways. Technology lets us form and sustain communities for work, play, and learning in ways unimaginable just a decade ago. (Duderstadt, 2001, p. 147)

Perhaps most significant is the disruptive nature of this technology, which tends to drive rapid, unpredictable, and frequently discontinuous change in society and social institutions. Information technology changes the relationship between people and knowledge. It is likely to reshape knowledge-based institutions such as the university. While most believe the university will
survive the digital age, few deny that it could change dramatically in form and character. Knowledge is both a medium and a product of the university as a social institution. Hence, it is reasonable to suspect that the technology that expands our ability to create, transfer, and apply knowledge by factors of 100 to 1,000 every decade will have a profound impact on both the mission and the function of the university. (Duderstadt, 2001, pp. 148-149)

An important element in the information technology formula of higher education is the computing and networking services unit. It is also a good example of the new organizational form. The rise to a position of importance on most campuses in just over three decades has left the computing services units reeling in an atmosphere of constantly increasing change, innovation, uncertainty, customer demand, responsibility, and scope. The use of project teams and a climate of high expectations, long hours, and constant learning is the norm. The struggle of the past two decades to attract sufficient qualified workers into this rapidly expanding sector has created an environment and culture of rapid change, and independence. The consistent high level of expectations by management and customers provides a concomitant high level of stress.

The Changing Environment of the Library in Higher Education

Stress is no stranger to today’s librarians and library staff either. The library profession is currently experiencing changes that are unparalleled in their collective memory.

Libraries are today experiencing a technological revolution that goes well beyond anything that has existed since the invention of printing. It is not at all surprising that the digital library, with all that it portends for the future of the book and the periodical, but also with all that it implies for the kinds of information that will be collected and disseminated, for the new publics that will make use of the data collected, for the problems of copyright, access, and costs that will necessarily preoccupy those responsible for the libraries of the twenty-first century, should figure conspicuously in this Daedalus issue [celebrating the centennial of the New York Public Library]. (Graubard, 1996, preface)
The pressures on the traditional library environment to accelerate to the pace required by the new students, scholars, and workers of today’s technocracy are greater than ever. They are likely causing a level of uncertainty and stress not seen in recent memory.

**The Realignment of Computing Services and Libraries**

A specific example of organizational adaptation and post-industrial realignments affecting today’s higher education institutions is a change in the alignment of function, reporting structures, and relationships within information organizations. The various organizational and institutional activities related to information processing, storage, organization, and retrieval are merging and coalescing. While many of the traditional functions of the library, information center, or media center of the past remain, the forms, activities, and, in most cases, even some of the functions are rapidly changing. The insertion of modern computing, communications, and “personal assistant” technologies into the library environment is creating a new institutional entity.

The resulting realignment of the reporting structure of many colleges and universities has placed, at least, the traditional computing (which is generally already closely aligned if not merged with voice, video, and data communications and networking) and library services under a common administrative umbrella. The administrator is given various titles such as Chief Information Officer (CIO), Vice President, or Vice Provost of Information Technology or, depending upon the emphasis the organization places on information, Assistant or Associate Vice President/Provost. The principal characteristics and goals of this amalgam, however, are generally similar across organizations regardless of the reporting levels – unite the access, delivery, communication, storage, and organization of information content for the
strategic and tactical benefit of the constituents of the organization.

Beyond the structural reporting changes, many institutions have built, are building, or are designing new facilities to house these two functions. This process involves a varying degree of integration of these units when one compares one institution to another.

Anyone studying the administrative structures on today’s college and university campuses would be quick to note that there is an increasing tendency to align the efforts of the library with the computing services unit. Hirshon (1998) was able to identify 94 institutions across the spectrum of institutional size that had formally integrated these units. Five major reasons for this merger trend emerged from his 1997 survey of 47 institutions that had, to some extent, integrated these two units:

1. There is a growing convergence of information and the technology upon which it relies, and a desire to use the technology to advance the teaching, learning, and research processes.

2. There is an increased ability to use information and technology to create and improve the coordination of services.

3. There is a need on some campuses to remediate organizational weaknesses or to fix problems in service orientation.

4. A precipitating event caused a reexamination of how the units should be organized.

5. Information resources were reevaluated as part of the development of a new institutional strategic vision. (Hirshon, 1998)

None of these reasons speak to a natural convergence or unity of purpose, but result from general administrative, management, and efficiency forces. The rush toward integration continues today at what appears to be an accelerated pace. The questions of readiness of the
units for such a merger, or the appropriateness based on more natural factors, seem unanswered. Other obvious questions involve organizational behavior issues such as adaptable and compatible climates and cultures.

**The Model**

The conceptual model used in this study is patterned after the work of Moos (Moos, 1994b) (see Figure 4). In this model the work environment characteristics combine with the personal factors to influence the work stressors, coping responses, and the outcomes. The presence of bi-directional arrows depicts the feedback mechanisms that exist among the various factors.

![Figure 4. Theoretical model of Organizational and Personal Factors and Outcomes](adapted from Moos, 1994b, p. 29).
Figure 5 shows the conceptual model of the interactions of similar components in the model of burnout as proposed by Maslach, Jackson and Leiter (1996). This figure depicts distinct predictors for each of the three subscales of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), including a path from Emotional Exhaustion to Depersonalization as the key relationship among the MBI-HSS subscales. In general, predictors of burnout include both the demands of work and the lack of various resources (Maslach et al., 1996).

Figure 6 depicts the unified model proposed for this study. One can relatively easily map the Resources and Demands of the burnout model (Figure 5) to the environmental and

Figure 5. Structural Model of Burnout (adapted from Maslach, Jackson and Leiter, 1996, p. 36).
personal factors of the stress model (Figure 4). As described above, the existence of a constant stress that overtaxes the organizational environment support factors, the personal resources, or the coping strategies of the individual can lead to burnout and a resultant lowering of morale, performance, and quality of service and other outcomes.

**Figure 6. Unified Conceptual Model.**

**Organizational Climate and Culture**

Even though most researchers disagree somewhat upon definitions for the manifestations of organizational environment known as organizational climate and organizational culture they do not dispute their importance to the organization. An attempt is made here to organize the literature of the two concepts and finally compare and contrast the concepts.
Organizational Culture

Organizational culture represents a construct, which is often confused with organizational climate (Cooke & Szumal, 1993; Denison, 1996; Moran & Volkwein, 1992). Culture is typically conceptualized as an evolved, highly enduring context in which situations are contained (Denison, 1996). Culture research had its origins in the social construction framework developed by Burger, Luckmann and Mead (cited in Denison, 1996), and the anthropology literature examining myths, symbols and rituals and the ways in which these artifacts reflect the shared norms, values and meanings of group members (Moran & Volkwein, 1992). Owens (1998) believed that, whereas the bureaucracy represents the classical view of the organization, the culture of the organization epitomizes a more current view of organizational theory in the educational setting. He refers to it as the Human Resources Development view.

Several definitions of organizational culture have been offered. Moran and Volkwein (1992) suggested that culture be conceptualized as reflecting contents of the mind—such as myths, stories, values, norms, and beliefs—that serve as symbols of shared meaning to members of a group. Foster-Fishman and Keys (1997) defined organizational culture as a shared system of meaning guiding members’ believing, thinking, perceiving, and feeling that directs behavior. Culture is most commonly regarded as a set of normative beliefs and shared behavioral expectations held by workers regarding their behavior as members of the organization (Cooke & Szumal, 1993). Schein (1985) defined culture as the body of solutions to external and internal problems that has worked consistently for a group and that is therefore taught to new members as the correct way to perceive, think about, and feel in relation to
those problems. This was later refined as “…a pattern of basic assumptions, invented, discovered or developed by a given group as it learns to cope with its problems of external adaptation and internal integration that has worked well enough to be considered valid and thus is taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 1990, p. 111). Killmann, Saxton, Serpa, et al. (1985, p. 5) think that "culture can be defined as the shared philosophies, ideologies, values, assumptions, beliefs, expectations, attitudes, and norms that knit a community together." Culture is generally understood within an organization to be "the way things are done around here" (Killmann et al., 1985, p. 5). Culture, then, is a characteristic of the organization that is perhaps felt more than thought but, nonetheless, defines a component of the work environment.

The function of culture is to reduce ambiguity by the construction of meaning which organizes experience (Cooke & Rousseau, 1988). Cooke and Rousseau (1988) hypothesized that these social constructions are repeatedly rewarded in an organization, resulting in a collective perception of reality. Perception of culture has been conceptualized by (Denison, 1996; Moran & Volkwein, 1992) as consisting of three levels. Level I perceptions consist of objective, structural variables; level II incorporates cognitions; and level III includes unconscious, unobservable phenomena, the deepest level at which culture can be analyzed.

Level I perception consists of what has been termed artifacts (Schein, 1990) or tangible products. Technology, art, and observable behavior are elements that can be examined at this level, although measurement can be difficult and needs to be considered within the context of the other levels (Moran & Volkwein, 1992).

Level II consists of values, which can be described as consciously perceived norms
which guide behavior. Moran and Volkwein (1992) equated this level of analysis with organizational climate. Perceptual measures are considered to be the appropriate method of assessment at this level.

Level III involves employees’ basic assumptions about the nature of reality; according to Moran and Volkwein (1992) these are values which have been repeatedly reinforced over a span of time and become unconscious. These invisible characteristics of culture do not lend themselves to objective measurement and must therefore be observed indirectly using qualitative measures of analysis such as observations, notes, and interviews (Denison, 1996).

**The Relationship of Organizational Culture to Organizational Effectiveness**

The link between organizational culture and organizational effectiveness is tenuous and the formal cause and effect relationship hard to define and measure. Measuring effectiveness is a difficult and problematic task, and the traditional need for many supervisors and managers to “command” subordinates adds a level of emotion to the discussions that is difficult to overcome. No significant body of experimental research in which the variables are fully controlled exists, and, therefore, discussion of the issue must be in the realm of association of significant variables (R. G. Owens, 1998).

Much of the research on organizational culture, in both corporate and educational organizations, is related to the effectiveness of the organizations. Many studies describe relationships between performance of the company (in such terms as market share, sales, and profitability) and the organizational culture within the company. Comparable support exists for the similar thesis in education. In large measure, clearly establishing such causal connections in schooling is hampered by the extraordinary complexity of the organization and the confusion and ambiguity among and between various constituencies of schooling as to the criteria for determining what high performance is in a school.

A substantial and growing body of empirical evidence, derived from vigorous research in schools and other educative organizations, indicates that
the effectiveness of these organizations, in terms of student learning and development, is significantly influenced by the quality and characteristics of the organizational culture. Not surprisingly, the research clearly suggests that schools that emphasize supportiveness, open communication, collaboration, intellectuality, and that reward achievement and success outperform (in terms of achievement, attendance, dropout rate, frustration, and alienation) those that emphasize competition, constraint and restrictiveness, rules and standard operating procedures, and that reward conformity. Further, by delineating the critical factors involved, the concepts arising from this body of research make it possible and practicable [sic] to plan and manage organizational culture purposefully. It would be difficult to over emphasize the implications arising from this research for administrative practice in the era marked by declining confidence in schools and school systems and by increasing demands for accountability for performance. (R. G. Owens, 1998, p. 193)

Thus, the connections between culture and effectiveness, though tenuous, are compelling and provide an incentive for further study. Therefore, it would be very useful to compare the culture of various organizations or, in this case, suborganizations (subcultures), in order to detect differences or similarities. Measurement of culture, however, is quite difficult and generally consists of lengthy qualitative or ethnographic studies. A more convenient measure that one could substitute for culture would then be appropriate.

Organizational Climate

Introduction

Organizational climate has a longer research tradition than organizational culture (Schein, 1990). Climate is considered to refer to situational characteristics and links to thoughts and feelings of workers (Denison, 1996). Reichers & Schneider (cited in Cooke & Szumal, 1993, p. 1323) defined climate as “shared perceptions of organizational policies, practices, and procedures, both formal and informal.” Moran and Volkwein (1992) provided a more comprehensive definition of climate, as:
a relatively enduring characteristic of organization which distinguishes it from other organizations and embodies members’ collective perceptions about their organization with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation, and fairness; is produced by member interaction, serves as a basis for interpreting the situation, reflects the prevalent norms, values, and attitudes of the organization’s culture; and acts as a source of influence for shaping behavior. (p. 20)

Organizational climate is described indirectly by Halpin and Croft (1963) as climate is to the organization what personality is to the individual. Hoy and Miskel (1982) described climate as "the set of internal characteristics that distinguishes one school from another and influences the behavior of people in it". (p. 185)

Climate research developed out of Lewinian field theory and a social psychology perspective which has used quantitative assessment methods such as questionnaires, surveys and statistical analysis (Denison, 1996). Therefore, most studies examining climate are empirical rather than theoretical (Moran & Volkwein, 1992). Moos is considered a pioneer in the study of organizational climate. According to Insel and Moos (1974a), organizational climate is one of several ways to study environments. Climate is described as pertaining to the psychological and social dimensions of environments, including people’s perceptions. Organizational climate, as researched by Insel and Moos (1974a), is said to include broad social dimensions: relationships with others, personal development opportunities, and system maintenance and change characteristics (Insel & Moos, 1974a). Environments, like people, are considered to have “personalities” (Insel & Moos, 1974a, p. 179).

**Conceptual approaches**

Schneider and Reichers (1983) reviewed three theories on the etiology of organizational climates.
The **structural** approach is offered by Payne and Pugh (1976). In their view climates arise from objective aspects of the work context, such as size, decision making characteristics, the authority hierarchy, the type of technology used, and the ways in which policies constrain behavior.

The **selection-attraction-attrition (SAA)** approach is offered by Schneider (Schneider & Reichers, 1983). In this concept the organizational processes such as selection, and personal processes such as attraction to the organization and attrition from the organization, combine to produce a homogeneous group. The similar perceptions and meanings attached to organizational events result from a similarity of the members.

These two approaches are at opposite ends of the theoretical climate formation spectrum -- organizational characteristics vs. personal characteristics. Schneider and Reichers criticized these approaches because they do not adequately explain the presence of climate differences between departments of a single organization. The structural approach also falls short of an adequate explanation because structural elements do not correlate well with climate elements in empirical studies (Schneider & Reichers, 1983). In a similar manner it is difficult to ascribe all manifestations of climate to personal characteristics (Schneider & Reichers, 1983).

The third, hybrid, concept offered by Schneider and Reichers is called the **symbolic interactionist** approach and places the locus of meanings that arise within the interaction between people. This view places primary importance on the interactions that occur during the newcomer’s socialization period, and stresses the importance of group membership as a determinant of climates that vary from group to group (Schneider & Reichers, 1983).
Subsequently, Moran and Volkwein (1992) refined the views of Schneider and Reichers (1983), delineating four perspectives that have been used to conceptualize climate and offered critiques of each view. A brief summary of their stance will be provided. The four approaches include: structural, perceptual, interactionist, and cultural.

The **structural** approach regards climate as an inherent characteristic of an organization which is independent of individuals’ perceptions. Logically, an organization’s structure should correspond to common perceptions of the group. Measures must essentially be linked to objective, physical factors to validate this conceptualization. The flaws of the structural approach include the fact that studies have found different work climates within the same organization and no consistent relationship between climate and structure has been found in the literature. This perspective assumes that individuals are accurate perceivers of structural dimensions in their environment. This view also ignores the role of cognitive processes and individual differences as mediating factors.

The **perceptual** approach assigns the origin of climate within individuals in that people are seen as interpreting and responding to situational variables in a psychologically meaningful manner. Climate, therefore, is a cognitive map that guides behavior and results in the normative behavior of groups. This constitutes the adaptive function of climate in that it aids in the adjustment of individuals to their environment. Climate may also result from selection processes that attract homogeneous individuals. The problem with this view is that interactions among group members, and the mutual influence of the environment, are ignored.

The **interactionist** perspective has individuals developing shared perceptions of their setting through interactions with the environment. Climate is created by the reciprocal
influence between objective and subjective variables. In this respect, climate serves the function of providing meaning and continuity of experience, which provides a sense of self in that environment. This perspective is in contrast to the structural perspective which assigns meaning to objects, and the perceptual stance that assigns meaning solely to individual subjective awareness. Climate, according to the interactionist perspective, is an abstract representation of reality that results from group interaction.

The cultural perspective to understanding climate adds to the three previous perspectives in that it considers the ways in which interactions and perceptions are influenced by the organization’s culture. Culture, in this regard, focuses on the way in which the group, rather than the individual, interprets, constructs, and copes with reality (Moran & Volkwein, 1992).

*The Relationship of Organizational Climate to Organizational Effectiveness*

Stein and Bloom suggested that environmental press or social demands of environments are important influences on people’s behavior (cited in Insel & Moos, 1974a). According to Moos (1974; 1976), climate has been regarded as the most important mediating factor of structural influences on people’s behavior. Empirical findings support climate as a significant influence on organizational performance as well as the motivation of employees (Moran & Volkwein, 1992). Moos (1974) argued that climate is more directly related to worker productivity than salary, physical status of workers and formal communication networks. This finding is more evident in mental health treatment environments (Moos, 1974). According to Moos (1974), the influence of an organization on its workers’ behavior depends on worker roles in the hierarchy, demographic and background characteristics, and
There are several issues that have been discussed in the literature regarding environmental assessment measures. First, the use of culture surveys has been criticized as not being valid, that is, not reflecting the phenomenon of interest. The use of perceptual measures to reflect organizational processes has also been criticized as being biased, therefore inadequately measuring organizational variables. Lastly, some specific methodological concerns relating to aggregation of data have recently been addressed by researchers.

Research on organizational culture has been predominately qualitative, involving observations and interviews (Denison, 1996). The focus of research has been on groups and between-group differences (Moran & Volkwein, 1992). Quantitative measurement of organizational culture is a relatively recent trend and has met with opposition (Moran & Volkwein, 1992; Schein, 1990). Moran and Volkwein (1992) argued that culture cannot be measured empirically because it includes an unconscious element that is separate from individuals’ perceptions. Similarly, Schein contended that empirical measures which ignore structural variables and unconscious assumptions are not measuring culture at all, but are focusing on a second level analysis of culture which is essentially climate.

There are several problems with Schein’s stance. The methods of qualitative assessment arguably do not meet some scientific standards. In the main, Schein’s argument is not falsifiable due to the fact that assumptions apparently cannot be measured empirically. Qualitative assessment is limited in many regards. Assessment is subjective, which renders methods unreliable and fraught with bias. Methods and results may be extremely difficult to
replicate, which negatively impacts on external validity. The lack of standardization of
assessment makes it impossible to evaluate changes in a system or make definitive
comparisons between settings.

Also in response to the first criticism of using cultural surveys, Cooke and Szumal
(1993) argued that the focus of some climate survey measures can be viewed as examining
artifacts of culture, which validates their use. Further, they asserted that the norms measured
by culture surveys reflect the perceptions which influence patterns of behaviors in a setting
that manifest as culture. The authors also acknowledged that surveys of culture and climate
both measure people’s perceptions; however, they believed that climate surveys focus more
on shared views of organizational structures, job design, environmental attributes, reward-
punishment and decision-making processes, and human resource management systems. In
contrast, culture surveys are believed to focus on the patterns of values and beliefs that create
structures and systems and the behavioral norms that are communicated and reinforced by
these systems. Cooke and Szumal (1993) also argued that culture and climate surveys
measure different kinds of norms; that the former measures descriptive norms, whereas the
latter measures injunctive norms. Descriptive norms are characterized by “what most people
do in social situations” while injunctive norms entail “what people approve and disapprove of
within the culture and motivate action by promising social sanctions” (p. 1323).

Some researchers have disparaged environmental assessment measures in general,
such as those considered to measure organizational culture or climate. Richards, Gottfredson
and Gottfredson (1991) criticized subjective survey measures for reflecting largely within-
group error variance, rendering useless inter-setting comparisons. Personality characteristics
are said to be the phenomenon actually assessed, not organizational processes.

Two significant methodological issues were addressed by Seago (1997). The first pertains to aggregation bias, in which data are grouped. The author recommended that perceptual agreement be tested in terms of reliability and validity before an analysis of group data is made. Determining the best measure of central tendency is critical. Statistical techniques such as hierarchical linear modeling and the one-way ANOVA are suggested. The issue of sample size is a second concern in which no definitive criteria has been established. According to Seago (1997), studies have varied widely (19-78%) in response rates from such surveys.

James, Demaree, and Wolf (1993) suggested the assessment of an index of interrater agreement—as opposed to reliability—to examine the extent of within-groups agreement. The statistic $r_{wg}$ reflects the degree to which observed error variance ($S_x^2$) reflects a decrease in the variation of perceptions relative to expected random responding ($\sigma_e^2$). Therefore, agreement approaching 1.0 would indicate perfect agreement. This statistic was developed considering the theoretical basis of environmental scales. Kozlowski and Hattrup (1992) explained that climate perceptions are cognitively-based representations of the organizational context and function as a link between the job factors to psychological interpretations. Situational events are argued to be relatively homogeneous in nature, facilitating common perceptions of the environment. This consensus can be measured through an assessment of interrater agreement, which can then legitimize the aggregation of data at the group level of analysis.

To summarize, the assumption behind the administration of measures of employees’
cognitions is that perceptions of environment influence functioning and behavior (Cooke & Szumal, 1993; Insel & Moos, 1974a). Cooke and Szumal (1993) stated that individual perceptions of organizational culture influence work behavior, cognition, motivation, job satisfaction and stress. Insel & Moos (1974a) added mood and self-esteem as additional outcomes. Thus, an investigation of workers’ perceptions of their organizational culture or climate can potentially guide efforts to change organizational practices in order to affect positive employee outcomes. The advantages of quantitative assessment include enabling inter- and intra-group comparisons easing the replicability of assessment, providing a frame of reference for interpreting data, and allowing for a more practical means for analyzing data-based change (Cooke & Rousseau, 1988).

**Organizational Climate and Culture Compared**

Controversy remains regarding the distinction between organizational culture and climate in addition to the problems of measurement highlighted above (Denison, 1996; Moran & Volkwein, 1992). Cooke and Szumal (1993) and Moran and Volkwein (1992) argued for culture’s distinctiveness from perceived climate, yet both agree that climate is a component and manifestation of culture. Both researchers called for integrated study in helping to understand organizational environments more clearly. Tagiuri et al. (1968), however, described the total environment in an organization as composed of four dimensions: Ecology (physical and material factors), Milieu (the social dimension), Social system (the organizational and administrative structure), and Culture (the values, belief systems, norms and ways of thinking). Thus, in Tagiuri’s view, culture is a component of the organization’s climate. Owens (1998) attempted a further clarification: "Culture refers to the behavioral
norms, assumptions, and beliefs of an organization, whereas climate refers to perceptions of persons in the organization that reflect those norms, assumptions, and beliefs” (p. 165).

Denison (1996) argued that distinctions made between culture and climate are artificial. He suggested that differences are related to interpretation rather than the actual phenomenon studied. Both constructs examine social contexts as the product of interactions among group members over time. Both attempt to explain ways in which an organization adapts by the formation of collective belief systems and meaning. The content in both fields of study is similar, and has included decision-making, communication, organizing, risk-taking, peer relations social control, autonomy, and consideration. For example, current quantitative survey methods which purport to measure organizational culture are described as being very similar to previous research on organizational climate. Denison concluded that culture and climate research both address the creation and influence of social contexts in organizations; as such, he proposes that the climate and culture research be integrated.

**Stress and Coping Theory**

**Stress**

A variety of definitions of stress have been postulated over the years. One of the earliest notions of stress comes from engineering. This notion defines stress as an extreme force or forces which are directed towards an object. Individuals in the helping professions have, in a more contemporary sense, regarded stress differently than have engineers. One analog of the engineering definition applied to human beings rather than materials came from Grinker and Spiegel (1945). They spoke of unusual demands that are placed on an individual.

