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Teachers and Stress: An Investigation of Stressors, Strain, and Methods of Coping

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TEACHERS AND STRESS: AN INVESTIGATION OF STRESSORS, STRAIN, AND METHODS OF COPING

by

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VITA

The author, Kerry Elizabeth Smith-Bandy is the daughter of David and Marjorie Smith. She was born February 1, 1960 in Peoria, Illinois.

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In September, 1982 she was awarded an assistantship in applied social psychology at Loyola University of Chicago. At the meeting of the Midwest Psychological Association Convention in Chicago, Illinois, May, 1984 she presented the following paper: Edwards, J., & Smith-Bandy, K. Type of message and attitude change.

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REVIEW OF THE LITERATURE

This paper presents the results of a survey of primary and secondary school teachers, to determine (1) which factors in the teachers' environment are stressors, (2) the degree of strain teachers experience as a result of job stress, and (3) what coping skills, social supports and personal resources they draw upon to deal with job stress. An overview of the problem of job stress in teaching is presented first, followed by a review and discussion of the topics of stress, coping and strain. The methods and results of the survey research project are then reviewed, followed by a discussion of the relationship between the findings of this study and the larger issues of coping, job stress and strain.

The topic of job stress has become popular in recent years. Teachers are one occupational group whose problems with stress are well documented. The Newark Teacher's Center Newsletter reported that seventy-five percent of the teachers surveyed find their jobs to be very to moderately stressful (Sparks & Hammond, 1981). As a result of high levels of job stress, Pratt (1979) found that 20% of teachers were risking their emotional well-being. Seventy percent of teachers reported that they always or frequently left school physically and emotionally exhausted, and 45% said, given the choice, they would not again choose teaching as a profession (Sparks & Hammond, 1981). Finally, in the 1977 Quality of Employment Survey

(Cooke & Kornbluh, 1980) teachers were found to be: 1) less satisfied with their jobs than workers from all other categories, and 2) more dissatisfied compared to college graduates in all other professions.

Despite the fact that much has been published about the outcomes of stress for teachers, little research has been conducted which explores the roots of the problem or factors which may help to ameliorate stress. Specifically, it would be useful to discover: 1) what aspects of teaching are stress producing, and 2) among teachers what factors promote resistance to the negative effects of stress. Before addressing these questions, it is important to define stress and to discuss the link between stress and strain.

Stress may be defined as a threat or demand which has the potential to exceed the person's capacity for meeting it (Lazarus, 1966; McGrath, 1976). Stress generally results in some outcome or strain. Selye