Hans Selye, the Canadian physiologist, is perhaps the most renowned figure in stress
research. Selye is considered by some the father of stress research for his pioneering work on the physiological reactions of humans to stress. Since much of what is known today about stress may be directly attributed to the tireless work of Selye, a brief overview of his work and resultant theory is warranted.

In his landmark book, *The Stress of Life*, Selye (1956) presented his theory of stress from the classic behaviorist perspective. This work was the culmination of many years of laboratory research in which Selye concluded that stress is the major influence on all human behavior. Selye, (1976) who had begun to study the effects of stress in the 1930’s, characterized stress as “the non specific response of the body to any demand placed on it” (p. 51). Inherent in his definition was the consideration of the deterioration which an individual endures physiologically as a consequence of being subjected to stress. According to Selye, stress for an individual may be physical or psychological. Of central importance, however, is the notion that individuals have only a limited amount of resources for adapting to stress.

A focal point of Selye’s theory is his formulation of the General Adaptation Syndrome, which describes the body’s reaction to stress, or its’ physiological response to a stressor. Selye believed that when an individual is subjected to physical or psychological stress, or both, the individual’s response is universally experienced as the phases of the General Adaptation Syndrome:

*Alarm* – The first phase is characterized by an alarm reaction of the body. Typical somatic responses at this stage may include elevated blood pressure, rapid heartbeat, pupil dilation, enlarged adrenal cortex, and increased gastrointestinal fluid. This phase is also frequently described as the “fight or flight” response.
**Resistance** -- In this phase the body experiences a period of adaptation which continues until a state of maximum resistance is reached. Resistance continues until the body’s resources are depleted completely, or so substantially that resistance ceases.

**Exhaustion** -- If stress continues beyond the resistance phase the body undergoes physiological as well as psychological fatigue and there is a pronounced diminution in the body’s defense capabilities. The greatest likelihood of one becoming physically ill or the most susceptible to disease occurs during this phase.

There is a great possibility that an individual will come to experience any of a variety of what Selye has classified as “diseases of adaptation” if exposed to severe, prolonged stress. Spicuzza and DeVoe (1982) listed as common diseases of adaptation gastrointestinal ulcers, coronary heart disease, and many different types of infections. If one is successful in coping with stress and is able to return to their pre-exposure state, then the individual has returned to balance, or homeostasis.

Researchers other than Selye have made significant contributions to the field by offering divergent perspectives of the stress process. Selye’s behaviorist view of stress is still accepted today; however, others have provided additional insight and theory that enriches the limiting behaviorist views. One example is the work of Richard Lazarus of the University of California at Berkeley. He and others view stress from the cognitive social perspective.

Lazarus (1966) introduced the role of cognitive appraisal. In this view, Lazarus maintains that stress is produced if individuals perceive an environmental demand that they are unable to cope with. That is to say, how an individual appraises their situation within the environment affects how they will attempt to cope with the situation. Lazarus divided the
coping process into two steps -- primary and secondary appraisal (Lazarus & Folkman, 1984). Because the process is continual and involves feedback Lazarus & Folkman also use the term reappraisal as the same appraisal process applied with additional information.

Primary appraisal refers to the evaluation of the significance of the event. Is it irrelevant, good (benign-positive), or stressful? If stressful, is it harmful (or a loss), a threat, or a challenge? Harm/loss refers to damage the person has already sustained, threat refers to anticipated harms or losses, and challenge refers to events that hold the possibility for mastery or gain. Threats and challenges are not mutually exclusive and can exist simultaneously for the same event.

Secondary appraisal is a judgment concerning what might and can be done. It refers to the evaluation of one’s residual coping resources and abilities available to expend on a new event. This must be made with regard for resources being expended on existing pressures. The end result is “an evaluation about whether a given coping option will accomplish what it is supposed to, that one can apply a particular strategy or set of strategies effectively, and an evaluation of the consequences of using a particular strategy in the context of other internal and/or external demands and constraints.” (Lazarus & Folkman, 1984, p. 53)

Lazarus and Folkman also emphasized that the cognitive appraisal processes are not necessarily conscious, nor are the agendas that shape appraisal always easily accessible. Cognitive appraisal may also be shaped by agendas that are below the person’s awareness.

Subsequent to the early work of Lazarus, McGrath (1970) and Sells (1970) both defined stress in terms of a complex interaction between the individual and the environment. Inherent in their respective definitions of stress was an integration of psychological,
physiological, and environmental components. The integration of these three components was further advocated by Caplan, et al. (1975) as they sought to define stress. Mason (1975) has chronicled the development and refinement of many definitions of stress through the years.

As definitions evolved, and many still vary slightly even today, there have been efforts to incorporate the importance of both the organism and the environment in the stress theories. Mikhail (1981) cited the numerous philosophical differences that have been central to the reluctance of stress theorists to universally agree upon a definition of stress. A holistic definition of stress was offered by Mikhail (1981): “Stress is a state which arises from an actual or perceived demand-capability imbalance in the organism’s vital adjustment actions and which is partially manifested by a nonspecific response” (p. 14). In offering this holistic definition it is ironic that Mikhail quotes Kaplan (1964), who wrote that “in an important sense, new scientific theories do not refute the old ones but somehow remake them” (p. 304). Nearly a decade has passed since Mikhail offered the holistic definition of stress, and in the absence of a universally accepted definition of stress, Kaplan’s words still ring true.

Coping

Discussion of stress and adaptation requires careful analysis of the concept of coping. Lazarus (1977) defined coping as a reaction to stressors. This reaction is the individual’s attempt to master conditions of harm, threat or challenge (Goosen & Bush, 1979). Coping mechanisms are “those direct, active tendencies aimed at eliminating a stressful event” (Lazarus, 1977, p. 8).

The process of coping may consist of a rather large array of overt and covert behaviors. The process of coping is a very complex response that occurs when an individual
attempts to remove stress or what is perceived as a threat from one’s environment. The actual reaction one has to an environmental event is as important as the event itself (Garland & Bush, 1982). Therefore, not only does one’s coping ability have implications for mental and physical health, but the person’s state of health can also affect one’s ability to cope.

Lazarus (1977) divided coping into two main categories: direct action and palliation. Direct action refers to the individual’s attempt to change the environment or stressor. Palliation, on the other hand, refers to the individual’s attempt to moderate the demands made by the stressor or tolerate the subjective symptoms produced by the stressor. Lazarus (1977) further divided palliation into two subgroups. One subgroup is directed at the symptoms and includes the use of alcohol, tranquilizers or muscle relaxation techniques. The second subgroup is termed intrapsychic modes and refers to the use of unconscious defense mechanisms such as denial or distancing. Consequently, the individual may deal with stress through several methods including removing the stressor through manipulating the environment, developing specific responses to help deal with the stressor, or seeking diversion from the stressor.

Lazarus & Launier (1978) further studied the concept of coping and divided the coping choices into instrumental coping (problem-focused) and palliative (focused on regulating the emotional response). Instrumental choices included information gathering, problem-solving, communication, social skills training, time management, mobilizing supports and direct efforts at changing the environment. Palliative techniques included denial, diverting attention, searching for meaning, emotional distancing, expressing affect, cognitive re-labeling, and relaxation training.
Studies by Pearlin (1991) and Pearlin & Schooler (1978) were among the first to address the interaction of the individual and the environment. They identified coping as a behavior that is a protective mechanism that functions in three ways. One is by attempting to eliminate or modify the situation that is giving rise to the problem. The second is to perceptually control the meaning of the experience in a manner that neutralizes the problematic character of the situation. The third is attempting to keep the emotional consequences of the situation manageable. These researchers believe that all coping behaviors can be categorized into these three areas.

The research by Roth and Cohen (1986) on coping identified two basic orientations to stress - approach and avoidance. These orientations refer to the cognitive and emotional activity that is oriented either to or away from a threat. Approach strategies refer to attempts to take appropriate action to either change a situation or to make it more controllable. On the other hand, avoidance strategies attempt to protect the individual from the overwhelming power of the stressor by distancing the individual from the experience.

Neither approach nor avoidance is determined to be the most effective coping style. According to the authors, the coping behavior must be matched with the potential rewards available in relation to the demands. Approach strategies allow for direct action and attempt to change the situation, allowing the individual to take more control. On the surface, this sounds more effective than avoidance. However, the person that continually copes by working long hours, getting little rest, and neglecting their family or personal needs is not necessarily coping effectively. Approach strategies generally seem to be more effective when an individual has more power or control over a situation (Schmitz, 1995).
Avoidance or distancing are behavior patterns that are thought to be more passive and are often thought of as weak or ineffective. In some cases, avoidance can be important to allow assimilation of a stressful situation until the individual can gain more control or acceptance. This can be especially effective in a situation where an individual has no control, such as disease (Roth & Cohen, 1986), or if the stressor involves chronic, high stress difficulties (Lennon, 1987). It is important, however, that avoidance or denial is used only to facilitate assimilation since denial can cause negative consequences. First, denial may cause the individual to not perceive or take advantage of opportunities to correct a stressful situation. An example of this would be an employee that will not take advantage of services such as counseling or mentoring. Second, denial can lead to unconscious build up of pressure in the active memory, which can cause psychological intrusions such as nightmares, foreboding thoughts, and negative feelings (Roth & Cohen, 1986).

Even so, it should be remembered that a form of physical, psychological, or social stress and pressure and an individual’s responses to them makes possible all accomplishments for good or for bad. In either case, insufficient environmental or personal resources or ineffective coping strategies in a stressful situation can, if experienced over a sufficiently long period of time, lead to emotional exhaustion and eventually to burnout (Winnubst, 1993b).

**Burnout**

More than three decades have passed since Stanton and Schwartz (1954) first wrote about what is now classified by many professionals as “burnout”. The concept we now call burnout is the net result of the observations and writings of a New York psychoanalyst, Herbert Freudenberger. Farber (1983) observed that Freudenberger took a word that had been
frequently used in reference to the negative effects of chronic drug abuse, prevalent in the 1960’s, to describe a state of well-being among those he studied. Thus, the phrase “burned out” on drugs was borrowed to label something quite different from chronic drug abuse.

Burnout first appeared in the literature in 1974 as a description of the emotional and physical exhaustion experienced by the staff of an alternative drug abuse care center (Freudenberger, 1974a). The characteristics of burnout were described as cynicism, negativism, inflexibility, a know-it-all attitude, absenteeism, psychosomatic complaints, and physical illnesses (Freudenberger, 1974a, 1974b). Freudenberger (1974a) dealt with the condition in facilities like free clinics where volunteer helpers played a prominent role in the delivery of services. It soon became apparent, though, that others, such as the self-employed professional in private practice and the nurse of the inner city hospital, also seemed beleaguered with the symptomology of burnout. A plethora of studies and articles on burnout since the early work of Freudenberger are clear evidence of the prevalence of this phenomenon. In fact, in the decade after Freudenberger coined the term, Riggar (1985) reviewed what he called the best 1000+ publications in an annotated bibliography on the subject entitled *Stress Burnout*.

During the 1970s, psychologists wrote the majority of the literature concerning burnout. The primary focuses of these early studies were the development of a definition for burnout and an instrument for the measurement of perceived burnout. Since 1974, burnout has become a recognized phenomenon of the human service professions. Investigators have sought to define burnout, identify at-risk populations, identify symptoms, discover the contributing factors, and develop strategies to combat them (Falck, Falck, & Kilcayne, 1986;
Christina Maslach, a professor of psychology, conducted the first descriptive study on burnout. The sample consisted of 200 professionals (physicians, public defenders, social workers, prison personnel, psychiatrists, clinical psychologists, child care workers, and nurses). Burnout was defined as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishments occurring among individuals who work face-to-face with people (Maslach, 1976). Maslach has been an extremely vital and active leader in the study of burnout. The interest and work of Maslach and Jackson (1986) eventually led to the development and standardization of an instrument to measure burnout. This inventory, the Maslach Burnout Inventory (Maslach & Jackson, 1986; Maslach et al., 1996), is widely utilized by professionals attempting to better understand the burnout syndrome.

In 1977, Maslach and Pines reported a study on the burnout present in the personnel of four child care centers. This descriptive study expanded the conceptual definition of burnout by identifying the specific behavioral patterns of the burnout process. These behavioral patterns included: use of derogatory labels, compartmentalization of personal and professional lives, intellectualization of work situation, attempts to minimize involvement in stressful events, and diffusion of responsibility by seeking advice and comfort of others. The study also identified four variables that seemed to affect the amount of burnout experienced by the staff. These variables were the staff-child ratio, the number of work hours (direct contact with children), the ability to withdraw from work when strained, and the program structure. The researchers made several suggestions for preventing or reducing burnout, including reducing the amount of direct client contact, establishing support programs, training in interpersonal
skills, and analyzing personal feelings.

A follow-up study on one of the day-care centers studied by Maslach and Pines was conducted in 1979. The researchers attempted to control burnout by decreasing the staff/child ratio and by providing more structure to the program. The teachers reported a reduction in their perceived level of burnout, but a valid and reliable tool for operational measurement was not available at this time. For the first time, the belief was stated that “the causes of burnout lie not so much in the unique personality traits of the individual as they do in job conditions” (Pines & Maslach, 1980, p. 6).

Although many researchers have dealt with burnout as a topic of special interest, there has been a relatively consistent agreement as to how it is defined. Although Freudenberger laid the foundation of what is “burnout”, others have subsequently added to or otherwise modified slightly his definition. Riggar (1985) cited a number of different definitions which nonetheless share some common characteristics:

- To deplete oneself, to exhaust one’s physical and mental resources.
- To wear oneself out by excessively striving to reach some unrealistic expectation imposed by oneself or values of society.
- The emotional exhaustion resulting from the stress of interpersonal contact.
- When staff lose all feeling and concern for clients and treat them in detached and even dehumanizing ways.
- A condition produced by working too hard for too long in a high-pressure environment. (p. xvii)

To this day, obtaining a universally accepted single definition of burnout remains an
elusive goal, but several factors are common among the various definitions (Ratliff, 1988). Burnout is a psychological experience that manifests itself primarily in individuals involved in difficult person-to-person relationships as part of their working practice. Although a subjective phenomenon, burnout has a clear relationship with the organizational environment and is a negative experience (J. A. Handy, 1988; Sullivan, 1993).

There are indeed commonalities in these varying definitions. The relationship of personality characteristics and environmental factors to burnout seems quite prominent. They will therefore be discussed in more detail later in this chapter.

In the 1980s, the focus of the literature began to shift to the symptoms, consequences, and causes of the burnout experience. Although burnout is studied most intensively in the human service professions, similar processes might occur in other areas as well (Winnubst, 1993b). Some authors, such as Pines (1993), Burisch (1993), Halsten (1993), and Winnubst (1993a) argue that burnout is a much more general phenomenon, not restricted to professionals who work with other people in some capacity. The pervasiveness of publications on burnout suggested that it occurs in virtually every job setting. There was an awareness in the business world of a phenomenon labeled burnout before it was applied to human service professions (Patrick, 1988). Burnout was termed a subjective phenomenon perceived by the individual as stress (Leiter, 1989). Executives who manifested attitude change, chronic fatigue, decreased job performance, or a combination of these were labeled burnouts (Cahoon & Rowney, 1984; Greenberger, 1981; Levinson, 1981).

The consequences of burnout are also generally agreed upon. Clearly, the most common costs that are paid by the individual who suffers from burnout are well identified in
Maslach’s definition, namely, emotional exhaustion, depersonalization, and reduced personal accomplishment. Physical symptoms may include increased anxiety, nervousness, chronic fatigue, insomnia, headaches, backaches, substance abuse, depression, and changes in dietary habits (Spicuzza & DeVoe, 1982). There are consequences which affect others besides the individual who experiences burnout as well. Losses due to employee turnover, absenteeism, poor morale, and lowered productivity (Maslach & Jackson, 1981) represent still another staggering expense as a result of burnout. In summary, all would likely agree that the prices paid for burnout are high for all concerned.

Most of the authors agreed that burnout results in physical, emotional, and mental exhaustion (Edelwich & Brodsky, 1980; Maslach, 1982a, 1982b; Paine, 1981; Pines, Aronson, & Kafry, 1981). The physical exhaustion may be evidenced by low energy, chronic fatigue, weakness, accident-proneness, increased susceptibility to illness, weariness, frequent headaches, nausea, muscle tension, alterations in eating habits and weight, somatic complaints, and increased frequency of illnesses (Golembiewski, Munzenrider, & Stevenson, 1986; Maslach & Jackson, 1979; Pines et al., 1981). Emotional exhaustion may involve feelings of depression, entrapment, hopelessness, helplessness, and distress. Behaviorally, burnout may be demonstrated by decreased coping ability, marital problems, substance abuse, and incessant crying (S. E. Jackson & Maslach, 1982; Ratliff, 1988).

Mental exhaustion is evidenced by negative attitudes towards work and life in general. These attitudes may be demonstrated by tardiness, leaving work early, taking long breaks, clock watching, a rigid by-the-book stance toward problematic situations and clients, avoiding client contact, stereotyping clients, discussing clients only in a detached manner,
absenteeism, employee turnover, and the intention to leave one’s job (Cherniss, 1980b; Maslach, 1982a, 1982b; Maslach & Jackson, 1979; Pines et al., 1981).

In 1980 and 1981 a basis for cumulative empirical research was provided by the development of three instruments that operationally measured burnout: the Burnout Scale for Health Professionals, the Tedium Scale, and the Maslach Burnout Inventory. The Burnout Scale for Health professionals was used to measure burnout as defined by Maslach and Jackson (1979). The tool assesses the cognitive, affective, behavioral, and psychophysiological areas of burnout. Each item is in Likert form with six options ranging from strongly agree to strongly disagree (J. W. Jones, 1980b). The Tedium Scale is a 21-item tool, which appears to be a content valid measure of burnout, defined as work-induced symptoms of emotional, physical, and cognitive exhaustion (Pines et al., 1981).

The most widely accepted and utilized instrument, Maslach’s Burnout Inventory (MBI), provides a measurement of experienced burnout in terms of three subscales: emotional exhaustion, depersonalization, and personal accomplishments. One of the first operational definitions of burnout was derived from the 22 assessable behaviors identified in the inventory (Maslach & Jackson, 1981, 1986; Maslach et al., 1996). Powers and Gose (1986) conducted a study to reexamine the reliability and construction validity of the Maslach Burnout Inventory. The study furnished empirical support for its reliability and factorial validity with respect to the measurement of the three aspects of the burnout syndrome.

The majority of the studies reviewed here were cross-sectional and correlational in design, without a long-term or career perspective. An exception was a long-term 12-year follow-up conducted on subjects from four professions (mental health, poverty law, nursing,
and teaching) (Cherniss, 1989a).

The focus of the original study was on the transition from student to professional. Each subject was interviewed several times during the first year of practice. Stresses and attitude changes associated with the transition were identified (Cherniss, 1980b). For the follow-up study, all 26 original subjects were interviewed and completed questionnaires. This study focused on identifying what factors, during the first 12 years of a professional career, increase the likelihood of burnout. The study found that the occurrence of burnout seems to be strongly influenced by the degree to which an individual feels efficacious and self-confident as a professional. The degree of stress and the success of coping in the initial work experience proved important for long-term self-confidence. Respect from peers and administration provided positive feedback and improved the individual’s belief in their own professional competency (Cherniss, 1989a).

**Literature of Various Professions**

Because this author could not identify any body of literature on burnout in library or computing services personnel, a review of other professions is offered to develop the concept and to provide a comparison. After the early 1980s there was a mushrooming of literature focused on burnout. Various professions seem to have independently decided to focus the majority of their studies and literature on factors contributing to burnout and strategies attempting to prevent or minimize burnout.

**Education**

Based in large part on the works of psychologists in the 1970s and early 1980s, educational researchers began to examine the causes, intensity, and prevalence of burnout
among educators (Brad, 1979b; Gold & Bachelor, 1988; Iwanicki, 1982; Kottkamp & Mansfield, 1985; Weiskopf, 1980). The majority of studies in education utilized the Maslach Burnout Inventory. These studies identified several recurring themes, both personal and organizational, in the possible contributing factors of burnout (R. L. Schwab, 1986). The personal classification factors include, but are not limited to: low scores on locus of control tests (Soh, 1986), having poor coping skills (Thompson, 1986), and being an idealist (Pines et al., 1981; Stevens & O'Neill, 1983). Personal variables studied as potential indicators and buffers were cognitive hardiness and academic self-concept. The results indicated both variables served as buffers against burnout, but to what degree was not clearly established (Nowack & Hanson, 1983). Powerlessness was investigated as a possible predictor, but the results were inconclusive and the study has not been replicated (Kottkamp & Mansfield, 1985).

Studies examining the relationships between demographic factors and burnout experienced by educators have constantly found that certain factors predict a small but significant amount of variance in the Maslach Burnout Inventory subscales (Anderson & Iwanicki, 1984; Gold, 1985). Age has been shown to be a significant predictor of emotional exhaustion, with younger teachers scoring higher than older teachers (Russell, Atmaier, & Van Zelen, 1987) Male teachers tend to score higher than female teachers on the Maslach Burnout Inventory’s depersonalization scale. One possible explanation offered for this difference, but not researched, was sex role socialization (Maslach & Jackson, 1985; R. L. Schwab, 1986).

Organizational factors associated with burnout include, but are not limited to: low
administrative, supervisory, and peer support (Fong, 1993; Zabel & Zabel, 1982); a lack of participatory management (Dick, 1986); role stress (Piersen-Hubeny & Archambault, 1984); role ambiguity, role conflict, and role overload (Fain, 1987; Fong, 1990; Gallery, Eisenbach, & Holman, 1981; Goldenberg & Waddel, 1990; Kottkamp & Mansfield, 1985; R. S. Schwab & Iwanicki, 1982); student-teacher ratio (Weiskopf, 1980); violence in the schools (Mead, 1980; Underwood, 1986); time limitations (Fong, 1993); disruptive students (Needle, Griffin, & Svendsen, 1981); and working overtime at school (Harrison, 1990). The large number of variables associated with burnout contributes to confusion within the field of study. None of these studies claim to be able to predict burnout in an individual.

Often a variable found to have a significant relationship with burnout in one study will demonstrate no relationship in another study. Workload has often been related to burnout, though not consistently. In a study of school psychologists, Huberty and Huebner (1988) found that burnout tended to increase as workload increased. This contradicted the findings of an earlier study of nursing faculty, which indicated that overall workload was not related to the development of burnout (Dick, 1986). Education continues to be a significant subject in burnout literature, both in this country and abroad (Golembiewski, Scherb, & Munzenrider, 1994; Winnubst, 1993b).

Social support from coworkers is an organizational factor often studied as a possible buffer against burnout. Among studies of teachers, nurses, and social service workers, the results have been inconsistent. Several studies have supported the belief that burnout negatively correlates with social support, but to what degree was not clearly established (Cherniss, 1989a; Cronin-Stubbs & Rooks, 1985; Dick, 1992; Fong, 1993). In other studies
social support did not serve as a buffer against the negative effects of burnout (Dick, 1986; Fong, 1990).

The education literature contains a focus for burnout research not found by the investigator in other professions’ literature. Education has chosen to study burnout in both teachers and in individuals closely associated with education. These individuals include parents, counselors, resident assistants, student teachers, and reading specialists (A. Davis, Savicki, Cooley, & Frith, 1989; Gold & Bachelor, 1988; Hetherington, Oliver, & Phelps, 1989; Pelsma, Roland, Tollefson, & Wigington, 1989; Pierson-Hubeny & Archambault, 1984).

**Social Services**

The evolution of literature on burnout in social services is very similar to that of education. Empirical studies did not appear until the 1980s. The primary focus has been on the identification of causative factors and suggestions for prevention and alleviation. The majority of the identified causative factors have been similar to the ones studied in education and nursing, such as role stress, case load, inadequate supervisory support, and lack of participatory management (Brad, 1979a, 1979b; Maslach, 1982b; N. Savicki & Cooley, 1982).

Several causative factors unique to social services were identified. The first factor was identified in a survey of 215 psychologists, social workers, and psychiatrists; 74% identified therapeutic success as the single most important contributor to job satisfaction and the reduction of stress and burnout (B. Farber & Heifetz, 1982). One possible explanation offered for this perception of minimal or poor therapeutic success is a lack of criteria for measuring...
accomplishments (Edelwich & Brodsky, 1983).

A second unique causative factor is a people centered orientation. Cherniss (1978) postulated that people in social services have a strong desire to be helpful and this can result in the clients’ needs defining the professional’s role and creating stress. The amount of time spent on paperwork is a problem in most service professions. Social services was the only one to identify it as a possible causative factor for burnout (Ratliff, 1988).

Karger (1981) identified the replacement of client accountability with financial accountability as a possible organizational causative factor. This change not only creates personal stress to the case worker, but often results in the supervisors being viewed as more concerned with bureaucracy than client needs. As with nursing, much of the social services literature consists of common-sense advice, personal anecdotes, and case studies. “The empirical evidence for what actually prevents or helps one deal with burnout is scant” (Ratliff, 1988, p. 153).

As early as 1979, several authors began questioning the effect of burnout on the quality of client services. The authors suggested that burnout impaired the social services worker’s ability to: concentrate on what the client is saying (Armstrong, 1979), engage in complex thinking and problem solving (Muldary, 1983; Paine, 1984), and make sound clinical decisions (Weinberg, 1983). In 1989, a study of 70 child protection service workers focused on the relationship between burnout and impaired clinical judgment. The findings indicated that child protection social workers who were experiencing burnout coped by denying the need for involvement in particularly demanding cases (McGee, 1989).
Nursing

Burnout has been discussed in nursing literature since 1978 (Shubin, 1978). The first articles were narrative or anecdotal. They ascribed burnout to the stress of client care, provided descriptions of symptoms, and offered strategies for prevention and management (Alexander, 1980; Clark, 1980; Hickey, 1982; Jacobson, 1983; Lamb, 1979; Lavandero, 1981; McConnell, 1982; Ogle, 1983; Seuntjens, 1982b; Storlie, 1979; Wimbush, 1983).

Despite the increase in empirical studies in the nursing literature, a large portion of the literature remains anecdotal and narrative. The anecdotal literature indicates the personal factors that promote burnout and include, but are not limited to: age, a high motivation level, length in practice, educational level, high professional aspirations, low self-esteem, inflexibility, unrealistic view of what can be accomplished, poor coping strategies, life event stressors, and economic problems (Cornwall, 1991; Hagemaster, 1983; Joinson, 1992; Lempp, 1995; Macinick & Macinick, 1990; McConnell, 1982; S. Owens, 1989; Seuntjens, 1982a; Shubin, 1978).

The organizational factors that the nonresearch literature indicate may promote burnout in nurses include, but are not limited to: role conflict, role ambiguity, high levels of stress, increased time with patients, increased patient acuity, inadequate support system, high structured leadership style, poor reward system, shift work, and high client-nurse ratio (Cullen, 1995; Dolan, 1987; Duxbury, Armstrong, Drew, & Henley, 1984; Mytych, 1981; Seuntjens, 1982b; Yasko, 1983).

In recent years, the primary focus of the anecdotal literature has shifted from reporting the presence of burnout to offering strategies for prevention or reduction of severity. The
strategies include routine exercise (Renz, 1994), leaving the stressful situation (Cornwall, 1991), varying the type of work performed (Nicholls, 1993), establishing a support system, developing a realistic view of nursing (Joinson, 1992; Lempp, 1995), having a career ladder (S. Owens, 1989), mentoring a new graduate (Porterfield, 1993), accepting the givens in the health care system (Macinick & Macinick, 1990), and resigning (Cullen, 1995). These strategies have been evolved from personal experiences (Cornwall, 1991; Ryan & Travis, 1994) or developed from literature review (McAbee, 1991; Ryan & Travis, 1994).

Research studies have found no significant relationship to burnout for the following demographic factors: sex, educational level, mental status, length of practice, civil status, and number of children (Cash, 1988; Cheatham & Stein, 1982; Cronin-Stubbs & Rooks, 1985; Dolan, 1987; Seever, 1984; Williams, 1989). In several studies, age was shown to have a negative relationship to burnout (Bartz & Maloney, 1986; Maslach & Jackson, 1981; Williams, 1989). Age was negatively related to the Maslach Burnout Inventory subscales of depersonalization and emotional exhaustion. Caution must be exercised in the use of age as predictor, because the nurses experiencing high levels of burnout simply may have left the profession prior to the studies (Williams, 1989). Studies examining the relationship of professional factors found no significant relationships between burnout and employment title, education, or experience (Grutchfield, 1981; Oganowski, 1984).

A variety of contributing factors were researched during the 1980s and 1990s. The first empirical study appeared in the literature in 1981 (Mytych). Like the majority of the studies to follow, the purpose of the study was to identify personal and organizational factors contributing to burnout. The study used Maslach’s (1976) definition of burnout and concluded
that burnout was significantly related to job satisfaction, but not significantly related to
coworker relationships.

Although job satisfaction has been extensively studied for several decades, there is a
shortage of studies completed exclusively for human service professions, including nursing.
Most investigators have assumed that if burnout is present, job dissatisfaction is also present
(Jayarathe & Chess, 1984). Mytych (1981) reported that job satisfaction was negatively
correlated with burnout. This finding did not indicate that decreasing the amount of burnout
would improve job satisfaction, or that improved job satisfaction would automatically
decrease burnout. Job satisfaction is a complex phenomenon influenced by multiple variables
(Blegen, 1993).

Findings from the study of Cheatham and Stein (1982) suggested that staff nurses who
possess self-actualization characteristics—regardless of age, years of experience, or
education—are less likely to experience burnout.

Williams (1989) stated that emotional empathy was significantly and positively
correlated with the Maslach Burnout Inventory subscales of emotional exhaustion and
personal accomplishment. He hypothesized that high emotional empathy may predispose
individuals to burnout. The hypothesis received no support from a later study on empathy,
which found only a weak negative correlation between burnout and empathy. The
explanation offered was that lower empathy was the result of burnout instead of being a

Several authors have studied the effect of personality hardiness on the development of
burnout, with varying results. Several studies have shown that a lack of hardiness has a
significant positive relationship to burnout (D'Ambrosia, 1987; Jama, 1987; Keane, Ducette, & Adler, 1985; Rich & Rich, 1987). McCraine, Lambert, and Lambert (1987) studied 107 staff nurses to determine if personality hardiness moderated the impact of stress on burnout. Burnout was found to be significantly associated with lower levels of personality hardiness, but hardiness did not appear to prevent high levels of job stress from leading to high levels of burnout.

The results of later studies only partially supported the idea that hardiness moderates or buffers burnout. Topf (1989) investigated hardiness, burnout, and occupational stress in critical care nurses. Hardiness, as defined in this study, is composed of three dimensions: commitment, control, and challenge. Only the dimension of commitment to work accounted for significant amounts of variance in the burnout scores. Another study of critical care nurses in 1991 investigated hardiness, ways of coping, social support, and burnout. The results indicated that social support and hardiness were negatively related to burnout (Boyle, Grap, Younger, & Thornby, 1991).

Social support is an organizational and personal variable, which can be obtained from both work- and non-work-related sources (Boyle et al., 1991). In various human service professions it has been demonstrated that burnout is less severe when stressed workers are provided with feedback and support (Pines & Maslach, 1980). Researchers have attempted to prove that social support buffers or moderates the effects of occupational stress and eventual burnout, with varying degrees of success (Cherniss, 1980b; Constance & Russell, 1986; Cronin-Stubbs & Rooks, 1985; Ogus, 1990).

Several studies have found that on-the-job and off-the-job social support were
negatively associated with, and predictive of, burnout (Boyle et al., 1991; Cronin-Stubbs & Rooks, 1985). Other research projects agree that on-the-job social support mitigates burnout but found no significant relationship between off-the-job social support and burnout (Constance & Russell, 1986; Ogus, 1990).

One of the organizational factors traditionally thought to be related to burnout was working in a high stress area, such as critical care, hospice, oncology, or an AIDS special care unit. Nurses working with the critically or terminally ill have generally been considered to be at a higher risk for burnout. Comparative research on nurses in intensive care and nonintensive care settings has produced findings that indicate no significant difference in the burnout scores of the nurses in these settings (Bartz & Maloney, 1986; Chiriboga & Bailey, 1986; Cronin-Stubbs & Rooks, 1985; Foxall, Zimmerman, Standley, & Bene, 1990; Keane et al., 1985; McCarthy, 1985; Topf & Dillion, 1988; Tyler & Ellison, 1994). Servellen and Leake’s (1993) study showed no significance in burnout scores across nurse samples, representing a variety of units and medical diagnoses. The types of units included in the study were general medical units, intensive care units, oncology special care units, and AIDS special care units.

Other studies have indicated a relationship between the occurrence of burnout and the lack of administrative support (Cronin-Stubbs & Rooks, 1985), a leadership style of high structure and low consideration (Duxbury et al., 1984), and the number of hours spent in direct patient contact (Cronin-Stubbs & Rooks, 1985). The research literature did not provide any support for a relationship between burnout and patient acuity (McCarthy, 1985) and methods of patient care (Cronin-Stubbs & Rooks, 1985).
The traditional recommendations for burnout prevention or treatment have included meditation, working part-time, relaxation techniques, and social support. While there is limited research to support the effectiveness of these interventions, nursing research has repeatedly attempted to demonstrate that social support will moderate the level of burnout. Research results have often challenged the moderating affect of formal support groups (Buechler, 1985). The early findings of research on the role of social support, however, suggest that a lack of on-the-job support will enhance vulnerability to burnout (Mohl, Denny, Mote, & Coldwater, 1982).

In recent years, it has been suggested that nurses in all countries experience similar phenomenon (Magelsdorf & Smith, 1990). Armstrong-Stassen et al. (1994) suggested that burnout is one such phenomenon and proposed that a universal theoretical model of the determinants and consequences of burnout may be plausible. A significant relationship between work-related determinants and burnout has already been studied in a variety of countries: Jordan (Armstrong-Stassen et al., 1994), Sweden (Astrom, Nilsson, Norberg, Sandman, & Winblad, 1991), United Kingdom (Frith & Britton, 1989), Ireland (Dolan, 1987), the United States (Stechmiller & Yarandi, 1993), and China (Tsai, 1993).

**Counseling**

A vast body of research seems to clearly support the belief that burnout among individuals in the “helping professions” occurs at a rate that is disproportionately higher than for those who are not in the helping professions. The efforts of Maslach (1976; 1978a; 1978b; 1979); Pines and Kafry (1978); Kafry and Pines (1980); and Edelwich and Brodsky (1980) all substantiate this claim. Considerable attention has been given to answer the question of why
helping professionals, particularly social workers, counselors, and the like, seem to be more susceptible to this stress syndrome.

In an effort to understand why some are more susceptible than others to burnout, some researchers have attempted to identify characteristics within helping professionals which could, in fact, predispose them to burnout. Pines and her colleagues examined the many traits of helping professionals, and arrived at three commonalities which they suggest might predispose these individuals to burnout (Pines et al., 1981). These commonalities include: the work that they perform tends to be emotionally taxing; they tend to have a client-centered orientation; and they all share some common personality traits which seemed responsible for them choosing to work in the helping professions.

Work such as counseling involves a tremendous personal investment of time and energy on the part of the “helper” to the client. In many instances it seems as though the helper gives, and the client takes; and this pattern of give and take continues as the therapeutic process proceeds. All too often the process is repeated with little time taken to replenish the counselor’s energy. As clients come and go, and as the process is repeated over a significant period of time, emotional resources eventually become drained. It is at this point that the counselor suffers from what Maslach and others have deemed as emotional exhaustion.

The client-centered orientation specifically refers to the emphasis on the part of the counselor to provide the client with service. This may be thought of as an “I’m here to serve you” or “I’m here to meet your needs” orientation. Unfortunately, as Freudenberger (1975) asserts, clients have many needs and many are in extreme need. The client-centered
orientation becomes problematic when counselors believe that they must help everyone, and further should be successful with all. Ball (1977) has noted the dilemma that counselors experience in this regard.

Finally, in looking at common personality traits among helping professionals, Pines, et al. (1981) identified dedication and commitment, as well as caring, as universally shared characteristics. In addition, these researchers found that another commonality was the view of helping professionals that their work was not merely work. They saw what they did as a calling. Freudenberger and Richelson (1980), like Pines and her colleagues, note that dedication and commitment are prominent virtues among helping professionals. Although dedication and commitment are desirable traits, the type of great expectations that are sometimes promoted in the training of counselors and other helpers can lead to unrealistic idealism and ultimately disillusionment (Warnath & Shelton, 1976).

In addition to the antecedents of burnout just cited, Edelwich and Brodsky (1980) offer some additional ones. Among these are low pay at all levels of education, skill, and responsibility; a lack of criteria for measuring accomplishment; upward mobility through administrative channels only; inadequate funding and institutional support; and high visibility coupled with popular misunderstanding and suspicion.

Demographic Characteristics and Burnout

Various demographic characteristics have been identified with burnout and may ultimately be utilized to predict who is at risk for burnout. Maslach and Jackson (1981) found that sex, age, education, and marital status are related to burnout in the following ways:

- women tend to have higher burnout scores than men, especially on the emotional
exhaustion subscale of the MBI;

- younger professionals tend to have higher burnout scores than do older professionals and burnout is thought to be more intense during the first five years of a career;
- higher burnout scores are evidenced among those with lesser amounts of education, that is, professionals with a doctorate have a lower burnout score than those with a baccalaureate degree;
- married people have lower burnout scores than unmarried ones.

There are some additional demographic variables relative to counselors that are also noteworthy. Ekbom (1985); Maslach and Pines,(1977); and Pines and Maslach, (1978) have noted that burnout scores tend to be lower for counselors who can temporarily withdraw from their work responsibilities, that is, have time outs. Also, the larger the number of clients one must deal with, the higher the burnout scores (Ekbom, 1985; Maslach & Pines, 1977). Finally, Freudenberger (1975) and Pines, et al., (1981) found that in looking at years of counseling experience (years in the profession) higher burnout scores tended to be associated with fewer years in the profession.

**Organizational Characteristics and Burnout**

Maslach and Jackson (1981) define burnout as a syndrome of emotional exhaustion and cynicism that commonly occurs among individuals who work continuously with people experiencing psychological, social, and physical problems. Cherniss (1980b) and Hasenfeld (1992) characterize burnout as negative attitudes and behavior in response to job stressors. Much of the literature involving the human services has examined burnout and the non-reciprocal nature of the caregiver-client relationship (Courage & Williams, 1986; Miller,
Birkholt, Scott, & Stage, 1995; Penn, Romano, & Foat, 1988; Shinn, Rosario, Morch, & Chestnut, 1984; Spicuzza & DeVoe, 1982; Swanson, 1987; Ursprung, 1986). In this respect, burnout is conceptualized as the outcome of extensive contact with individuals having many complex needs. Burnout has also been conceptualized as the opposite of hardiness (Jaffe, 1995).

A review of the research suggests that it is also important to understand organizational variables in human service organizations. The extent of negative changes in mood and behavior are strongly influenced by the nature of the work setting (Cherniss, 1980b). Aspects of the work environment have been found to be more important in creating ill health among workers than dysfunctional personal coping responses to stress (Karasek & Theorell, 1990). Individual efforts to alleviate workers’ strain have not been demonstrated to be effective in the human services (Penn et al., 1988; Shinn et al., 1984). Perceived organizational support; however, has been found to mediate job stressors (B. Jones, Flynn, & Kelloway, 1995). For these reasons some researchers have called for the involvement of administrators in ameliorating conditions to improve workers’ morale and sense of control (Shinn et al., 1984; Swanson, 1987).

The importance of work factors is underscored by the finding that burnout is positively correlated with negative aspects of climate and culture (Jaffe, 1995). Cherniss (1980b) stated that the structure of the work setting may be the greatest contributor to burnout. Cherniss identified boring, demanding, frustrating, and unsupportive work environments as being associated with burnout. Consequences of stress have been linked to reduced job satisfaction and commitment (B. Jones et al., 1995). Job satisfaction has been
associated with organizations that provide autonomy, participation, challenge, elevation in
status and financial rewards (Hasenfeld, 1992). Other work factors have been identified as
being related to human services workers’ strain, including: a lack of access to resources,
particular organizational policies and structures, communication and interactional patterns,
lack of support, poor supervision, inflexibility, and a lack of job autonomy and input in
decisions (Courage & Williams, 1986). Burnout has been found to be related to job
absenteeism, turnover, low morale, marital and family problems, and increased substance

The research supports the study of workers’ perceptions of their job and organization.
Attitudes toward work and co-workers have been found to impact on how health care workers
relate to their clients (Hasenfeld, 1992). Hasenfeld (1992) states that the quality of client-
worker relations is influenced by worker morale and job satisfaction. Burnout has been found
to lead to deterioration in the quality of care provided by staff (Maslach & Jackson, 1981).

The human relations perspective described by Hasenfeld (1992) is consistent with
research on organizational culture regarding the hierarchy of workers’ needs in organizations,
and adopts the assumptions of Lewin, Maslow and McClelland (Jaffe, 1995). This
perspective, also termed the organizational development paradigm, examines processes that
enhance motivation, satisfaction, and effectiveness in the work place (Jaffe, 1995). It
emphasizes that job requirements and conditions have significant psychological consequences
on staff in terms of their ability to fulfill their personal needs, and that employees are
motivated by intrinsic as well as extrinsic rewards. Employees’ needs range from basic
requirements for security to higher-order self actualization needs. These psychological
variables are considered to influence employee attitudes toward work and co-workers, and affect how workers will perform their jobs. Work environments that satisfy intrinsic motivations for growth, meaning, and participation, as well as needs for rewards and security, are likely to be effective (Jaffe, 1995).

In identifying causes of job stress many physical aspects of the work environment have been studied. Examples of physical aspects of the work environment would typically include noise, air pollution, extreme heat or cold, and improper lighting. There are, however, other aspects of the work environment that are also important and have been investigated as to their role as environmental stressors. An example of these other environmental factors is the individual’s role at work, which includes the concepts of role ambiguity and role conflict. Other aspects of the environment that are not physical are relationships with coworkers and supervisors, and opportunities for personal growth.

In the context of job stress and burnout research, Insel and Moos (1974b) were among the first to argue that the environment as well as the individual’s perception of it is critically important to the understanding of one’s behavior. It was, in fact, Moos and his associates who developed a model of the effects of environmental and personality variables on the health and behavior of the individual. This early work laid the foundation for the development of Moos’ Work Environment Scale (WES), a standardized inventory which assesses an environmental characteristic that Moos refers to as social climate. The physical and non-physical aspects of the environment become more obvious upon examination of the various dimensions of the WES (Moos, 1981, 1994b). The WES is one instrument utilized in the present study.

Many studies have looked at a variety of the dimensions which Moos has incorporated
into the WES. Some of these investigations have employed the WES, while others have not. In looking at some specific environmental factors, results of several studies can be summarized.

Cherniss (1980a), Golembiewski, et al., (1983), and Savicki and Cooley (1987) found that where relationships with coworkers and supervisors were nonsupportive, unpleasant, or hostile there was a greater risk for burnout. Kahn, et al. (1964), and House and Rizzo (1972) found that counselor stress reactions were consistently more pronounced with conflicting role demands and ambiguity about one’s job role. This finding is also consistent with evidence linking greater burnout to role conflict and role ambiguity (Maslach & Jackson, 1984; Pines, 1982; V. Savicki & Cooley, 1987). Golembieski, et al. (1983), Maslach and Jackson (1982), and Pines (1982) found that lack of control and little autonomy in carrying out one’s job responsibilities was linked to greater burnout.

Cherniss (1980a) reported findings consistent with those which have been mentioned above. In his investigation with 28 helping professionals, he detailed how individuals’ adaptation to job stress gave rise to burnout. Where role ambiguity and conflict existed, and relationships were nonsupportive, burnout was indeed evidenced. Although the study examined interaction between the individuals and their environment and indicated major sources of stress, these may be of secondary importance. Perhaps the Cherniss study is of more importance because of its two year longitudinal design. It was Lazarus (1966) who called attention to the fact that emphasis in job stress research is too often placed on discrete events rather than ongoing sources of stress. Studies such as the one conducted by Cherniss best allow for attention given to the more chronic, ongoing sources of stress delineated by
Lazarus.

Another factor which seems to fall under the category of environmental influences, and has been widely researched in relation to burnout, is the concept of Social Support. Although the present study does not singularly explore the relationship of social support and burnout, it has received sufficient attention that it deserves some attention here. Social support has been defined by a number of individuals who all essentially assert the same thing. One definition is offered by Tolsdorf (1976), who maintained that social support is any action or behavior that functions to assist the focal person in meeting personal goals or in dealing with the demands of a given situation (p. 410).

Research on burnout and social support has repeatedly substantiated the positive impact that social support has in reducing stress and burnout among a variety of human service professionals. Results obtained from Ekbom (1985), Maslach and Pines (1977), and Pines and Kafry (1978) provide support for the benefits of good social support. At this point, it seems clear from the results of many studies that social support is a vitally important variable that can directly and indirectly reduce burnout among helping professionals. Research has so strongly proclaimed the value of good social support that in the future most prudent efforts aimed at reducing burnout should incorporate a good social support system into any work environment being considered.

Many researchers have considered the role of the environment in their research. Two such efforts which provided the stimulus for this investigation are the work of Savicki and Cooley (1987), and DeFranco (1989). The Savicki and Cooley study examined the relationship of work environment to burnout. It also explored the relationship of type of client
contact to burnout. The DeFranco study, on the other hand, looked at burnout among community college counseling personnel. A review of these studies follows.

For the purposes of their study, Savicki and Cooley used a sample which consisted of 94 mental health workers from a total of 10 different mental health agencies. The subjects were nurses, psychologists, psychiatrists, mental health specialists, child-youth workers, family workers, supervisor-administrators, and a variety of paraprofessionals. Instrumentation for the study consisted of the Maslach Burnout Inventory, the Work Environment Scale, and a demographic data sheet. A 75% response rate from the original subjects who were selected for participation in the study was reached.

Following the administration of the questionnaires, the data were analyzed in several ways, ranging from simple correlational analysis to stepwise multiple regression analysis. The results indicated that each of the components of burnout (Emotional Exhaustion, Depersonalization, and Personal Accomplishment) had a different pattern of environmental contributors. Based upon their results, the researchers concluded that those work environments that are associated with low levels of burnout are the ones in which workers are committed to their work, relationships with coworkers are encouraged, and the supervisory relationship is supportive. They also concluded that high levels of burnout are found in those work environments where worker freedom and flexibility are restricted, and there is a de-emphasis on planning and efficiency for completion of work tasks. Consistent with the results of Pines and Maslach (1980), they also found high levels of burnout to be associated with vague or ambiguous job expectations, and a lack of support or encouragement for new ideas.

Another study conducted more recently, and one which is also similar to the present
study, is the one by DeFranco (1989). In her investigation of burnout among two-year college counselors, DeFranco examined 507 counselors from across the United States. The purpose of her study was to examine the influence of social support variables on burnout. Whereas some of these support variables are similar to those defined and measured by the Work Environment Scale (Moos, 1981), there are some differences in instrumentation used by DeFranco in her study compared to the previously cited study by Savicki and Cooley. This fact should be emphasized, as many researchers speak of social support variables but not all necessarily define these variables the same nor measure them the same way. DeFranco did, however, as many others before her, employ the MBI as her measure of burnout. Again, the widespread usage of the MBI speaks well to its acceptance by the scientific community.

DeFranco’s results indicated that only 18 of the 507 counselors, or 3.3%, experienced a high level of burnout as measured by the MBI. Although the overall findings did not allow for adequate prediction of when one might expect to see a high level of burnout.

**Climate and Burnout Research in Libraries and Computing Services**

A review of the literature of organizational climate and burnout in libraries and computing services units provided no empirical studies of either organizational climate or burnout in the computing services environment. There were, however, several relevant studies of both organizational climate and burnout in libraries, and much anecdotal coverage. Several sources provided comparisons and information about the two units.

In one study, Joy Hughes (1989) described her experiences with the merger of the library and computing services units in a small liberal arts college. Hughes based her strategies for change on the theories of Noel Tichy, Tom Peters, and Rosabeth Moss Kantor.
Following Tichy’s TPC model, she set out to change the technical, political, and cultural systems of the library. Applying the ideas of Kantor, she sought to reduce the barriers between organizational units so that information and resources could be shared more readily. Acknowledging Peters’ principles, she planned to empower people in the lower ranks, create a sense of urgency, and arrange a few “attention getters” (p. 2.14, 2.58). She also clarified the mission and goals of the library and assessed its internal and external environments (p. 2.16-2.17). Hughes further adopted the “new role of librarians teaching information literacy” (p. 1.19)

Hughes concludes, “(1) strategic planning is an effective means of bringing about the technical, political, and cultural changes needed to effect strategic improvements in information services; and (2) reorganizing the library and computer center into one organizational unit headed by a Chief Information Officer can facilitate the attainment of strategic goals for information services” (abstract). She admits, however that changing the cultural system of the library “was quite painful for the library staff” (p. 2.92) and regrets having neglected to empower the staff and to involve them in shaping the strategic plan.

Hardesty (2000), in his collection of essays from noted library and information science professionals, *Books, Bytes, and Bridges*, provided an overview of the various perspectives of the relationships between computing service and library organizations. It, too, supplies ample opinion and anecdotal observations but offers neither empirical evidence nor theoretical development of the cultural or climatic relationships between these units. Likewise, Hirshon (1998) attempted to describe the then current state of the opinions and observations surrounding the tendency toward merger of the units, but provides little in the way of theory
or empirical development of the relationships between computing services and libraries. He does, however present an interesting qualitative study of the reasons for merging or not merging these two units in a variety of institutions as described earlier in this chapter.

**Libraries and Organizational Climate**

Limpiyasrisakul (1980) conducted a study to examine the involvement of the professional librarians in the organizational climate and decision-making process in designated university libraries, and relate this involvement to selected performance characteristics. The performance characteristics were staff satisfaction, faculty members' evaluation of the library, and students' evaluation of the library. Five participating libraries were chosen from 13 public universities in Bangkok, Thailand, offering both undergraduate and graduate programs. Useful information was obtained from 7 library top-management personnel, 107 professional library-staff members, 426 faculty members, and 940 students. The instruments used were the Profile of Organizational Characteristics adapted from the Likert Profile of Organizational Characteristics (1967), the Staff Job Satisfaction developed by Marchant (1970), and the Faculty Members' Evaluation and Students' Evaluation of the Library Services, Facilities, and Resources adapted from Covey (Covey, 1955). Conclusions drawn were that there was a significant difference between the Profile of Organizational Characteristics at the present time and the Profile of Organizational Characteristics that library top management and staffs would prefer; and job satisfaction of librarians, faculty's evaluation of the library, and students' evaluation of the library appeared to be improved by involving the professional librarians on the staff in the organizational climate of the library.

Stellingwerf (1981) examined the relationship between public librarians' perception of
organizational climate and their ability to estimate the needs of library users. Library managers have assumed that there is a relationship between the quality of the working atmosphere within a library and the quality of service that the library provides. The purpose of this study was to determine if a satisfying work environment, as perceived by the professional staff of a library, increased the staff’s awareness of user needs. Organizational climate was measured with the Modified Institutional Functioning Inventory (Samuels, 1979), a questionnaire that measures organizational climate as it is perceived by the individuals within an organization. The questionnaire is a adaptation of the Institutional Functioning Inventory (IFI) that has been used by the Educational Testing Service to measure organizational climate in colleges and universities. Librarians' awareness of user needs was measured with a questionnaire which listed a number of items commonly found in medium-sized public libraries. A random sample of users from each of the 30 participating libraries evaluated each item on the questionnaire according to their own personal needs and preferences. The professional staff of the same libraries was given the same questionnaire and asked to evaluate each item as they believed the "average" library user would value them. Users' answers were compared with librarians' answers to determine librarians' awareness of user needs. When librarians' perceptions of organizational climate were correlated with their ability to estimate user needs, no significant relationship was found. However, a significant relationship was found between Intellectual Aesthetic Emphasis, one aspect of climate measured by the Modified IFI, and librarians' ability to estimate user needs. The study concluded that librarians' relationships to fellow workers and to library management, which is represented by their perceptions of organizational climate, is not necessarily related to their
sensitivity to the needs of users. Libraries with "good" organizational climates are not necessarily more attuned to the needs of their user populations than are libraries with "bad" climates. The possibility that perceived organizational climate is more closely related to job satisfaction than to job performance was also discussed.

Webreck (1985) performed a study of the relationships between information richness (those organizational members who have access to more and varied types of information sources), opinion leadership, decision making, personality type and organizational climate. The Organizational Climate Scale (Samuels & McClure, 1983) was used to measure organizational climate. Four varied library environments were chosen for the study. She reported that the data did not provide substantial evidence that a relationship existed between personality type or an individual’s tendency to be information rich, and organizational climate. However, the positive associations among the five dimensions of the scale suggested that organizational climate is a unified and valid construct. She also observed that organizations in this sample that were perceived to be healthy had strong hierarchical structures and open channels of communication. Those libraries that received unhealthy climate ratings were not guided by clear lines of authority and did not have open communication channels.

In a study to develop an instrument to measure perceived organizational climate and library instructional services, Safrit (1986) had the underlying purpose of determining the existence of a relationship between organizational climate and an institution's ability to provide a successful library instruction program. The focus of the research was the design, development, and testing of the Academic Library Instructional Services Survey (ALISS) for
use in diagnosing an organizational climate suitable for promoting instruction in library use within academic libraries. The ALISS consists of five climate scales: Esprit, Self-study and Planning, Instruction and Utilization, Support, and Innovation. The instrument was based on the Modified Institutional Functioning Inventory developed by Alan R. Samuels (1979). Comprehensive colleges and universities formed the population for the field study. Sixteen institutions were randomly selected, with an additional four institutions chosen as criterion institutions. The instrument proved to be both moderately valid and reliable. It was concluded that the ALISS can be useful in planning library instructional services, particularly in the diagnosis of whether the organizational climate as perceived by faculty and librarians is conducive to the development of a successful program.

Pienaar and Boshoff (1996) designed a theoretical study to examine three variables—organizational structure, organizational culture and climate, and the personality of individuals in organizations—in order to develop guidelines for the design of creative and innovative university libraries. The study examined the possible relationship between the degree of creativity and innovation of university libraries and the organizational climate. Five university libraries in South Africa were chosen for investigation. The degree of creativity and innovation of the university libraries was analyzed by identifying the most creative and innovative product from each library. A panel of international experts evaluated these products. A standardized climate measurement instrument, the Creative Environment Scales: Work Environment Inventory (WEI) (Amabile & Gryskiewicz, 1989) and the playfulness/humor scale of the Creative Climate Questionnaire (CCQ) (Ekvall & Andersson, 1986) were used to measure the degree to which the climates of the university libraries
supported creativity and innovation. It was theorized that the variables (organizational structure, organizational culture and climate, and the personality of individuals in organizations) play an important role in creative and innovative organizations, and that there might be relationships between these variables. Pienaar and Boshoff reported statistically significant differences between the university libraries studied and the following climate scales of the WEI and the CCQ: Organizational Impediments, Sufficient Resources, Freedom, Workload Pressure, and Playfulness/Humor. No differences were found with regard to: Creativity, Productivity, Challenging Work, Work Group Supports, and Supervisory Encouragement. Organizational climate factors of challenging work, freedom, and organizational encouragement were significant predictors of creativity and work group supports, organizational encouragement, and sufficient resources were significant predictors of productivity. They also reported a relationship between the size of the university library and the organizational climate. The size of university libraries, with the implication that larger university libraries have more resources, was seen as an important variable in terms of the degree of creativity and innovation.

Singh (1998) reported a study designed to investigate the motivating factors of job involvement among library professionals. The study measured and compared organizational climate as measured by an abridged version of the Business Organisational Climate Index (BOCI) (Payne & Phesey, 1971), job involvement as measured by the Job Involvement Scale (JIS) (Agarwala, 1980), and personal effectiveness as measured by the Personal Effectiveness Measure (PEM) (Sutton & Ford, 1982); and their relationships to each other and to selected demographic variables. The sample included 261 library professionals from 61 social sciences
libraries in Delhi, India. Among other results, it was reported that a significant negative correlation between organizational climate and job involvement existed.

**Libraries and Burnout**

Haack, Jones, and Roose (1984) reported on a sample of reference librarians at a one-day conference on reference service held by the Continuing Education Committee of the Illinois Association of College and Research Libraries (IACRL). The group of 92 individuals was given the Staff Burnout Scale for Health Professionals (J. W. Jones, 1980a). Twenty-three percent scored in the very calm, no tension range. Thirty-five percent had an average score. Twenty-eight percent showed ongoing psychological tension. Fourteen percent showed severe and sustained psychological tension. In this study group of reference librarians a full 42 percent were at or near burnout.

Affleck (1996) administered the Maslach Burnout Inventory and a role questionnaire to bibliographic instruction librarians in colleges in New England. Over 50% reported high burnout in at least one of the factors, 8.5% reported it in all three, the highest value being in emotional exhaustion.
Summary

In this chapter a review of the relevant research and literature of the changing work environment, the changing environment of higher education, and the changing environment of the library and computing services units was presented. Then a theoretical model relating organizational environment (organizational climate and culture), stress and coping, and burnout was reviewed followed by a detailed review of each of these subjects. Finally, a review of the burnout and organizational climate research specific to libraries and computing services was presented.
CHAPTER III

METHODOLOGY

Purpose of the Study

The purpose of the study is to investigate the characteristics of the organizational climate, the rate of professional burnout, the demographic profile and the interactions of these factors between the library and computing services units of the West Virginia public higher education institutions.

Research Questions

The following research questions were used to guide and delimit the study.

1. In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?

2. In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel?

3. In what ways, if any, are the perceived organizational climates of the library and computing services units related to levels of professional burnout found in these units?

4. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?

5. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the
employees of the units?

6. In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate or mediate the level of professional burnout of the employees of the library and computing services units?

**Research Design**

The design of this study is a one shot case study. The study is a self reported, ex post facto quasi-experimental one with a combination descriptive, correlational, and causal-comparative approach. This method was chosen because it allows for the multivariate comparison of several groups in-situ without the manipulation of experimental conditions.

**Population and Sample**

For the purposes of this study the population to be studied is those individuals that are employed in either the computing services area or the library in a public higher education institution in the state of West Virginia. The author estimates from various reports that this population has an N of 281 for Libraries and an N of 240 for Computing Services.

The population for this study is defined as West Virginia public higher education library and computing personnel principally as a convenience population. No specific sampling or randomization technique was used. It was physically possible to include the entire population. The results are randomized based solely upon the percentage return of the instrument.
**Instrumentation**

The instruments used in this investigation include the Work Environment Scale (WES) Form R, third edition (Moos, 1993) and the Maslach Burnout Inventory-Human Services Survey third edition (MBI-HSS) (Maslach et al., 1996). In addition to these two standardized inventories, a set of demographic questions was included. All of the questions were presented in a single questionnaire to simplify the data collection effort (see Appendix B for a sample questionnaire).

**The Work Environment Scale**

The Work Environment Scale (WES) Form R is a ninety item, self-administered inventory that contains ten subscales designed to measure a subject’s perception of his/her existing work environment. The WES was developed by Paul Insel and Rudolf Moos (1974b). The ten subscales assess three underlying domains or sets of dimensions and are listed in Table 3. According to Moos, the ten WES subscales reflect conceptually distinct aspects of the work environment. For this reason, the ten subscales will be integrated in the analysis because the three dimensions are not intended for statistical purposes (Moos, 1994b).
Table 3. Work Environment Scale (WES): Subscales and Dimensions

90 questions yield the following:

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Relationship Dimensions</strong></td>
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</tr>
<tr>
<td>1. Involvement</td>
<td>The extent to which employees are concerned about and committed to their jobs</td>
</tr>
<tr>
<td>2. Coworker Cohesion</td>
<td>How much employees are friendly and supportive of one another</td>
</tr>
<tr>
<td>3. Supervisor Support</td>
<td>The extent to which management is supportive of employees and encourages employees to be supportive of one another</td>
</tr>
<tr>
<td><strong>Personal Growth Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>4. Autonomy</td>
<td>How much employees are encouraged to be self-sufficient and to make their own decisions</td>
</tr>
<tr>
<td>5. Task Orientation</td>
<td>The emphasis on good planning, efficiency, and getting the job done</td>
</tr>
<tr>
<td>6. Work Pressure</td>
<td>The degree to which high work demands and time pressure dominate the job milieu</td>
</tr>
<tr>
<td><strong>System Maintenance and Change Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>7. Clarity</td>
<td>Whether employees know what to expect in their daily routine and how explicitly rules and policies are communicated</td>
</tr>
<tr>
<td>8. Managerial Control</td>
<td>How much management uses rules and procedures to keep employees under control</td>
</tr>
<tr>
<td>9. Innovation</td>
<td>The emphasis on variety, change, and new approaches</td>
</tr>
<tr>
<td>10. Physical Comfort</td>
<td>The extent to which the physical surroundings contribute to a pleasant work environment</td>
</tr>
</tbody>
</table>

(adapted from Moos, 1994b, p. 1)

Two additional summary indices have been developed from combinations of the WES subscales. The Work Stressors Index (WSI) is the sum of the Work Pressure and Managerial Control subscales and of the Autonomy and Clarity subscales, which are reverse-scored. The Work Relationships Index (WRI) is the sum of the Involvement, Coworker Cohesion, and Supervisor Support subscales (Moos, 1994b). Responses to each of the ninety items of the WES are given as either True or False by the subject. Subjects typically take approximately 20-30 minutes to complete the WES.

Normative data for the WES were collected for over 8,146 employees; there are 3,267 in general work groups and 4,879 in a variety of health care settings. Internal consistencies (Chronbach’s Alpha) reported by Moos (1994b) ranged from a low of .68 to a high of .82 for...
the 10 subscales. In different samples the internal consistency for the WSI has varied from .75 to .82 and that for the WRI has varied from .83 to .90 (Moos, 1994b). Test-retest reliability for the 10 subscales ranged from a low of .69 to a high of .83. Subscale intercorrelations are also reported for the WES (Moos, 1994b). Moos (1994b) does not report a criterion validity statistic but presents a number of studies that support the construct, concurrent, and predictive validity of the WES (see also Moos, 1993).

The Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI) is a twenty-two item, self-administered inventory which was developed by Christina Maslach and Susan Jackson (1981; 1986; 1996). The inventory contains three subscales that are designed to measure the three dimensions of burnout. These subscales are Emotional Exhaustion, Depersonalization, and Personal Accomplishment and are described in Table 4. The items on each of the three subscales are written as statements about the subject’s personal feelings and attitudes. The subject rates each statement on a Likert scale of 0 (never) to 6 (every day). Each scale is considered discretely and is not intended to be collapsed into a general burnout score (Maslach et al., 1996).

Table 4. Maslach Burnout Inventory (MBI) Subscales.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Description</th>
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<tbody>
<tr>
<td>Emotional Exhaustion (EE)</td>
<td>The degree to which one is emotionally overextended and depleted of one’s emotional resources.</td>
</tr>
<tr>
<td>Depersonalization (DP)</td>
<td>A negative, callous, dehumanizing attitude toward those with whom one is most in contact at the worksite</td>
</tr>
<tr>
<td>Personal Accomplishment (PA)</td>
<td>The sense of competence and achievement in one’s work.</td>
</tr>
</tbody>
</table>

(adapted from Maslach et al., 1996, p. 4)

The Emotional Exhaustion subscale is concerned with an individual’s feelings of
being emotionally worn down or so drained by their work that they are exhausted emotionally. This subscale contains nine items. The Depersonalization subscale is concerned with the impersonal attitudes and feelings toward those individuals that an individual is working with i.e., clients or customers. This subscale contains five items. The Personal Accomplishment subscale is concerned with one’s level of competence and success in working with clients or customers. It contains eight items. A high mean score on the first two subscales (Emotional Exhaustion and Depersonalization) coupled with and a low mean score on the latter (Personal Accomplishment) reflects a greater tendency toward a high level of burnout in the respondent. Specific score ranges for the MBI may be found in Table 1.

The MBI has been found to be reliable, valid, and easy to administer (subjects usually take 10-15 minutes to complete the inventory). Internal consistencies (Chronbach’s Alpha) for the three subscales of the MBI are reported as .90 for Emotional Exhaustion; .79 for Depersonalization; and .71 for Personal Accomplishment (Maslach & Jackson, 1986). Test-retest reliability for subscales were reported as .82 for Emotional Exhaustion; .60 for Depersonalization; and .82 for Personal Accomplishment (Maslach & Jackson, 1986).

Convergent validity of the MBI was determined three ways. First, MBI scores of an individual were correlated with behavioral ratings of the individual by someone who knew the individual well – such as a co-worker or spouse. Second, the MBI scores were correlated with job characteristics that were present and believed to contribute to burnout. Finally, MBI scores were correlated with measures of certain outcomes that have been hypothesized to be related to burnout. Additionally, validity has been demonstrated by Maslach and Pines (1977), Maslach and Jackson (1984), and Riggar, et al. (1985). Significant criterion validity

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correlations ranged from a low of .16 to a high of .56 (Maslach et al., 1996, pp. 45-46)

**The Demographic Questionnaire**

In addition to the questions of the WES and the MBI a series of questions designed to collect specific demographic data were included. Table 5 shows the assignment of variable names, their correspondence to the demographic questions, and the coding of the variables for the analysis.

**Data Collection**

Survey packets containing the survey instrument and a cover letter were prepared and mailed to the directors of Computing and Libraries at the individual institutions. The packet container was an envelope that the participant could reuse and seal to maintain confidentiality at the individual site. Contact with the directors was made to solicit their cooperation and answer any questions about the research. Using e-mail the process was explained to the directors and the individuals selected to collect the returned packets. A cover letter from the director was attached to the packet with specific site instructions, and the packets distributed for self administration. The completed packets were collected two weeks later and returned by mail in one of two self addressed mailers included with the initial mailing. The second mailer was used 2 weeks later to return any late packets. Contact was made within the first week to encourage the completion of the instruments and a follow-up e-mail was made weekly for a period of 4 weeks.
Table 5. Summary of Demographic Questions, Variable Name, and Coding

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Question</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employing Department</td>
<td>Are you employed in Libraries or Computing Services?</td>
<td>Computing Services = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Libraries = 1</td>
</tr>
<tr>
<td>Client Contact</td>
<td>Do you have regular direct face-to-face contact with individuals that could be</td>
<td>No = 0</td>
</tr>
<tr>
<td></td>
<td>considered the clients of your service activities, e.g., faculty, students,</td>
<td>Yes = 1</td>
</tr>
<tr>
<td></td>
<td>staff, visitors, coworkers, etc.?</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>How many years of formal education beyond High School have you had?</td>
<td>Actual number</td>
</tr>
<tr>
<td>Years in Position</td>
<td>How many years have you been in your current position?</td>
<td>Actual number</td>
</tr>
<tr>
<td>Years in Profession</td>
<td>How many years, total, have you been in your profession?</td>
<td>Actual number</td>
</tr>
<tr>
<td>Employment Classification</td>
<td>Are you considered faculty or staff?</td>
<td>Faculty = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff = 1</td>
</tr>
<tr>
<td>Marital Status</td>
<td>What is your marital status?</td>
<td>Not Married = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Married = 1</td>
</tr>
<tr>
<td>Age</td>
<td>What is your age?</td>
<td>Actual number</td>
</tr>
<tr>
<td>Supervisory Status</td>
<td>Do you supervise others?</td>
<td>Not a Supervisor = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervisor = 1</td>
</tr>
<tr>
<td>Gender</td>
<td>What is your Gender?</td>
<td>Male = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female = 1</td>
</tr>
</tbody>
</table>

Since an attempt was made to survey the entire population of West Virginia higher education librarians and computing professionals, estimated to be 521 it was expected that a return of 50% plus 1 would be possible but a return of 226 (43%) would be acceptable (Krejcie & Morgan, 1970, p. 608).

Data Analysis

The ScanTools (© National Computer Systems (NCS)) program was used in conjunction with an NCS OPScan 5 (© NCS) scanner to scan the answer sheets and prepare the data for analysis by SPSS. SPSS for Windows v.11 was utilized to analyze the data.

Several statistical methods were used to examine the data. Descriptive statistics were
used for the demographic data presentation. Cross tabulations with a Chi-Square statistic and one-way analyses of variance (ANOVA) were used to verify differences in class and continuous variables, respectively. T-tests and one-way ANOVA techniques were performed to identify differences in means of continuous variables. Pearson product-moment correlation coefficients were calculated to search for relationships between continuous variables and, in a similar manner, point bi-serial correlation coefficients were calculated for analyzing relationships between class variables.

Specifically, the various research questions were answered by the following techniques:

**Research Question 1:** In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?

**Technique:** ANOVA

**Research Question 2:** In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel.

**Technique:** ANOVA.

**Research Question 3:** In what ways, if any, are the perceived organizational climates of the library and computing services units related to levels of professional burnout found in these units?

**Technique:** Correlations.

**Research Question 4:** In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?
Technique: Correlations.

Research Question 5: In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?

Technique: Correlations.

Research Question 6: In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate (or mediate) the level of professional burnout of the employees of the library and computing services units?

Technique: Correlations.

Summary

This chapter has outlined the methodology used to answer the research questions of interest. A description of the population has been presented. The measurement instruments have been detailed and a data collection process described. A description of the data preparation, statistical techniques, and data analysis has also been presented
CHAPTER 4

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

The results of the research are presented in this chapter. First, the study population and a demographic profile of the resulting returns are analyzed. Next, a comparison of the return to established norms is presented. Answers to the six research questions are then offered. Finally, a discussion of the major findings and a summary are presented.

Population and Sample

For the purposes of this study the population includes those individuals that are employed in either the computing services area or the library in a public higher education institution in the state of West Virginia (N = 281 for Libraries and N = 240 for Computing Services). The population for this study was defined as such principally as a convenience population. No specific sampling or randomization technique was attempted. The population was surveyed. The data is randomized based solely upon the percentage return of the instrument.
Demographic Data

Table 6 summarizes the estimated population and the total return. The total return was 259 from an estimated population size of 521, or 49.7%. This was considered acceptable based on the acceptance criterion adopted in the methodology chapter. A decision was made to exclude those responses that had incomplete scores on either the WES or the MBI, or did not report their employing department. This removed 18 returns from the pool and left a total of 241 usable surveys, or a 46.2% return, for the analysis. Although an additional 29 surveys had one or more items missing from the demographic information, it was decided that this would not materially affect the analysis and those statistical procedures that required demographic data were processed in a listwise manner, removing all observations with missing data from that set of analyses. The numbers of missing items are summarized in Table 8 and can be derived from the reported N in Table 9.

<table>
<thead>
<tr>
<th>Category</th>
<th>Libraries</th>
<th></th>
<th>Computing Services</th>
<th></th>
<th>Totals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Population</td>
<td>281</td>
<td>100.00</td>
<td>240</td>
<td>100.00</td>
<td>521</td>
<td>100.00</td>
</tr>
<tr>
<td>Nonrespondants</td>
<td>262</td>
<td>50.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Return Size</td>
<td>259</td>
<td>49.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unusable Returns</td>
<td>18</td>
<td>3.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used in This Study</td>
<td>122</td>
<td>43.42</td>
<td>119</td>
<td>49.58</td>
<td>241</td>
<td>46.26</td>
</tr>
</tbody>
</table>

Table 7 summarizes the returns by institution. Ten institutions chose to participate. This return is also considered representative of the overall population by virtue of its distribution across the institution types. Table 7 also shows the distribution of participants based on their employing department. In this return 49.4% worked in the computing services unit and 50.6% in the library.

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Table 7. Distribution of Survey Returns by Institution and Employing Department

<table>
<thead>
<tr>
<th>Institution</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenville State College**</td>
<td>7</td>
<td>2.9</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>West Liberty State College**</td>
<td>9</td>
<td>3.7</td>
<td>3.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Bluefield State College**</td>
<td>9</td>
<td>3.7</td>
<td>3.7</td>
<td>10.4</td>
</tr>
<tr>
<td>Southern WV Community &amp; Technical College*</td>
<td>16</td>
<td>6.6</td>
<td>6.6</td>
<td>17.0</td>
</tr>
<tr>
<td>WV School of Osteopathic Medicine***</td>
<td>6</td>
<td>2.5</td>
<td>2.5</td>
<td>19.5</td>
</tr>
<tr>
<td>Potomac State College of WVU*</td>
<td>5</td>
<td>2.1</td>
<td>2.1</td>
<td>21.6</td>
</tr>
<tr>
<td>Shepherd College**</td>
<td>18</td>
<td>7.5</td>
<td>7.5</td>
<td>29.0</td>
</tr>
<tr>
<td>Fairmont State College**</td>
<td>17</td>
<td>7.1</td>
<td>7.1</td>
<td>36.1</td>
</tr>
<tr>
<td>West Virginia University***</td>
<td>99</td>
<td>41.1</td>
<td>41.1</td>
<td>77.2</td>
</tr>
<tr>
<td>Marshall University***</td>
<td>55</td>
<td>22.8</td>
<td>22.8</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>241</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employing Department</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing Services</td>
<td>119</td>
<td>49.4</td>
<td>49.4</td>
<td>49.4</td>
</tr>
<tr>
<td>Library</td>
<td>122</td>
<td>50.6</td>
<td>50.6</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>241</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

* Two Year Institution
** Four Year Institution
*** Graduate Institution

Table 8 and Table 9 report the demographic characteristics of the library, computing services, and overall participants in the return. Finally, Table 10 and Table 11 highlight the differences in the demographic characteristics of the two units.

**Gender**

The overall return consisted of 90 males (37.3%), 142 females (58.9%), and 9 missing values (3.7%). The library group reported 29 males (23.8%), 89 females (73.0%), and 4 missing values (3.3%). The computing services group reported 61 males (51.3%), 53 females (44.5%), and 5 missing values (4.2%).
Table 8. Frequencies of Participant Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Libraries</th>
<th></th>
<th>Computing Services</th>
<th></th>
<th>Totals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>29</td>
<td>23.8</td>
<td>61</td>
<td>51.3</td>
<td>90</td>
<td>37.3</td>
</tr>
<tr>
<td>Female</td>
<td>89</td>
<td>73.0</td>
<td>53</td>
<td>44.5</td>
<td>142</td>
<td>58.9</td>
</tr>
<tr>
<td>Total</td>
<td>118</td>
<td>96.7</td>
<td>114</td>
<td>95.8</td>
<td>232</td>
<td>96.3</td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>3.3</td>
<td>5</td>
<td>4.2</td>
<td>9</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100.0</td>
<td>119</td>
<td>100.0</td>
<td>241</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Supervisory status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a Supervisor</td>
<td>48</td>
<td>39.3</td>
<td>63</td>
<td>52.9</td>
<td>111</td>
<td>46.1</td>
</tr>
<tr>
<td>Supervisor</td>
<td>72</td>
<td>59.0</td>
<td>54</td>
<td>45.4</td>
<td>126</td>
<td>52.3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>98.4</td>
<td>117</td>
<td>98.3</td>
<td>237</td>
<td>98.3</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>1.6</td>
<td>2</td>
<td>1.7</td>
<td>4</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100.0</td>
<td>119</td>
<td>100.0</td>
<td>241</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Married</td>
<td>53</td>
<td>43.4</td>
<td>37</td>
<td>31.1</td>
<td>90</td>
<td>37.3</td>
</tr>
<tr>
<td>Married</td>
<td>60</td>
<td>49.2</td>
<td>81</td>
<td>68.1</td>
<td>141</td>
<td>58.5</td>
</tr>
<tr>
<td>Total</td>
<td>113</td>
<td>92.6</td>
<td>118</td>
<td>99.2</td>
<td>231</td>
<td>95.9</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
<td>7.4</td>
<td>1</td>
<td>.8</td>
<td>10</td>
<td>4.1</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100.0</td>
<td>119</td>
<td>100.0</td>
<td>241</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Employment Classification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>36</td>
<td>29.5</td>
<td>2</td>
<td>1.7</td>
<td>38</td>
<td>15.8</td>
</tr>
<tr>
<td>Staff</td>
<td>82</td>
<td>67.2</td>
<td>117</td>
<td>98.3</td>
<td>199</td>
<td>82.6</td>
</tr>
<tr>
<td>Total</td>
<td>118</td>
<td>96.7</td>
<td>119</td>
<td>100.0</td>
<td>237</td>
<td>98.3</td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>3.3</td>
<td>0</td>
<td>0.0</td>
<td>4</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100.0</td>
<td>119</td>
<td>100.0</td>
<td>241</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Client Contact</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>4.1</td>
<td>12</td>
<td>10.1</td>
<td>17</td>
<td>7.1</td>
</tr>
<tr>
<td>Yes</td>
<td>117</td>
<td>95.9</td>
<td>105</td>
<td>88.2</td>
<td>222</td>
<td>92.1</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>100.0</td>
<td>117</td>
<td>98.3</td>
<td>239</td>
<td>99.2</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>1.7</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>100.0</td>
<td>119</td>
<td>100.0</td>
<td>241</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Supervisory Status

In the overall return 126 individuals, or 52.3%, reported supervising others, leaving 111 (46.1%) reporting no supervisory duties and 4 (1.7%) missing values. Supervisory duties were reported by 72 individuals, or 59.0%, in the library and 54, or 45.4%, individuals in the
Marital Status

The overall return consisted of 141 individuals (58.5%) reporting that they were married. In the library group 60 individuals, or 49.2%, reported being married and 81 individuals, or 68.1%, of the computing services group said they were married.

Table 9. Means and Standard Deviations of Participant Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Libraries</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Age</td>
<td>115</td>
<td>45.58</td>
<td>9.726</td>
<td>117</td>
<td>41.83</td>
</tr>
<tr>
<td>Years in Position</td>
<td>122</td>
<td>8.75</td>
<td>7.930</td>
<td>117</td>
<td>5.92</td>
</tr>
<tr>
<td>Education</td>
<td>122</td>
<td>5.14</td>
<td>2.670</td>
<td>118</td>
<td>4.58</td>
</tr>
</tbody>
</table>

Employment Classification

Faculty status was held by 38 individuals (15.8%) in the overall return, with 36 individuals (29.5%) in the library group and 2 individuals (1.7%) of the computing services group.

Client Contact

Only 17 individuals in the overall return, or 7.1%, said they had no direct client contact. Five of these individuals, or 4.1%, were in the library group and 12 individuals, or 10.1%, were in the computing services group.

Age

The mean age in the overall return was 43.69 years, with 45.58 years and 41.83 years in the libraries and computing services units respectively.
**Experience**

Individuals reported an average of 15.4 years in their profession and 7.37 years in their current position. In the library, 15.52 was the average number of years in their profession and 8.75 years in their current position. The averages in computing services were 14.76 and 5.92, respectively.

**Education**

The overall return reported a mean of 4.86 years of formal education after high school. The averages for libraries and computing services were 5.14 and 4.58, respectively.

**Differences in Demographic Characteristics between libraries and computing services**

It should be noted from Table 10 and Table 11 that there were significant differences in the demographic consistency of the two units. There were significant difference in Gender (higher percentage of females in the library), Supervisory Status (higher percentage of supervisors in the library), Marital Status (lower percentage married in the library), Employment Classification (higher percentage of faculty in the library), Age (older in libraries), and Years in Position (higher in libraries). It is also interesting to note that there appears to be no significant differences in reported client contact, number of years in their profession, or the number years of education after the high school diploma.
Table 10. Crosstab Comparison of Library and Computing Services Demographic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Computing Services</th>
<th>Library</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong> ($\chi^2 = 20.442^{**}$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61</td>
<td>29</td>
<td>90</td>
</tr>
<tr>
<td>Female</td>
<td>53</td>
<td>89</td>
<td>142</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>114</td>
<td>118</td>
<td>232</td>
</tr>
</tbody>
</table>

| **Supervisory Status** ($\chi^2 = 4.561^{*}$) |                    |         |       |
| Not a Supervisor    | 63                 | 48      | 111   |
| Supervisor          | 54                 | 72      | 126   |
| **Total**           | 117                | 120     | 237   |

| **Marital Status** ($\chi^2 = 5.867^{*}$) |                    |         |       |
| Not Married          | 37                 | 53      | 90    |
| Married              | 81                 | 60      | 141   |
| **Total**            | 118                | 113     | 231   |

| **Employment Classification** ($\chi^2 = 6.573^{**}$) |                    |         |       |
| Faculty             | 2                  | 36      | 38    |
| Staff               | 117                | 82      | 199   |
| **Total**           | 119                | 118     | 237   |

| **Client Contact** ($\chi^2 = 3.428$) |                    |         |       |
| No                  | 12                 | 5       | 17    |
| Yes                 | 105                | 117     | 222   |
| **Total**           | 117                | 122     | 239   |

*p < 0.05. **p < 0.01.

Table 11. One-way Analyses of Variance for Employing Department (Libraries vs. Computing Services) on Demographic Characteristics

<table>
<thead>
<tr>
<th>Variable and Score</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>817.109</td>
<td>1</td>
<td>817.109</td>
<td>7.462**</td>
</tr>
<tr>
<td>Within Groups</td>
<td>25186.546</td>
<td>230</td>
<td>109.507</td>
<td></td>
</tr>
<tr>
<td><strong>Years in Profession</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>33.894</td>
<td>1</td>
<td>33.894</td>
<td>.397</td>
</tr>
<tr>
<td>Within Groups</td>
<td>19985.208</td>
<td>234</td>
<td>85.407</td>
<td></td>
</tr>
<tr>
<td><strong>Years in Position</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>478.668</td>
<td>1</td>
<td>478.668</td>
<td>8.854**</td>
</tr>
<tr>
<td>Within Groups</td>
<td>12812.931</td>
<td>237</td>
<td>54.063</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>19.018</td>
<td>1</td>
<td>19.018</td>
<td>2.877</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1573.445</td>
<td>238</td>
<td>6.611</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.
Comparison of the Return to Established Norms

Student’s $t$ values were calculated to compare the return means for the various subscales and the means published in the manuals for the WES and MBI. The $t$ scores were also calculated separately for the library and the computing services groups. The results are given in Table 12.

Overall Return

In the overall return significant differences from the published means were found for seven of the WES subscales. Mean scores higher than the published norms were found for Supervisor Support, Autonomy, Innovation, and Physical Comfort. Mean scores lower than the published norms were found for Work Pressure, Managerial Control, and the Work Stressors Index. Because Work Pressure, Autonomy, and Managerial Control (along with Clarity) are the components of the Work Stressors Index it is not surprising that it also is significantly different.

MBI norms are published as separate sets of scores for several work environments and an overall sample score with all of the environments together. One of the environments for which a group mean is presented is a postsecondary education sample. The research return was compared to both the postsecondary education norms and the overall sample norms. In the comparison to the overall sample norms, significant differences from the published means were found for Depersonalization. A significantly lower score (5.43 vs. 8.73) was demonstrated in this return. In the comparison to the postsecondary education norms, Personal Accomplishment was found to be significantly lower (35.09 vs. 39.17).
**Libraries vs. Computing Services**

The same pattern of divergences from the published norms was observed in the library, that is, higher Supervisor Support, Autonomy, Innovation, and Physical Comfort and lower Work Pressure, Managerial Control, and Work Stressors Index. An additional difference, however, was a higher value for Clarity (5.43 vs. 4.91). The analysis of the computing services group displayed a similar pattern: higher Autonomy, Innovation, Physical Comfort (but not Supervisor Support), and lower Managerial Control and Work Stressors Index (but not Work Pressure or Clarity).

The library group also mirrored the overall return in a comparison of the MBI subscale norms; specifically, lower Depersonalization compared to the overall norms, and lower Personal Accomplishment compared to the postsecondary norms. This pattern was similarly mirrored in the computing services group.

In 12 of the 18 subscales, computing services was found to be closer to the norm than the library. In all of the comparisons of both the library and computing services groups, as well as the overall return to the WES norms, the standard deviation was found to be at least twice the published norm standard deviation. This is probably an artifact of the smaller N (libraries = 122, computing services = 119, overall = 241) of the return vs. the N of 8,146 for the normal group. However, it is interesting to note that the standard deviations of both the overall return and the grouped libraries and computing services returns were very close to the standard deviations of both MBI norm groups.
Table 12. *T*-test Comparison of WES and MBI Mean Scores to Published Norms.

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Norms (group)</th>
<th>Libraries N = 122</th>
<th>Computing Services N = 119</th>
<th>Total N = 241</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td><strong>WES</strong> N = 8,146</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>5.71</td>
<td>1.14</td>
<td>5.92</td>
<td>2.50</td>
</tr>
<tr>
<td>Coworker Cohesion</td>
<td>5.52</td>
<td>0.91</td>
<td>5.62</td>
<td>2.55</td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>5.18</td>
<td>0.97</td>
<td>5.69</td>
<td>2.42</td>
</tr>
<tr>
<td>Autonomy</td>
<td>5.47</td>
<td>0.76</td>
<td>6.14</td>
<td>2.29</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>5.86</td>
<td>1.06</td>
<td>6.30</td>
<td>2.53</td>
</tr>
<tr>
<td>Work Pressure</td>
<td>5.31</td>
<td>1.02</td>
<td>4.18</td>
<td>2.36</td>
</tr>
<tr>
<td>Clarity</td>
<td>4.91</td>
<td>0.87</td>
<td>5.43</td>
<td>1.94</td>
</tr>
<tr>
<td>Managerial Control</td>
<td>5.26</td>
<td>0.96</td>
<td>4.47</td>
<td>2.06</td>
</tr>
<tr>
<td>Innovation</td>
<td>4.09</td>
<td>1.12</td>
<td>4.70</td>
<td>2.80</td>
</tr>
<tr>
<td>Physical Comfort</td>
<td>4.24</td>
<td>1.10</td>
<td>5.11</td>
<td>2.83</td>
</tr>
<tr>
<td>Work Stressors Index</td>
<td>18.19</td>
<td>3.61</td>
<td>15.08</td>
<td>5.39</td>
</tr>
<tr>
<td>Work Relationships Index</td>
<td>16.41</td>
<td>3.02</td>
<td>17.23</td>
<td>6.41</td>
</tr>
<tr>
<td><strong>MBI</strong>b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Sample N = 11,067</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>20.99</td>
<td>10.75</td>
<td>19.42</td>
<td>11.73</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>8.73</td>
<td>5.89</td>
<td>5.13</td>
<td>4.98</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>34.58</td>
<td>7.11</td>
<td>35.66</td>
<td>8.19</td>
</tr>
<tr>
<td>Postsecondary Education N = 635</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>18.57</td>
<td>11.95</td>
<td>19.42</td>
<td>11.73</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>5.57</td>
<td>6.63</td>
<td>5.13</td>
<td>4.98</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>39.17</td>
<td>7.92</td>
<td>35.66</td>
<td>8.19</td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.

a. (adapted from Moos, 1994b, p. 22)
b. (adapted from Maslach et al., 1996, p. 8)
Research Questions

Research Question 1

In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?

To answer this question a one-way analysis of variance was performed comparing the WES subscale scores of the library to computing services. The results are summarized in Table 13. Significant differences were found in the Work Pressure, Clarity, and Work Stressors Index. Again, because both Clarity and Work Pressure are components of the composite Work Stressors Index, the WSI will tend to track these subscales.

The ANOVA provides an indication that there is a difference; however, one must refer to Table 12 to assess the direction and magnitude. In this case, libraries were higher on Clarity (5.43 vs. 4.83), and lower on Work Pressure (4.18 vs. 5.45) and the Work Stressors Index (15.08 vs. 16.73), than computing services.
Table 13. One-way Analyses of Variance for Employing Department (Libraries vs. Computing Services) on WES Subscales

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Involvement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1.265</td>
<td>1</td>
<td>1.265</td>
<td>.202</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1500.054</td>
<td>239</td>
<td>6.276</td>
<td></td>
</tr>
<tr>
<td><strong>Coworker Cohesion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>.064</td>
<td>1</td>
<td>.064</td>
<td>.011</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1341.530</td>
<td>239</td>
<td>5.613</td>
<td></td>
</tr>
<tr>
<td><strong>Supervisor Support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1.864</td>
<td>1</td>
<td>1.864</td>
<td>.339</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1313.895</td>
<td>239</td>
<td>5.497</td>
<td></td>
</tr>
<tr>
<td><strong>Autonomy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>.391</td>
<td>1</td>
<td>.391</td>
<td>.078</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1193.219</td>
<td>239</td>
<td>4.993</td>
<td></td>
</tr>
<tr>
<td><strong>Task Orientation</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>16.932</td>
<td>1</td>
<td>16.932</td>
<td>2.341</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1728.653</td>
<td>239</td>
<td>7.233</td>
<td></td>
</tr>
<tr>
<td><strong>Work Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>97.691</td>
<td>1</td>
<td>97.691</td>
<td>15.760**</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1481.529</td>
<td>239</td>
<td>6.199</td>
<td></td>
</tr>
<tr>
<td><strong>Clarity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>21.276</td>
<td>1</td>
<td>21.276</td>
<td>4.804*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1058.475</td>
<td>239</td>
<td>4.429</td>
<td></td>
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<tr>
<td><strong>Managerial Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>5.391</td>
<td>1</td>
<td>5.391</td>
<td>1.162</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1109.008</td>
<td>239</td>
<td>4.640</td>
<td></td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4.387</td>
<td>1</td>
<td>4.387</td>
<td>.594</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1766.301</td>
<td>239</td>
<td>7.390</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Comfort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>15.491</td>
<td>1</td>
<td>15.491</td>
<td>2.180</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1698.377</td>
<td>239</td>
<td>7.106</td>
<td></td>
</tr>
<tr>
<td><strong>Work Stressors Index</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>163.831</td>
<td>1</td>
<td>163.831</td>
<td>5.746*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>6814.575</td>
<td>239</td>
<td>28.513</td>
<td></td>
</tr>
<tr>
<td><strong>Work Relationships Index</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>5.008</td>
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</tr>
<tr>
<td>Within Groups</td>
<td>9096.162</td>
<td>239</td>
<td>38.059</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.
Research Question 2:

In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel?

As in the answer to Research Question 1, a one-way analysis of variance was performed to compare the subscale means of the library and computing service participants’ responses to the MBI. The results of this analysis are presented in Table 14. There were no significant differences between the library and computing services units on the three subscale scores of the MBI.

Table 14. One-way Analyses of Variance for Employing Department (Libraries vs. Computing Services) on MBI Subscales

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotional Exhaustion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2.932</td>
<td>1</td>
<td>2.932</td>
<td>.022</td>
</tr>
<tr>
<td>Within Groups</td>
<td>32195.143</td>
<td>239</td>
<td>134.708</td>
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</tr>
<tr>
<td><strong>Depersonalization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>21.683</td>
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<td>21.683</td>
<td>.709</td>
</tr>
<tr>
<td>Within Groups</td>
<td>7309.297</td>
<td>239</td>
<td>30.583</td>
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</tr>
<tr>
<td><strong>Personal Accomplishment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>82.201</td>
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<td>82.201</td>
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</tr>
<tr>
<td>Within Groups</td>
<td>17296.969</td>
<td>239</td>
<td>72.372</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.
Research Question 3:

In what ways, if any, is the perceived organizational climate of the library and computing services units related to levels of professional burnout found in these units?

Correlations were chosen to answer this question. Pearson product-moment correlation coefficients were calculated for all combinations of the 15 subscales of both the WES and MBI. The results for the overall return are presented in Table 15 and the coefficients for library and computing services units in Table 16. Because coefficients were calculated for all pair combinations, Table 15 also provides the intercorrelations for the WES and MBI instruments themselves. No formal comparison to the published intercorrelations was made; in general the correlations in this return mirrored the direction of the population norms but were generally larger in magnitude.

All but four correlations between the subscale scores of the WES and MBI for the overall return were significant. The four were Managerial Control vs. Emotional Exhaustion, Work Pressure vs. Personal Accomplishment, Managerial Control vs. Personal Accomplishment, and Physical Comfort vs. Personal Accomplishment.

All but four correlations between the subscale scores of the WES and MBI for the library return were significant. The four were Managerial Control vs. Emotional Exhaustion, Work Pressure vs. Depersonalization, Work Pressure vs. Personal Accomplishment, and Managerial Control vs. Personal Accomplishment.

The correlations between the subscale scores of the WES and MBI for computing services were more mixed. Fifteen of the possible 36 correlation pairs were not significantly correlated.
The patterns of relationship are, perhaps, more easily understood by limiting the
comparisons to the two indexes of the WES—the WSI (Work Stressors Index) and the WRI
(Work Relationships Index)—with the three subscales of the MBI. These areas are
highlighted in both of the tables. The pattern immediately appears in these groupings: high
WSI scores were paired with high MBI scores (Personal Accomplishment is a negative score,
that is, high PA is low burnout); and high WRI scores were paired with low MBI scores.
Table 15. Correlations of the Overall WES and MBI Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WES</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Involvement</td>
<td>.646**</td>
<td>.530**</td>
<td>.544**</td>
<td>.702**</td>
<td>.051</td>
<td>.551**</td>
<td>.556**</td>
<td>.351**</td>
<td>-.373**</td>
<td>.855**</td>
<td>-.380**</td>
<td>-.396**</td>
<td>.400**</td>
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</tr>
<tr>
<td>2. Coworker Cohesion</td>
<td>.610**</td>
<td>.548**</td>
<td>.428**</td>
<td>-.086</td>
<td>.435**</td>
<td>-.121</td>
<td>.518**</td>
<td>.167**</td>
<td>-.487**</td>
<td>.878**</td>
<td>-.334**</td>
<td>-.204**</td>
<td>.248**</td>
<td></td>
</tr>
<tr>
<td>3. Supervisor Support</td>
<td>.647**</td>
<td>.384**</td>
<td>-.180**</td>
<td>.541**</td>
<td>-.145*</td>
<td>.564**</td>
<td>.236**</td>
<td>-.624**</td>
<td>.829**</td>
<td>-.390**</td>
<td>-.256**</td>
<td>.266**</td>
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</tr>
<tr>
<td>4. Autonomy</td>
<td>.314**</td>
<td>-.116</td>
<td>.448**</td>
<td>-.209**</td>
<td>.615**</td>
<td>.184**</td>
<td>-.728**</td>
<td>.677**</td>
<td>-.283**</td>
<td>-.196**</td>
<td>.303**</td>
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<td></td>
</tr>
<tr>
<td>5. Task Orientation</td>
<td>.076</td>
<td>.663**</td>
<td>.406**</td>
<td>.373**</td>
<td>.343**</td>
<td>-.192**</td>
<td>.595**</td>
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<td>-.362**</td>
<td>-.459**</td>
<td>.206**</td>
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<td></td>
<td></td>
</tr>
<tr>
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*p < 0.05. **p < 0.01.

a. Pearson product-moment Listwise N=241
### Table 16. Correlations of the Employing Department WES and MBI Subscales

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*p < 0.05. **p < 0.01. (2-tailed).

a Above the diagonal: Employing department = Library  Pearson product-moment Listwise N=122
b Below the diagonal: Employing department = Computing Services, Pearson product-moment Listwise N=119
Research Question 4:

In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?

Correlations were also chosen to answer this question. Pearson product-moment correlation coefficients were calculated for all combinations of the demographic characteristics of the two groups and overall scores on the subscales of the WES. Table 17, Table 18, and Table 19 display the results. These tables have been shortened to include only

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<thead>
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<th>Table 17. Correlations of the Overall Demographics and WES Subscales a</th>
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<td>4. Years in Profession</td>
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*p < 0.05. **p < 0.01. (2-tailed).

a Pearson product-moment Listwise N=212
the intercorrelations of the demographic characteristics since the intercorrelations of the WES subscales can be found in the previous tables. In those cases where dichotomous variables were compared, point-biserial correlation coefficients were used.

Table 18. Correlations of the Library Demographics and WES Subscales

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<td>6. Marital Status</td>
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<td>-0.202*</td>
<td>0.223*</td>
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*p < 0.05. **p < 0.01. (2-tailed).

In the overall return several significant correlations were observed. The number of years of formal education after high school was positively correlated with Work Pressure. The number of years the participant had served in their present position was positively correlated with Task Orientation. The number of years the participant had been in their profession was...
positively correlated with both Involvement and Work Pressure. Marital Status was positively
correlated with both Involvement and Supervisor Support. Age was positively correlated to
Involvement, Task Orientation, and Clarity. Supervisory Status was positively correlated with
Work Pressure, and Gender was positively correlated with Clarity. There were no significant
correlations between the presence of Client Contact, years in their present position, or
Employment Classification with any of the WES subscales in the overall return.

Table 19. Correlations of the Computing Services Demographics and WES Subscales *

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<td>-.032</td>
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</table>

* p < 0.05. ** p < 0.01. (2-tailed).
a Pearson product-moment Listwise N=107

In the library group, more significant correlations were observed. The number of years
of formal education after high school reported by the library participants was negatively
correlated with Task Orientation. The number of years the participant had been in their present position was positively correlated to Involvement and Work Pressure. The number of years the participant had been in their profession was also positively correlated with Involvement and Work Pressure. Employment Classification was negatively correlated with Involvement and Supervisor Support; and positively correlated with Managerial Control. Marital Status was positively correlated with Involvement, Supervisor Support, Task Orientation, and the Work Relationships Index; and negatively correlated with Work Pressure. Age was positively correlated with Involvement, and Supervisory Status was positively correlated with Work Pressure. There were no significant correlations between the presence of Client Contact or Gender and the WES subscales for libraries.

Fewer significant relationships were observed in the computing services group. The number of years of education after high school was positively correlated with work pressure. Marital Status was positively correlated with Physical Comfort. Age was positively correlated with Involvement and Clarity. Supervisory Status was positively correlated with Work Pressure and Innovation. There were no significant correlations between the presence of Client Contact, the number of years in their present position, the number of years in their profession, Employment Classification, or Gender and the WES subscales for computing services.
Research Question 5:

In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?

Again, correlations were chosen to answer this question. Pearson product-moment correlation coefficients were calculated for all combinations of the demographic characteristics of the two groups and overall scores on the subscales of the MBI. Table 20, Table 21, and Table 22 display the results. These tables have been shortened to include only the intercorrelations of the demographic characteristics because the intercorrelations of the MBI subscales can be found in previous tables. In those cases where dichotomous variables were compared, point-biserial correlation coefficients were used.

Table 20. Correlations of the Overall Demographics and MBI Subscales *

<table>
<thead>
<tr>
<th>Subscales</th>
<th>1</th>
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<th>3</th>
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<td>-.009</td>
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<td>.154*</td>
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<td>-.073</td>
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<td>-.106</td>
<td>-.146*</td>
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<td>-.034</td>
<td>-.135</td>
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<td>-.123</td>
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<td>.057</td>
<td>-.097</td>
<td>.075</td>
<td>.042</td>
<td>.186**</td>
<td>-.063</td>
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</table>

*p < 0.05. **p < 0.01. (2-tailed).
a Pearson product-moment Listwise N=212
Several significant correlations were observed in the overall return. The number of years of formal education after high school was positively correlated with Emotional Exhaustion and Depersonalization. Employment Classification was negatively correlated with Emotional Exhaustion. Age was negatively correlated with Emotional Exhaustion and Depersonalization; and Supervisory Status was positively correlated with Personal Accomplishment. There were no significant correlations between the presence of client contact, the number of years in the present position, the number of years in the profession, Marital Status, or Gender and the MBI subscales in the overall return.

### Table 21. Correlations of the Library Demographics and MBI Subscales *

<table>
<thead>
<tr>
<th>Subscales</th>
<th>1</th>
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</table>

*p < 0.05. **p < 0.01. (2-tailed).

a Pearson product-moment Listwise N=105

Significant correlations were also seen in the library group. Again, the number of years of formal education after high school was positively correlated with both Emotional Exhaustion and Depersonalization. Marital Status was negatively correlated with both
Emotional Exhaustion and Depersonalization. There were no significant correlations between the presence of client Contact, the number of years in their present position, the number of years in their profession, Employment Classification, Age, Supervisory Status, or Gender and the subscales of the MBI for libraries.

Several significant correlations were seen in the computing services group. The number of years of formal education after high school was positively correlated with Emotional Exhaustion. The number of years in their present position was negatively correlated with Emotional Exhaustion. The number of years in their profession was negatively correlated with Depersonalization. Age was negatively correlated with both Emotional Exhaustion and Depersonalization, and gender was positively correlated with Personal Accomplishment. There were no significant correlations between the presence of Client Contact, Employment Classification, Marital Status, or Gender and the subscales of the MBI for computing services.

Table 22. Correlations of the Computing Services Demographics and MBI Subscales a

<table>
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<td>1. Client Contact</td>
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<td>8. Supervisory Status</td>
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<td>9. Gender</td>
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<td>.030</td>
<td>.086</td>
<td>.039</td>
<td>-.007</td>
<td>.236*</td>
<td>-.134</td>
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</table>

*p < 0.05. **p < 0.01. (2-tailed).
a  Pearson product-moment Listwise N=107
Research Question 6:

In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate or mediate the level of professional burnout of the employees of the library and computing services units?

Correlations were once again chosen to represent these relationships. The significant correlates of the WES subscales and demographic factors with the subscales of the MBI were combined and ordered by magnitude and direction of relationship to give an indication of the combined relationships of environment and personal characteristics and relative burnout. Table 23 summarizes this ordering of relationships.

In the overall return there were seven common correlates related to decreased levels of burnout between all 3 subscales of the MBI. These were Clarity, Supervisor Support, Involvement, Task Orientation, Coworker Cohesion, Autonomy, and Innovation. Three additional factors were positively related to decreased Emotional Exhaustion: Physical Comfort, Age, and Employment Classification (being faculty). Three factors were positively related to decreased Depersonalization: Physical Comfort, Managerial Control, and Age. One other factor was positively related to increased Personal Accomplishment: Supervisory status (being a supervisor). Two factors were correlated with increased levels of Emotional Exhaustion and Depersonalization: Work Pressure, and Education. There were no direct correlates with decreased Personal Accomplishment.

In comparing libraries and computing services one will observe seven common correlates with lowered Emotional Exhaustion: Clarity, Coworker Cohesion, Supervisor Support, Task Orientation, Involvement, Autonomy, and Physical Comfort. Additional
correlates in the libraries were Innovation and Marital Status (being married); and in computing services, Age. Two common correlates with higher Emotional Exhaustion were Work Pressure and the number of years of education after high school.

In a similar manner, libraries and computing services had five common correlates with lowered Depersonalization: Clarity, Task Orientation, Involvement, Supervisor Support, and Managerial Control. Additional correlates in the libraries were Physical Comfort, Coworker Cohesion, Innovation, Autonomy, and Marital Status (being married), and in computing services Age and Years in Profession. Libraries demonstrated the only correlate with increased Depersonalization and that was the number of years of education after high school.

There were three common correlates with increased Personal Accomplishment between libraries and computing services: Involvement, Clarity, and Autonomy. Additional correlates in the library were: Innovation, Supervisor Support, Coworker Cohesion, Task Orientation and Physical Comfort; and in computing services, Supervisory Status (being a supervisor). There were no direct correlates with decreased Personal Accomplishment.

Table 24 attempts to distill the relationships to the three MBI subscales down to a single set of relationships. This was accomplished by creating an unduplicated list of unique characteristics from the three subscales for each group from Table 23, and summing the correlations when a particular characteristic was repeated in multiple subscales in order to increase its weight in the final combination. The list was then ordered by ascending rank. This created an ordered list with characteristics that decrease burnout listed in descending lowering effect until one reaches the bottom of the table. Characteristics that increase burnout are then listed. It is worth noting at this point that all of the WES subscales are found on the library
section and all except Innovation are found on the computing services side. Only two demographic characteristics are found in the libraries list, Marital Status and Education. However, the computing services list contains other characteristics that could be considered experience related: Age, Years in Profession, Years in Present Position and being a supervisor.

Finally, the bottom section in Table 24 was created by averaging the correlation scores of the individual subscales from the top section of the table as they were grouped into their assigned dimensions (see Table 3). It thus reflects the associations between the subscale dimensions of the WES and the artificial dimension of Experience created by similarly averaging the correlations of Age, Years in Profession, Years in Position, and Supervisory Status. Here one can more easily see the relationships between the two groups and the various dimensions of significant contributors to burnout.
Table 23. Relating Relative Burnout on individual Subscales to Environmental and Demographic Characteristics

<table>
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<th>Relative Burnout</th>
<th>Overall</th>
<th>Libraries</th>
<th>Computing Services</th>
</tr>
</thead>
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<tr>
<td>Characteristic</td>
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<td>$r$</td>
<td>$r$</td>
</tr>
<tr>
<td>Lower Clarity</td>
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<td>Clarity</td>
<td>-0.509**</td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>-0.390**</td>
<td>Coworker Cohesion</td>
<td>-0.427**</td>
</tr>
<tr>
<td>Involvement</td>
<td>-0.380**</td>
<td>Supervisor Support</td>
<td>-0.424**</td>
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<td>Task Orientation</td>
<td>-0.362**</td>
<td>Task Orientation</td>
<td>-0.409**</td>
</tr>
<tr>
<td>Coworker Cohesion</td>
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<td>-0.335**</td>
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<td>Education</td>
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**Emotional Exhaustion**

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**Depersonalization**

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<td>Computing Services</td>
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<td>-----------------</td>
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<td>0.187*</td>
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<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01. (2-tailed).

a Pearson product-moment Listwise Demographics N=212. WES N=241.
b Pearson product-moment Listwise Demographics N=105. WES N=122
c Pearson product-moment Listwise Demographics N=107. WES N=119

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Table 24. Relating Relative Burnout to Environmental and Demographic Characteristics.

<table>
<thead>
<tr>
<th>Relative Burnout</th>
<th>Libraries</th>
<th>Computing Services</th>
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</tr>
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<tbody>
<tr>
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<td>Rank</td>
<td>Characteristic</td>
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<td>Combined Characteristics (EE+DP+PA)</td>
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<td>Managerial Control</td>
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<td></td>
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</tr>
<tr>
<td>Higher Education</td>
<td>0.554</td>
<td>Work Pressure</td>
<td>0.395</td>
</tr>
</tbody>
</table>
Major Findings

From a total population of 521, usable surveys were received from 241 people (for a return of 46%). Of the 241 returns, 122 (51%) were from libraries and 119 (49%) were computing services. There were significant differences between these two groups in the distribution of gender (more females in libraries), supervisory status (higher in libraries), marital status (more “Married” in computing services), employment classification (more faculty in libraries), age (higher in libraries), and years in their present position (higher in libraries). No significant differences were seen in reported client contact, number of years in their profession, or years of education after the high school diploma.

In all cases, either overall or in the two groups, any divergence from the published overall means of the WES demonstrated a more positive work environment. This was also mirrored in the comparison of the MBI subscale scores to the published overall norms, that is, any divergence from the norm demonstrated a lower level of burnout. The one exception to this pattern was the comparison of the overall and group return scores on the MBI subscales to the published norms for the secondary education sample. In this case, the overall return as well as the two groups demonstrated a significantly lower score on Personal Achievement. This would be interpreted as high burnout on this subscale.

Research question 1 asked: *In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?*

Significant differences were found in Work Pressure (lower in libraries), Clarity (higher in libraries), and the Work Stressors Index (lower in libraries).
Research question 2 asked: In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel?

There were no significant differences in the rate of professional burnout found.

Research question 3 asked: In what ways, if any, is the perceived organizational climate of the library and computing services units related to the level of professional burnout found in these units?

For the overall return, in the overwhelming majority of cases, positive environmental characteristics were correlated with low burnout indicators. The exception in the overall return was the insignificant positive correlation of Physical Comfort vs. Personal Accomplishment. The pattern was not as clear in the correlations of the two WES subscales Work Pressure and Managerial Control, however. In the overall return, Work Pressure was positively correlated to Emotional Exhaustion and Depersonalization, but was also insignificantly positively related to Personal Accomplishment. Managerial Control appears uncorrelated with Emotional Exhaustion and Personal Accomplishment, and is negatively correlated with Depersonalization.

In the library, all of the positive environmental characteristics were positively related to lower levels of burnout in all three subscales of the MBI. Work Pressure was positively related to higher levels of the Emotional Exhaustion subscale but unrelated to either Depersonalization or Personal Accomplishment.

In computing services, the positive environmental characteristics were positively and significantly related to decreased values of Emotional Exhaustion, except for the relationship
with Innovation, which, though positive, was not significant. Here, Work Pressure was positively related to higher levels of Emotional Exhaustion but Managerial Control remained uncorrelated. In this same group only Involvement, Supervisor Support, Task Orientation, and Clarity showed significant negative relationships to Depersonalization; and only Involvement, Autonomy, and Clarity were related to increased levels of Personal Accomplishment.

On a cell by cell basis, the occurrence of paired significant relationships and direction of the correlates of environmental characteristics and the MBI subscales between the libraries and computing services was 21 out of a possible 36. With a match of over 50% of the cells in both significance and direction, this pattern match seems unlikely to be a product of chance. One might conclude that the pattern of relationships of WES and MBI scores is very similar between the two groups.

Research Question 4 asked: In what ways, if any are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?

Overall, Involvement was positively related to more experience (Years in Profession and Age) and being married. Supervisor Support was positively related to being married. Task Orientation was positively related to experience (Years in Position and Age). The perception of Work Pressure was positively related to Education and experience (Years in Profession and being a supervisor). The perception of Clarity was positively related to Age and being female. Physical Comfort and the Work Relations Index were positively related to being married.

In the libraries, Involvement was positively related to more experience (Years in
Position, Years in Profession, and Age), being faculty, and being married. Supervisor Support was positively related to being faculty and being married. Task Orientation was negatively related to total years of education, but positively related to being married. The perception of Work Pressure was higher with experience (Years in Position, Years in Profession) and a supervisory role, and lower if married. The staff (as opposed to faculty) perceived higher Managerial Control, and married individuals perceived a higher Work Relationships Index (Involvement, Coworker Cohesion, and Supervisor Support).

In computing services, Involvement was positively related to Age. Work Pressure was perceived as higher by individuals having more education and who were a supervisor. Age was also positively related to the perception of Clarity in the workplace. Innovation was perceived as higher by the supervisors, and married individuals perceived a higher level of Physical Comfort.

Research question 5 asked: *In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?*

Overall Emotional Exhaustion was positively related to Education and being faculty, and negatively related to Age. Depersonalization was positively related to Education and negatively related to age. Personal Accomplishment was positively related to being a supervisor.

In the library, Education was positively related to Emotional Exhaustion and Depersonalization, but was unrelated to Personal Accomplishment. Married individuals exhibited a lower level of Emotional Exhaustion and Depersonalization, and an
insignificantly higher level of Personal Accomplishment.

In computing services, education was also positively related to Emotional Exhaustion, not related to Depersonalization, and insignificantly positively related to Personal Accomplishment. Experience (years in present position, years in profession, and age) was associated with lower levels of Emotional Exhaustion and Depersonalization, but appears to have been unrelated to Personal Accomplishment. Supervisory status, however, was positively related to Personal Accomplishment.

Research question 6 asked: *In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate (or mediate) the level of professional burnout of the employees of the library and computing services units?*

In the overall return seven factors were common across all three subscales of the MBI and were related to lower levels of burnout: Clarity, Supervisor Support, Involvement, Task Orientation, Coworker Cohesion, Autonomy, and Innovation. Other factors that were related to lower levels of Emotional Exhaustion were Physical Comfort, experience (age), and being a faculty member. Those additional factors related to lower levels of Depersonalization were: Physical Comfort, Managerial Control, and experience (age). The additional factor related to increased Personal Accomplishment was being a supervisor.

No factors in the overall return were found in common for all three subscales of the MBI that were positively related to increased burnout. However, Work Pressure, and Education were positively related to increased Emotional Exhaustion and Depersonalization.

The seven characteristics of Clarity, Coworker Cohesion, Supervisor Support, Task Orientation, Involvement, Autonomy, and Physical Comfort were held by libraries and
computing services units in common as characteristics that were related to lower Emotional Exhaustion (lower burnout). Both groups had Work Pressure and years of education after high school as common factors related to increased Emotional Exhaustion. Libraries also had positive relationships between lowered Emotional Exhaustion and Innovation and being married. Computing services had age as its only additional relationship to lowered Emotional Exhaustion.

In a similar manner, five characteristics that were positively related to lower Depersonalization (lower burnout) were held in common by the two units: Clarity, Task Orientation, Involvement, Supervisor Support, and Managerial Control. There were no common factors of the two units that were related to higher levels of Depersonalization. The libraries had five additional characteristics that were positively related to lower Depersonalization: Physical Comfort, Coworker Cohesion, Innovation, Autonomy, and being married. Only the libraries had a factor that was related to higher Depersonalization; namely, Education. Computing services had two additional factors related to lower Depersonalization: Age and experience (Years in Profession).

Only three characteristics that have a positive relationship to increased Personal Accomplishment (lower burnout) were held in common between the two groups: Involvement, Clarity, and Autonomy. There were no factors that were directly related to lower Personal Accomplishment. Libraries had an additional five factors that were related to increased Personal Accomplishment: Innovation, Supervisor Support, Coworker Cohesion, Task Orientation, and Physical Comfort. Computing Services had only one additional factor related to increased Personal Accomplishment: being a supervisor.
Involvement and clarity were the only two factors that were commonly found across all three MBI subscales between the two units. Autonomy was also found in all but the Computing Services Depersonalization subscale, and Supervisor Support and Task Orientation were found in all except the computing services Personal Accomplishment subscale.

After the creation of a nonduplicated weighted list of characteristics, ten characteristics were held in common between the two groups. Eight of these characteristics were related to decreased burnout: Clarity, Involvement, Task Orientation, Supervisor Support, Autonomy, Physical Comfort, and Managerial Control. The remaining two characteristics, Work Pressure and Education, are related to increased levels of burnout. The library had two additional characteristics related to lower burnout that were not held by computing services (Innovation and being married); and computing services had four additional factors related to lower burnout that were not held by the libraries (Age, Years in Profession, being a supervisor and years in present position). All WES subscales were related to burnout in libraries and all except Innovation were related to burnout in computing services. Experience was a large factor in computing services lowering burnout but it was not found in libraries. Being married was a characteristic related to lower burnout in libraries but not in computing services.

Work relationships (Involvement, Coworker Cohesion, and Supervisor Support) was the most important set of characteristics that are related to lower levels of burnout in both libraries and computing services. This was followed by the Personal Growth Dimension (Autonomy, Task Orientation, and [lowered] Work Pressure) in computing services and the
System Maintenance and Change Dimension (Clarity, Managerial Control, Innovation, and Physical Comfort) in the libraries. This was then followed by the Systems Maintenance and Change Dimension in computing services and the Personal Growth Dimension in libraries. Being Married followed in libraries and Experience in computing services. Work Pressure and Education were characteristics that were related to increased burnout and were found in both units.

**Summary**

In this chapter the results of the research were presented. The return rates and characteristics of the survey returns were presented. An analysis of the demographic characteristics of the survey participants was then offered. This was followed by a comparison of the WES and MBI subscale scores to published norms. Then each research question was answered in turn. After the research questions a summary of the major findings was presented followed by a chapter summary.
CHAPTER V

CONCLUSIONS

Introduction

In this chapter a further analysis of the data will be presented, with general and specific conclusions that can be drawn from the research. A summary of the research problem, the specific research questions, results and conclusions will be presented. Implications of the results and their extendibility will then be discussed, followed by recommendations for application of these results and for additional research.

Summary and Interpretations of the Results

This research study was proposed to answer the following problem statement and research questions:

*Problem Statement*

What are the characteristics of the organizational climate, the rate of professional burnout, the demographic profile, and the interactions of these factors between the library and computing services units of the West Virginia public higher education institutions?

*Demographics*

From a total population of 521, usable surveys were received from 241 individuals, for a return of 46%. Of the 241 returns, 122 (51%) were from libraries and 119 (49%) were from computing services. There were significant differences between these two groups in
distribution of gender (higher in libraries), supervisory status (higher in libraries), marital status (higher in computing services), employment classification (more faculty in libraries), age (higher in libraries), and years in their present position (higher in libraries). No significant differences were seen in reported client contact, number of years in their profession, or years of education after the high school diploma.

As noted earlier, the difference in the gender distribution is a generally observed phenomenon (higher female population in libraries and higher male population in computing services), and faculty status is generally held by librarians but not those in computing services. However, the other differences remain as observations for which no comparisons in the literature were found.

Research Questions

The work environment

Research Question 1 asked: In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?

Overall the total return seems to reflect a more “positive” work environment than the norms. This was mirrored in each group. Specifically, the library has increased levels (compared to the norms) of perceived Supervisor Support, Autonomy, Clarity, Innovation, and Physical Comfort; and decreased levels of Work Pressure, Managerial Control, and the Work Stressors Index. Likewise, computing services has increased levels of perceived Autonomy, Innovation, and Physical Comfort; and decreased levels of Managerial Control
and the Work Stressors Index. There are significant differences between the two units regarding three factors: Clarity (lower in computing services), Work Pressure (higher in computing services) and the Work Stressors Index (higher in computing services).

These differences are not unexpected given the discussion earlier regarding new organizational models and the current state of pressure on technology areas within higher education. However, it is interesting to note that the work environments still compare very favorably to that of the norm group. The values for the normative return group were drawn from employees in general work and health care work groups (Moos, 1994b, p. 21). In this case the author must conclude that both work environments, even though slightly more pressured in computing services than libraries, are more positive than the published normative returns. There were no studies found in the literature that offer other comparisons for the specific work groups in this study.

The Burnout Experience

Research question 2 asked: In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel?

The overall return means of the MBI subscale scores, when compared to the overall norms (see Table 1 for the categorization of burnout scores) exhibit normal to low burnout; specifically, normal Emotional Exhaustion, Low Depersonalization (low burnout), and normal Personal Accomplishment. This pattern is reflected in both the libraries and computing services. The same overall return means compared to the postsecondary education norms exhibit normal to high burnout scores: normal Emotional Exhaustion, normal
Depersonalization, and low Personal Accomplishment (high burnout). Although the computing services group mirrors this normal-to-high pattern, the libraries exhibit only a normal burnout profile. There are no significant differences in the rate of professional burnout between the two groups.

There was no preconceived expectation that either group would exhibit any degree of burnout based on the literature search. It is obvious that neither group exhibits any real departure from the mean towards higher burnout when compared to a more general population sample based on a variety of occupational subgroups (Table 12) (Maslach et al., 1996, p. 8). On the contrary, both libraries and computing services show a significantly lower Depersonalization score. However, when compared to only the postsecondary education occupational subgroup the overall group, libraries and the computing services group display a significantly lower value of Personal Accomplishment, which would indicate a higher level of burnout.

This indication of a higher level of burnout is possibly misleading since the normative sample (N=635) is only slightly more than twice the size of the current return (N=241). In addition, a large difference in values of the normative samples is also apparent when the means of the overall normative group (Table 12) are compared to the postsecondary education subgroup; or the upper, middle, and lower third cut points (low, normal, or high level of burnout) of the overall normative group are compared with the postsecondary education subgroup (Table 1).

The addition of the returns of this study to the normative sample for postsecondary education would drive the mean scores for Emotional Exhaustion and Personal
Accomplishment toward the overall normative group values, while leaving Depersonalization relatively unchanged. The results of this study would then be classified as a normal to low burnout score as compared to the resultant larger “sample”.

This author is compelled to consider this population to be normal (although perhaps a bit low on burnout) with no significant difference between the libraries and computing services groups.

**Environmental Characteristics and Burnout**

Research question 3 asked: *In what ways, if any, are the perceived organizational climates of the library and computing services units related to levels of professional burnout found in these units?*

There is considerable similarity between libraries and computing service units in the relationships of environmental characteristics and burnout scores. In the overwhelming majority of cases in the overall return, positive environmental characteristics are correlated with low burnout indicators. The exception in the overall return is the statistically insignificant relationship of increased Physical Comfort to increased Personal Accomplishment.

The pattern, however, is not as clear in the relationships of the two WES subscales Work Pressure and Managerial Control which provides the exception to the statement made just above. In the overall return, increased Work Pressure is related to both increased Emotional Exhaustion and Depersonalization, but is also insignificantly related to increased Personal Accomplishment. The relationships of Managerial Control to burnout scores were similarly not expected. Managerial Control appears unrelated to either Emotional Exhaustion
or Personal Accomplishment, but increased Managerial Control is related to lowered Depersonalization.

In the library, an increase in all of the positive environmental characteristics is related to lower levels of burnout in all three subscales of the MBI. However, as in the overall return, a similar discontinuity with Work Pressure exists. Increased Work Pressure is related to increased Emotional Exhaustion but not related to Depersonalization or Personal Accomplishment. In like manner, Managerial Control is positively related to higher levels of the Emotional Exhaustion subscale but unrelated to either Depersonalization or Personal Accomplishment.

In computing services, positive environmental characteristics are positively and significantly related to decreased values of Emotional Exhaustion. Only the relationship with Innovation, although positive, is not significant. Work Pressure is positively related to higher levels of Emotional Exhaustion, but Managerial Control remains uncorrelated. In this group only Involvement, Supervisor Support, Task Orientation, and Clarity show a significant negative relationship to Depersonalization. Only Involvement, Autonomy, and Clarity are related to increased levels of Personal Accomplishment.

There appears to be some relationship between environmental characteristics and the levels of perceived burnout. Overall (and in both groups), generally, the pattern is as expected when considering those characteristics that one could classify as positive (Involvement, Coworker Cohesion, Supervisor Support, Autonomy, Task Orientation, Clarity, Innovation, and Physical Comfort). The pattern is one of negative correlation with Emotional Exhaustion and Depersonalization, and a positive correlation with Personal Accomplishment. These
patterns are best observed in the correlations of the WES Work Relationships Index.

However, the computing services group’s correlates are less consistent taken as a whole. Explanations for these anomalies are not immediately evident. Several possible outlier observations were noted in the computing services group during some analyses. No corrections or modifications of the data set were made, nor was there an attempt to analyze the effect of these observations, but they may contribute to the inconsistent pattern seen in the computing services correlates. It is also possible that the higher variance of the return contributed to the pattern, although the library variance was equally as high as computing services when compared to the normative group. A more reasonable explanation is that the computing services group simply has a more inconsistent scoring of the various subscales between individuals, compared to a more consistent scoring within the library group.

It should be noted that the general pattern of intercorrelation relationships of all the subscales except Work Pressure and Managerial Control mirror themselves in both strength of relationship and direction when computing services and libraries are compared. Work Pressure diverges from this pattern in three ways: 1) the negative relationship with Supervisor Support is more pronounced in libraries; 2) the positive relationship with Managerial Control in libraries is more pronounced; and 3) the negative relationship with Physical Comfort is more pronounced in Computing Services. One interpretation is that increased Work Pressure in the library is perceived as decreased Supervisor Support and increased Managerial Control, while computing services perceives increased Work Pressure as physical discomfort.

Likewise, Managerial Control diverges from the general pattern in five respects: 1) a significant positive relationship with Involvement is seen in computing services with no
relationship seen in libraries; 2) the negative relationship with Supervisor Support is more pronounced in libraries; 3) the negative relationship with Autonomy is more pronounced in the libraries; 4) the positive relationship with Work Pressure is more pronounced in libraries; 5) the positive relationship with Clarity is more pronounced in computing services; and 6) the negative relationship with Innovation is more pronounced in libraries. This can be interpreted as meaning that increased Managerial Control is perceived in the library as decreased Supervisor Support, decreased Autonomy, increased Work Pressure, and decreased Innovation; but in computing services as increased Managerial Control resulting in increased Involvement and Clarity.

Regardless of the interpretation of the divergence between libraries and computing services of the intercorrelation patterns of these two subscales (Work Pressure and Managerial Control), their lack of relationships with some of the MBI subscales is more puzzling. The pattern of relationships between the WES subscales considered to be negative or stressors would be expected to be the opposite of the relationship pattern between the more positive WES subscale characteristics. This is displayed by the Work Stressors Index correlate pairs, namely, positive correlations with Emotional Exhaustion and Depersonalization but a negative correlation with Personal Accomplishment. However, analysis of the relationships of the characteristics Work Pressure and Managerial Control with the MBI subscales yields an inconsistent pattern of relationships. Here one would expect the pattern described above as displayed by the Work Stressors Index, and the relationship of Work Pressure and Emotional Exhaustion was indeed as expected. It is the lack of correlation with either Depersonalization or Personal Accomplishment that is surprising, given the strong
correlations with Emotional Exhaustion in both groups. It may be that any relationships are simply being masked by the significantly lower mean scores on Work Pressure and Managerial Control by the overall group, the significantly different mean score for Work Pressure between the two units, or the generally above average working environment and normal to low burnout rates.

Even with these anomalies, the results are generally consistent with the literature. Negative relationships are found between burnout and administrative, supervisory, and peer support; participatory management; autonomy; and clarity (Brad, 1979a, 1979b; Cherniss, 1980a, 1989b; Dick, 1986; Fain, 1987; Fong, 1990, 1993; Golembiewski et al., 1983; Jaffe, 1995; Maslach, 1982b; Maslach & Jackson, 1982; N. Savicki & Cooley, 1982; V. Savicki & Cooley, 1987; Zabel & Zabel, 1982). Positive relationships are found between burnout and negative aspects of climate and culture (Jaffe, 1995). Except for the anomalies mentioned above, this appears to hold true for the overall return as well as for libraries and computing services separately.

On a cell-by-cell basis, the occurrence of paired significant relationships, and direction of the correlates, of environmental characteristics and the MBI subscales between the libraries and computing services were 21 out of a possible 36. With a match of over 50% of the cells in both significance and direction, this pattern match seems unlikely to be a product of chance. Therefore, the author concludes that the relationship of organizational climate elements and professional burnout is similar in libraries and computing services units.
Demographic Characteristics and Organizational Climate

Research question 4 asked: In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?

In the libraries, Involvement is positively related to more experience (years in present position, years in profession, and age), being faculty, and being married. Supervisor Support is positively related to faculty status and marriage. Task Orientation is negatively related to total years of education and positively related to marriage. The perception of Work Pressure is higher with experience (years in present position, years in profession) and a supervisory role but lower if married. The library staff (as contrasted to library faculty) perceives greater Managerial Control, and married individuals perceive a higher Work Relationships Index (Involvement, Coworker Cohesion, and Supervisor Support).

In computing services, Involvement is positively related to age. Work Pressure is perceived higher by individuals having more education and who are a supervisor. Age is also positively related to the perception of Clarity in the workplace. Innovation is perceived as higher by the supervisors, and married individuals perceive a higher level of Physical Comfort.

In both groups neither the presence of direct client contact nor gender is related to any of the WES subscales. Education is negatively related to Task Orientation in the library but positively related to Work Pressure in computing services. If the characteristics of age, years in present position, years in their profession, and being a supervisor are combined as a
measure of experience, then in the libraries increased experience is positively related to Involvement and Work Pressure, and in computing services experience is positively related to Involvement, Work Pressure, Clarity, and Innovation. The characteristic Employment Classification is, in reality, only relevant to the libraries (there are only two faculty members in the computing services group). Being a faculty member in the library is positively related to perceptions of Involvement and Supervisor Support, but negatively related to Managerial Control. In the library being married is positively related to Involvement, Supervisor Support, Task Orientation, and the Work Relationships Index, but is negatively related to Work Pressure. In computing services being married was positively related to Physical Comfort.

Moos (1994b) reports that “on average, the WES findings show that managers and supervisors tend to see work settings more positively than their employees do, except that they report more work pressure and less physical comfort” (p. 32). This appears to be consistent with this return given that supervisors in both groups reported increased Work Pressure. However, no relationship of being a supervisor and Physical Comfort was observed. Moos (1994b) also reports that “overall, investigators found few if any consistent gender differences in perceptions of work environments after variations among work roles (such as patient care versus nonpatient care tasks, or manager versus employee positions) were controlled” (p. 33). Again, this is consistent with findings of this study.

Moos (1994a) reports that their “research confirms that, in general, sociodemographic and other personal attributes are only minimally related to people’s responses to the Scales” (p. 19), but also reports that other social support systems such as a functional family relationships can moderate the potential influence of work on an individual (Moos, 1994b, p. 33).
This could be proposed as a probable cause of the relationships of marital status and the measured work environment and if so, this study is consistent with the literature. The overall positive work environment also bodes well for short and long-term functioning of these organizations. Even though “we do not understand all the processes involved, … people who see an environment more positively tend to function better in it and to show better long-term adaptation” (Moos, 1994a, p. 19).

**Demographic Characteristics and Burnout**

Research question 5 asked: *In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?*

In the library, education is related to increased Emotional Exhaustion and Depersonalization, but is unrelated to Personal Accomplishment. Married individuals exhibit a lower level of Emotional Exhaustion and Depersonalization and a weak but insignificantly higher level of Personal Accomplishment.

In computing services, education is also associated with increased Emotional Exhaustion, not related to Depersonalization, but also insignificantly related to increased Personal Accomplishment. Experience (Years in Position, Years in Profession, and Age) is associated with lower levels of Emotional Exhaustion and Depersonalization, but appears to be unrelated to Personal Accomplishment. Supervisory status, however, is positively related to Personal Accomplishment.

In each group neither the presence of direct client contact, Employment Classification, nor Gender were related to any of the MBI subscales. The absence of a relationship between
the presence of direct client contact and burnout is explained by the fact that 96% of the return said they had direct client contact. The lack of a relationship of burnout indicators and gender is perhaps not consistent with other research. Maslach and Jackson (1981) indicate that women tend to have higher burnout scores than men. However, Maslach and Jackson (1985) and R. L. Schwab (1986) also report that male teachers tend to score higher than female teachers on the Depersonalization scale. In another study (Cash, 1988) no relationship of burnout to sex was found. A relationship of faculty status with burnout was neither predicted nor found in the literature.

More education is related to higher levels of burnout (increased Emotional Exhaustion and Depersonalization) in the library and similarly related to higher levels of burnout (increased Emotional Exhaustion) in computing services. This relationship is perhaps inconsistent with the literature. Maslach and Jackson (1981) report that higher levels of burnout is evidenced among those with lesser amounts of education, however three studies of nurses reported no relationship between burnout and education (Cheatham & Stein, 1982; Grutchfield, 1981; Oganowski, 1984) but others (Cornwall, 1991; Hagemaster, 1983; Joinson, 1992; Lempp, 1995; Macinick & Macinick, 1990; McConnell, 1982; S. Owens, 1989; Seuntjens, 1982a; Shubin, 1978) reported a positive relationship.

If the characteristics of age, years in present position, years in their profession, and being a supervisor are combined as a measure of experience, then in the libraries increased experience has no relationship to burnout, but, in computing services, experience is related to lower burnout (decreased Emotional Exhaustion, Depersonalization, and increased Personal Accomplishment). This finding is consistent with the literature. Freudenberger (1975),
Maslach and Jackson (1981), Pines, et al., (1981), and Russel, Atmaier, Bartz & Maloney (1986), Van Zelen (1987), and Williams (1989) report that younger professionals tend to have higher burnout scores than do older professionals. However, three studies of nurses reported no relationship of burnout with experience (Dolan, 1987; Grutchfield, 1981; Oganowski, 1984).

In the library, being married is related to decreased burnout (decreased Emotional Exhaustion and Depersonalization). In computing services, being married has no relationship to burnout. These findings are again somewhat consistent with results reported by Maslach and Jackson (1981) that married people have lower burnout scores than unmarried ones. Other studies report that off-the-job social support, including positive family relationships, was negatively associated with burnout (Boyle et al., 1991; Cronin-Stubbs & Rooks, 1985). However, other studies found no significant relationship between off-the-job social support and burnout (Constance & Russell, 1986; Ogus, 1990).

**The Combined Effects of Organizational Climate and Demographics on Burnout**

Research question 6 asked: *In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate or mediate the level of professional burnout of the employees of the library and computing services units?*

Seven characteristics—Clarity, Coworker Cohesion, Supervisor Support, Task Orientation, Involvement, Autonomy, and Physical Comfort—are held by both libraries and computing services units as characteristics related to lower Emotional Exhaustion (lower burnout). Both groups have Work Pressure and education as factors related to increased Emotional Exhaustion. Libraries also have a positive relationship between lowered Emotional Exhaustion and...
Exhaustion with both Innovation and being married. Computing services have age as its only additional relationship to lowered Emotional Exhaustion.

In a similar manner, five characteristics that are held in common by the two units are positively related to lower Depersonalization (lower burnout): Clarity, Task Orientation, Involvement, Supervisor Support, and Managerial Control. The two units have no common factors related to higher levels of Depersonalization. The libraries have five additional characteristics that were positively related to lower Depersonalization: Physical Comfort, Coworker Cohesion, Innovation, Autonomy, and being married. Only the libraries have a factor that was related to higher Depersonalization, namely education (years of education after high school). Computing services have two additional factors related to lower Depersonalization: Age and experience (years in profession).

Only three characteristics held by both groups have a positive relationship to increased Personal Accomplishment (lower burnout): Involvement, Clarity, and Autonomy. There are no factors that were directly related to lower Personal Accomplishment. An additional five factors held by the Libraries are related to increased Personal Accomplishment: Innovation, Supervisor Support, Coworker Cohesion, Task Orientation, and Physical Comfort. Computing Services have only one additional factor—being a supervisor—related to increased Personal Accomplishment.

Involvement and Clarity are the only two factors commonly found across all three MBI subscales between the two units. Autonomy is also found in all but the Computing Services Depersonalization subscale, while Supervisor Support and Task Orientation are found in all except the computing services Personal Accomplishment subscale.
In conclusion, in this study all subscales of the WES and a subset of the demographic characteristics have some relationship to burnout. In the libraries the characteristics that are related to lowered levels of burnout (in descending order of association) are work relationships (Involvement, Coworker Cohesion, and Supervisor Support), system maintenance and change factors (Clarity, Managerial Control, Innovation, and Physical Comfort), personal growth factors (Autonomy, Task Orientation, and (lowered) Work Pressure), and being married.

In computing services, characteristics that are related to lowered levels of burnout (in descending order of association) are work relationships (Involvement, Coworker Cohesion, and Supervisor Support), personal growth factors (Autonomy, Task Orientation, and (lowered) Work Pressure), system maintenance and change factors (Clarity, Managerial Control, Innovation, and Physical Comfort), and experience. In both groups, Education and Work Pressure are related to increased burnout. As discussed above, all of these relationships are consistent with the literature except the relationship of education to increased burnout, which is the opposite of results generally found in burnout research and the lack of relationship of gender to burnout which the literature would have predicted should be higher for females than males.

**Relationship of the Results and the Conceptual Model**

In general, the results can be reconciled with the conceptual model. Where organizational factor relationships—such as lowered burnout being related to increased Involvement, Coworker Cohesion, and Supervisor Support,—are observed the model is useful. Likewise, where personal factors such as experience, being married, and having experience...
education are shown to be related to burnout, the model appears to explain the observations. The obvious strength (but ultimately its weakness) of the model is that the interactions of the various factors are not defined, and one might easily have a divergence such as the ones observed here and still rationalize the results.

For example, in this study it was observed that increased education was related to increased levels of burnout (inconsistent with the literature of some studies but consistent with the literature of nursing burnout) and that there was no relationship between gender and burnout (inconsistent with the literature of some studies but others found relationships). Further, increased Managerial Control, although somewhat positively related to burnout, was negatively related to other organizational variables such as Supervisor Support, Autonomy, and Innovation (as expected) in libraries while very positively related to Involvement and Clarity (not expected) in computing services, but not vice versa (also unexpected, revealing a major difference between the two units). These anomalies can be accommodated by the model only because other variables necessary for the total model were neither measured nor controlled. In this case one might speculate that the major personality type in the libraries is internally motivated and would interpret increased Managerial Control as a loss of autonomy, ability to innovate, or relationships with supervisors; while in computing services a more externally motivated personality type makes up the majority and the same increased Managerial Control results in more clarity of purpose and involvement. Likewise, in an environment like higher education where education is particularly valued (with high expectations of gaining more), increased education might carry with it increased responsibilities and competition resulting in increased stress (and burnout) rather than
decreased stress (and burnout), as might be found in a more dichotomous environment where “professionals” hold sway by virtue of their degree.

**Implications**

The implications of these results are varied. First, because this study is the first of its type to be performed in this environment it provides baseline data to which others might compare. Secondly, the information gained in this study is useful to the various managers, supervisors, and employees of libraries and computing service units, particularly in higher education. It provides some evidence that there are relationships between personal and environmental characteristics that can be measured and perhaps manipulated, though no causality can be established in this type of study. These characteristics can be measured again to establish the extent of change and begin to establish a chain of causality. Thirdly, knowledge of self is always important as decisions and plans are made. This type of knowledge is just as important to the organizational self when strategic and tactical plans are made that involve the mobilization of the organizational human resource. Positive attitudes towards the environment function better in it and show better long term adaptation (Moos, 1994a, p. 19). Finally, as in all endeavors, without replication studies and the establishment of a “body” of knowledge any interpretation of these data without considered skepticism is ill advised.

The ability to generalize from this data will be limited (Kerlinger, 1986). However, even though the task is difficult, when researchers seek to measure attitudes the survey instrument can yield vital information. The beliefs, opinions, attitudes, and feelings that respondents have about cognitive objects are important (Kerlinger, 1986). In so far as this
study was founded on research in other organizations and those results compared to the results of this study, then these results can be extended to other situations in like manner.

Obviously, the results have a higher probability of usefulness in an environment that is closely related. There are some unique aspects to the situation in which this data was obtained. West Virginia is the only state that is entirely within the defined limits of Appalachia and has been recognized as having a unique culture (Toth, 1991). This uniqueness is likely imbedded in the responses of the participants.

**Recommendations**

**Recommendations for Application of the Results**

The current environment appears to be a very positive one. Current practices are apparently adequate at this time. However, the organizations could use this information to push for improvements in Involvement, Coworker Cohesion, Task Orientation, and Clarity to match the other higher-than-the-norm values of the environmental characteristics. This would result in a more balanced (related to norms) environment.

Attention should be given to the large difference between the perception of Work Pressure between the libraries and computing service units that work closely together. This disparity of perception of workload could breed a certain amount of animosity.

The fact that within each group there is a normal to low mean value of burnout does not mean that isolated pockets of discontent do not exist. A more careful analysis of the data might be in order to discover these patterns, and some reaction to currently observed high burnout individuals still needs to be made.
This author suspects that there are more subtle differences in the relationships of both environmental and personal characteristics with the burnout measures that these rather simple methods were unable to detect. A more thorough analysis using more complex techniques of pattern matching is warranted. However, where established relationships are acknowledged it is recommended that careful attention be placed on environmental and personal factors and improvements that can be implemented.

Again, there are also other interactions between personal and environmental factors that were not characterized by the simple techniques used in this study. A more thorough analysis of these interactions is also warranted but perhaps taken up with some caution as the literature reports little relationship of sociodemographic and other personal attributes and responses to the WES.

The inconsistencies with the literature demonstrated by the relationship of education and burnout, coupled with the seemingly inconsistent perception of Managerial Control and Work Pressure and their relationships to burnout measures, in addition to the relationship of experience to burnout in the computing services organization but not the libraries provide ample subjects for further study.

**Recommendations for Additional Research**

In addition to the additional analysis techniques on the current data set a more comprehensive research regimen is warranted. As discussed above there are many aspects of the conceptual model that remain to be studied.

A more comprehensive measurement of the various personal resources needs to be made beyond those demographic and perceptual characteristics—such as Involvement,
Autonomy, Clarity—that translate into role ambiguity and self-efficacy in the various domains of interpersonal and organizational relationships. Measurement of these factors, as well as locus of control, tolerance for ambiguity, coping styles, independent measures of stress and conflict, are all possible and important elements of the model.

However, measurement and relationship analysis of the various factors is only the beginning. Tools to analyze the complex relationships are available but more very carefully controlled “experiments” need to be performed in order to extract the more subtle interactions and causal relationships between these factors.

Perhaps the largest domain of research is the concrete causal relationships of the various elements and their ultimate effect on organizational (and personal) efficiency, productivity, and health. This obviously is the holy grail of this branch of research but that should not deter anyone from incremental contributions to this field.

Summary

In this chapter a summary of the findings has been presented. An extensive amount of analysis of the research problem and questions with comparisons to the results of other studies was presented and a set of conclusions drawn. Finally a set of recommendations for the application of the results was presented followed by recommendations for follow-on analyses and future research.
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Appendix A

The Marshall University Institutional Review Board Approval of the Study.
February 3, 2003

Dr. Henry K. Driscoll
Professor, Internal Medicine
Marshall University School of Medicine
Suite G500
School of Medicine

Dear Dr. Driscoll

Attached please find the completed application packet for IRB review. By this letter I am requesting an expedited review of the attached research study. This study is a quantitative study using established psychometric instruments. The project is the research associated with my Dissertation for the Ed.D. in Leadership Studies from the Marshall University Graduate College.

Sincerely,

Arnold R. Miller
Asst. Vice President for Information Technology
Doctoral Candidate

Dr. Dennis P. Prisk
Professor, Leadership Studies
Committee Chair
**REQUEST FOR APPROVAL OF HUMAN INVESTIGATION**

**Principal Investigator:** Arnold R. Miller  
**Department:**  
**Co-investigators:** Dr. Dennis P. Prisk

**Title of Project:** Arnold R. Miller  
Dissertation Research  
Ed.D Leadership Studies  
An Analysis of the Relationships Between the Perceived Organizational Climate and Professional Burnout in Libraries and Computing Centers in West Virginia Public Higher Education

**Granting Agency (if applicable):**

| Marshall University / University Physicians & Surgeons, Inc. | St. Mary’s Hospital | Cabell Huntington Hospital | VA Medical Center (See #6) |

**Investigational Drug(s)/Device(s):** (This applies to one that has not been approved by FDA for use, not for an approved drug to be used in an investigational manner.)

1. Please submit the following:
   - 1) IRB Form A; 2) NIH application or drug company protocol; and 3) written informed consent form at least **15 Days in advance of the next scheduled IRB meeting**, please confirm this with the IRB Coordinator.
   - 16 copies of the project, in packet form, to be distributed to the members of the appropriate committee. This includes 1 original and 15 copies. (Unless instructed otherwise, student projects and expedited studies only require 2 copies of the project.)

   Some protocols may qualify for expedited review if they involve minimal risk as defined in Section 46.110 in Title 45 of the Code of Federal Regulations, Part 46 (45 CFR 46). If requesting VA approval, please see attached VA expedited review guidelines. Minimal risk protocols require the submission of 2 copies of IRB Form A, protocol, and consent form, if applicable. One will be directly sent to the IRB Chairperson through the IRB Coordinator. Please contact the IRB office if you have questions (304/696-7320). 2 copies minimum for expedited protocols.

2. Submit curriculum vitae (1 copy each of all investigators), unless a recent C.V. has been submitted previously to the IRB.

3. Direct all correspondence through the IRB Coordinator, Trula J. Stanley, 304/696-7320 – Marshall University School of Medicine, 1542 Spring Valley Dr., MEB Rm. G-26, Huntington, WV 25704.
4. Applicant must be an employee or member of the medical or dental staff of the respective organization(s).

5. For Marshall University, the Department Chairperson, and for the respective hospitals, the Chief of Service or Section Head must co-sign the applications.

6. Informed consent must conform to current DHHS guidelines for informed consent. (See example). If VA patients are involved, VA consent forms must be used.

7. Submit the above requirements to the IRB Coordinator 15 days in advance of the next scheduled meeting of the IRB. Meetings are held the 2nd Wednesday of each month at 8 a.m. at the Marshall Medical Center, 1600 Medical Center Drive, Huntington, West Virginia – Room G403. Investigators are required to attend the meeting.

8. Approval can be granted for a maximum of one year. Progress reports must be submitted at least annually (prior to the 1 year anniversary date), and the termination of the study – it is the responsibility of the investigator to notify the IRB of study termination. Names of all the participants must be submitted, a copy of the signed, stamped approved consent (informed consent must be approved annually), any adverse reactions that were not previously submitted to the IRB, any modifications to the protocol or consent that were not previously submitted to the IRB for review and approval. This information is required by the DHHS regulations.

NOTE: At the 11/12/86 meeting of the IRB, the following motion was approved:

Noncompliance of Request for Recertification/Closure: An initial request will be sent to the investigator that the annual review of the protocol is due. If there is no response from the investigator in 2 weeks, a second notification will be sent. If there is no response to the second notification within 2 weeks, a call from the IRB Coordinator will be made directly to the investigator to confirm that the notices were received and to request that immediate action by the investigator to respond. If the investigator does not respond within 1 week of the request, a final notification will stipulate that the Committee will close the project at the next scheduled meeting of the IRB and will not accept any further studies for review or approval for which the delinquent researcher is principal or co-investigator until ALL required documentation for old studies is submitted and accepted. A copy of this final notification will be sent to the investigator’s department chairperson or department head.

9. In certain cases, human studies qualify for expedited review, or are exempted from review, please see 45 CFR 46, "Protection of Human Subjects", page 8, or contact the IRB Coordinator for further information.

NOTE: Individual institutions may have a Multiple-Project Assurance (MPA) on file with the Department of Health and Human Services (Marshall University does not have an MPA). It is the responsibility of each Investigator to be aware that such an assurance exists and to be familiar with its content regarding human subject research.

10. Please submit a 300-400 word summary of the proposed project, the general approach, any potential risks/benefits or discomforts, any relevant data in (other subjects or patients) man or animals and the clinical significance of the proposed project. This should be a general statement in non-teaching language suitable for medical and lay members of the committees, and does not substitute for the detailed research plan (protocol) which must be attached.
11. LAY SUMMARY: (PLEASE TYPE)

Statement of the Problem
What are the characteristics of the organizational climate, the rate of professional burnout, the demographic profile and the interactions of these factors between the library and computing services units of the West Virginia public higher education institutions?

Research Questions
1. In what ways, if any, does the perceived organizational climate of the library differ from the perceived organizational climate of the computing services unit?
2. In what ways, if any, does the professional burnout rate of the library personnel differ from the professional burnout rate of the computing services personnel.
3. In what ways, if any, are the perceived organizational climates of the library and computing services units related to levels of professional burnout found in these units?
4. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the perceived organizational climates of the units?
5. In what ways, if any, are the selected demographic characteristics of the employees of the library and computing services related to the level of professional burnout of the employees of the units?
6. In what ways, if any, do the demographic characteristics or the organizational climate characteristics moderate or mediate the relationship between the organizational climate and the level of professional burnout of the employees of the library and computing services units?

Methodology
An attempt will be made to obtain responses from the entire population of computing services workers and library workers in the public higher education institutions of West Virginia. The expected N for the libraries is ~300 and for computing services ~300.

A packet containing 1) A cover letter describing the study, signed by the PI and CoPI. 2) A letter from the director of the unit at the individual institution in support of the project, and 3) A single multi-page bubble sheet questionnaire will be generated that contains all of the questions from the demographic section, the Work Environment Scale (WES) Form R, third edition and the Maslach Burnout Inventory (MBI-HSS) third edition. This is hoped to simplify and speed the data collection. The packet envelope will also serve as the return envelope. Several trips will be made to each site in an effort to encourage the return of the questionnaires. Anonymity will be guaranteed to the subject.

General descriptive statistics will be used to provide a general characterization of the sample characteristics. Multiple regression techniques will be used to investigate the various relationships between organizational climate variables, demographic characteristics and burnout levels. Path analysis will be used to map relationships between variables to the conceptual model.

Results will be presented in group form in a way to insure the anonymity of the subjects.

Demographic Variables
Demographic variables to be collected include:
- Age
- Gender
- Years of Experience in field
- Years of Experience in current position
- Supervisory or non supervisory
- Faculty or staff
- Library or computing services
- Education level attained
- Direct involvement with clients
- Marital Status

Signature of Principal Investigator

Signature of Dept. Chair/Hospital Sec.Chief

(IRBformArev.9/00)
MEMORANDUM

To: Arnold R. Miller
   Assistant VP for Information Technology

From: Henry K. Driscoll, M.D.
      Marshall University IRB #1 Chairperson

Date: February 24, 2003

Re: Exempt Study No. EX03-0058 – An Analysis of the Relationship Between
   the Perceived Organizational Climate and Professional Burnout
   in Libraries and Computing Centers in West Virginia Public
   Higher-Education

Thank you for the submission of the above non-risk anonymous survey study. The purpose of the
study is to investigate the characteristics of the organizational climate, the rate of professional
burnout, the demographic profile and the interactions of these factors between the library and
computing services units of the West Virginia public higher education institutions.

Written permission from the other institutions should be obtained prior to distribution of the survey.
The study as submitted would be exempt from IRB review and approval in accordance with 45 CFR
46.101 b.

HKD/tjs

c: Dr. Dennis P. Prisk

EX03-0058millerfeb24-03

RECEIVED
MAR 0 5 2003

BY:
Appendix B

The Participant’s Packet and Instructions
March 1, 2003

Dear Library and Computing Services employee,

Marshall University is sponsoring a doctoral study on the changing nature of the work environment of two very important information groups – libraries and Computing Services. The study group will consist of the full-time employees of the Libraries and Computing Services units of the West Virginia higher education institutions. Information gained through this study will provide you and the administration of your college or university valuable insight into your work environment.

I know that you are a busy professional but your participation in this study is essential to this work. It should take less than 30 minutes of your time from the time you begin this letter to the time you seal your results in the return envelope.

Your responses will be anonymous. Please be assured that your anonymity will be protected to the greatest extent possible. For example, there are no specific identifiers on the survey, the envelopes are expected to remain sealed until received, and any results of the study will only be made available in summary form.

However, should you choose to be able to compare your results to the summary results, you simply need to record and remember the serial number from the front page of the survey and provide a self-generated PIN in the appropriate field (question 12), also on the front page of the survey. Mail or e-mail me these two numbers so I can verify your identity and an e-mail address for the results and I will return your results to you after the paper is submitted. My contact information is on the survey forms.

Thank you in advance for your time and cooperation in this endeavor.

Sincerely,

[Signature]

Arnold R. Miller
Asst. Vice President for Information Technology
Doctoral Candidate

Dr. Dennis P. Prisk
Distinguished Professor of Leadership Studies
Advisor and Committee Chair
Higher Education Library and Computing Services Work Environment Survey

Thank you for agreeing to participate in this study. Data collected in this project will only be used and reported in summary form. This will assure your anonymity. The information gained by the analysis of this data will be used to form the substance of my dissertation and will also be made available to your institution in summary form. This will provide valuable information about the work climate at your institution and a comparison to other institutions in West Virginia.

If you have questions about this project please feel free to contact me by phone - (304) 696-2677 or by email - miller@marshall.edu or my committee chair and advisor, Dr. Dennis P. Prisk: by phone - (304) 746-8989 or by email dprik@marshall.edu.

GENERAL INSTRUCTIONS

The survey is divided into 3 sections:
General Information,
Work Environment, and
Human Services Survey.
There will be specific completion instructions at the beginning of each section of the survey.

MARKING INSTRUCTIONS
• Use a No. 2 pencil or a blue or black ink pen only.
• Do not use pens with ink that soaks through the paper.
• Make solid marks that fill the response completely.
• Make no stray marks on this form.

CORRECT:  INCORRECT:  

SECTION 1 - General Information

Please answer the following general information questions.

1. Do you have regular direct face-to-face contact with individuals that could be considered the clients of your service activities, e.g., faculty, students, staff, visitors, coworkers, etc.?

2. How many years of formal education beyond High School have you had?

3. Are you employed in Libraries or Computing Services?

4. How many years have you been in your current position?

5. How many years total have you been in your profession?

6. What is your institution's zip code?

7. Are you considered faculty or staff?

8. What is your marital status?

9. What is your age?

10. Do you supervise others?

11. What is your gender?

12. Select PIN if requesting results.

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| 41. | 40. | 39. | 38. | 37. | 36. | 35. | 34. | 33. | 32. | 31. | 30. | 29. | 28. | 27. | 26. | 25. | 24. | 23. | 22. |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

**SECTION 2: Work Environment Scale Form-R (Rudolf H. Moos and Paul M. McManus) © 1974 Consulting Psychologists Press, Inc.**

Section 2 contains 20 statements. They are statements about the place in which you work. The statements are intended to apply to all work environments. However, some words may not be quite suitable for your work environment. For example, the term supervisor is meant to refer to the boss, manager, department head, or the person or persons to whom you answer on this form. Please be sure to answer every statement.

If you think the statement is true or mostly true of your work environment, fill in the circle labeled T (true). If you think the statement is false or mostly false of your work environment, fill in the circle labeled F (false).
<table>
<thead>
<tr>
<th></th>
<th>TRUE</th>
<th>FALSE</th>
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<tbody>
<tr>
<td>43. Supervisors often criticize employees over minor things.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. Supervisors encourage employees to rely on themselves when a problem arises.</td>
<td></td>
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<tr>
<td>45. Getting a lot of work done is important to the people.</td>
<td></td>
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<tr>
<td>46. There is no time pressure.</td>
<td></td>
<td></td>
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<tr>
<td>47. The details of assigned jobs are generally explained to employees.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Rules and regulations are pretty well enforced.</td>
<td></td>
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<tr>
<td>49. The same methods have been used for a long time.</td>
<td></td>
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<tr>
<td>50. The place could stand some new interior decorations.</td>
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<tr>
<td>51. New people are always volunteering.</td>
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<tr>
<td>52. Employees often eat lunch together.</td>
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<tr>
<td>53. Employees generally feel free to ask a supervisor for a raise.</td>
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<tr>
<td>54. Employees generally do not try to be unique and different.</td>
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<tr>
<td>55. There is an emphasis on &quot;work before play.&quot;</td>
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<tr>
<td>56. It is very hard to keep up with your work load.</td>
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<tr>
<td>57. Employees are often confused about exactly what they are supposed to do.</td>
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<tr>
<td>58. Supervisors are always checking on employees and supervising them very closely.</td>
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<tr>
<td>59. New approaches to things are rarely tried.</td>
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<tr>
<td>60. The colors and decorations make the place warm and cheerful to work in.</td>
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<tr>
<td>61. This is quite a lively place.</td>
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<tr>
<td>62. Employees who differ greatly from the others in the organization don't get along well.</td>
<td></td>
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<tr>
<td>63. Supervisors expect too much from employees.</td>
<td></td>
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<tr>
<td>64. Employees are encouraged to learn things even if they are not directly related to the job.</td>
<td></td>
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<tr>
<td>65. Employees work very hard.</td>
<td></td>
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<tr>
<td>66. You can take it easy and still get your work done.</td>
<td></td>
<td></td>
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<tr>
<td>67. Fringe benefits are fully explained to employees.</td>
<td></td>
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<tr>
<td>68. Supervisors do not often give in to employee pressure.</td>
<td></td>
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<tr>
<td>69. Things tend to stay just about the same.</td>
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<tr>
<td>70. It is rather drab and boring.</td>
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<tr>
<td>71. It's hard to get people to do any extra work.</td>
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<tr>
<td>72. Employees often talk to each other about their personal problems.</td>
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<tr>
<td>73. Employees discuss their personal problems with supervisors.</td>
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<tr>
<td>74. Employees function fairly independently of supervisors.</td>
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<tr>
<td>75. People seem to be quite inefficient.</td>
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<tr>
<td>76. There are always deadlines to be met.</td>
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<tr>
<td>77. Rules and policies are constantly changing.</td>
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<tr>
<td>78. Employees are expected to conform rather strictly to the rules and customs of the place.</td>
<td></td>
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<tr>
<td>79. There is a fresh, novel atmosphere about the place.</td>
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<tr>
<td>80. The furniture is usually well arranged.</td>
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<tr>
<td>81. The work is usually very interesting.</td>
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<tr>
<td>82. Often people make trouble by talking behind others' backs.</td>
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<tr>
<td>83. Supervisors really stand up for their people.</td>
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<tr>
<td>84. Supervisors meet with employees regularly to discuss their future work goals.</td>
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<tr>
<td>85. There's a tendency for people to come in late and work late.</td>
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<tr>
<td>86. People often have to work overtime to get their work done.</td>
<td></td>
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<tr>
<td>87. Supervisors encourage employees to be neat and orderly.</td>
<td></td>
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<tr>
<td>88. If an employee comes in late, he can make it up by staying late.</td>
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<tr>
<td>89. Things always seem to be changing.</td>
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<tr>
<td>90. The rooms are well ventilated.</td>
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</table>
Section 3 contains 22 questions. The purpose of this survey is to discover how various persons in the human services or helping professions view their jobs and the people with whom they work closely. Because persons in a wide variety of occupations will answer this survey, it uses the term recipients to refer to the people for whom you provide your service, care, treatment, or instruction. When answering this survey please think of these people as your recipients of the service you provide, even though you may use another term in your work.

Following there are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, fill in the "0" (zero) circle. If you have had this feeling, indicate how often you feel it by filling the circle (from 1 to 6) that best describes how frequently you feel that way (from a few times a year or less to every day).

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<tr>
<th>Question</th>
<th>Feeling Options</th>
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<tr>
<td>1. I feel emotionally drained from my work.</td>
<td>Every day, A few times a month, Once a week, A few times a month, Once a month or less, A few times a year or less, Never</td>
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<tr>
<td>2. I look forward to the end of the day.</td>
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<tr>
<td>3. I feel rejuvenated when I get up in the morning and have to face another day on the job.</td>
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<tr>
<td>4. I can easily understand how my recipients feel about things.</td>
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<tr>
<td>5. I treat some recipients as if they were impersonal objects.</td>
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<tr>
<td>6. Working with people all day is really a strain for me.</td>
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<tr>
<td>7. I deal very effectively with the problems of my recipients.</td>
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<tr>
<td>8. I feel burned out from my work.</td>
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<td>9. I’m often made to feel that other people’s lives have gone more easily through my work.</td>
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<td>10. I’m more callous toward people since I took this job.</td>
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<tr>
<td>11. The work has become too emotionally draining.</td>
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<td>12. I feel very frustrated by my job.</td>
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<td>13. I feel I’m wasting my time on my job.</td>
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<tr>
<td>14. I don’t really care what happens to some recipients.</td>
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<td>15. I enjoy working with people directly; it puts too much stress on me.</td>
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<tr>
<td>16. An atmosphere of calmness with my recipients can easily create a relaxed atmosphere with my recipients.</td>
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<td>17. I feel exhilarated after working closely with my recipients.</td>
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<td>18. I have accomplished many worthwhile things in this job.</td>
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<td>19. I feel like I’m at the end of my rope.</td>
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<tr>
<td>20. I find my work very challenging.</td>
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<tr>
<td>21. I deal with emotional problems very calmly.</td>
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<tr>
<td>22. I enjoy working with people.</td>
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</tbody>
</table>

PLEASE DO NOT WRITE IN THIS AREA
CURRICULUM VITAE

Arnold R. Miller

5955 Mahood Dr.  Home: (304) 733-4702  Office: (304) 696-2677
P.O. Box 4057  Fax: (304) 696-3229 EMail: miller@marshall.edu
Huntington, WV 25729-4057  WWW: http://webpages.marshall.edu/~miller

EDUCATION:

Short Course --NASA (Goddard Space Flight Center)-- on Remote Sensing Techniques.
Information Systems, Strategic Planning, and Management Course work.

M.S. Degree, Biological Sciences with major emphasis in Physiology and Biochemistry with a Computer Science minor. Marshall University, Huntington, WV 25755, 1976.


WORK EXPERIENCE:

July 2000  Asst. Vice President for Information Technology, Marshall University, Huntington, WV 25755.

Present

Assist the Vice President in the oversight and leadership of the University Libraries, Computing Services, Telecommunications and Networking services,
Distributed Education Technologies, (The Center for Instructional Technology, Instructional Television Services), and Technology Outreach services.


**June 2000**

Assisted in the reorganization of Information Technology Resources within the University. Major duties were as outlined in the Computer Center Director Position below with additional responsibilities in the areas of coordination with the Library, and the office of the Vice President for Information Technology, management of the Instructional Television Services unit, and the Telecommunications Unit.

**Nov 1981**  **Director, University Computer Center**, Marshall University, Huntington, WV 25755.

**June 1996**

Duties included the administration of a department with a staff of 21 full-time and 30 FTE part-time employees and a budget of approximately $2,000,000. Planning, installation, coordination and management of administrative, instructional and research computing, networking, and information resources for a campus of 12,500 students, and 1,700 faculty and staff.

**Service:**

Past Chair, Planning and Standards Subcommittee of the University Academic Computing Users Committee. Tasked with planning for the University's Academic Computing needs.

Past Chair, University Banner Users Group. Tasked with the strategic and tactical plans for the University’s Administrative Computing needs.

Member, University Technology Executive Group. Tasked with policy oversight of the use of technology
Member, University Information Technology Committee. Tasked with policy oversight of the use of technology on campus.

Chair, Ad-hoc committee to develop a *Plan for the Management of Information Technology at Marshall University*

Service on the Statewide Higher Education Computing and Telecommunications Planning Group (provides Strategic and Tactical planning information).

Service on the Statewide Higher Education Computing and Telecommunications Policy Board (provides advice on policy and budget issues).

Consultant to West Virginia Legislature on Computing and Telecommunications Issues.

Chair, Statewide Computer Center Directors Advisory Group.

**Significant Accomplishments:**

Designed and Implemented a Campus Fiber Optic Backbone servicing 35 buildings with Ethernet initially using FDDI as a backbone but now based on Gigabit Ethernet.

Designed and Implemented a Campus Telecommunications system based on ATT System 85 of over 3000 stations in 35 buildings with 2 remote sites linked by Microwave and the AUDIX voice mail system.

Implemented the SCT Banner Student Information Systems and underlying Oracle Database technology.

Co-authored and implemented the Campus *Plan for the Management of Information Technology at Marshall University*.

Implemented a system of networked Academic Computing Laboratories serving the entire University.

Downsized operations from Mainframe systems to minicomputer systems and continue to migrate to more Client/Server operations.
Implemented an Interactive Voice Response system to supply support for Admissions, Financial Aid, Registration, Grade Reporting, Housing, Orientation and several other auxiliary operations.

Participated in the design and implementation of new Information Technology/Library facility.

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<th>Company</th>
<th>Location</th>
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<td>Huntington, WV</td>
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<td>Nov 1981</td>
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<td>Dec 1977</td>
<td>Systems Analyst II</td>
<td>Marshall University</td>
<td>Huntington, WV</td>
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<td>July 1978</td>
<td>Bioelectronics and Quality Control Specialist</td>
<td>Cabell Huntington Hospital Laboratories,</td>
<td>Huntington, WV</td>
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<td>Dec 1977</td>
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<tr>
<td>July 1975</td>
<td>Asst. Sect. Chief of Bioelectronics</td>
<td>Cabell Huntington Hospital Labs</td>
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<td>Mar 1977</td>
<td>Clinical Chemist</td>
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<td>Huntington, WV</td>
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<td>Mar 1973</td>
<td>Producer/Director of Closed Circuit Television</td>
<td>Marshall University</td>
<td>Huntington, WV</td>
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<td>June 1975</td>
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<td>Sep 1972</td>
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<td>Mar 1973</td>
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TEACHING EXPERIENCE: Part-time Adjunct Faculty


Introductory Computing
Computer Programming I, II (Fortran)
Scientific Programming (Fortran)
Compiler Design
Medical Laboratory Instrumentation

1987-1991 Ohio University, Ironton, Ohio Branch Computer Science and Business Departments.
Computing for Business Majors
Introductory Computing
Computer Programming I, II (Pascal, Fortran)

Introduction to Computing
Computer Programming I, II (Fortran)

1973-1975 Cabell Huntington School of Medical Technology.
Laboratory Instrumentation
Electronics

PUBLICATIONS:


1985 Brumfield, J.O., A. Miller, V.B. Robinson and A. Yost, "EARTHNET: A Spatially Distributed Processing Experiment for Earth Resources Data," paper presented at and

PRESENTATIONS:


GRANTS:

2000  CrossRoads 2000, Principal Investigator, U.S. Department of Commerce, National Telecommunications Infrastructure Administration (NTIA), Telecommunications and Information Infrastructure Assistance Program (TIIAP), $520,000, October 2000.

1998  One Room School-2000, Principal Investigator, U.S. Department of Commerce, National Telecommunications Infrastructure Administration (NTIA), Telecommunications and Information Infrastructure Assistance Program (TIIAP), $550,000, October 1998.
AFFILIATIONS:

EDCAUSE, ACUTA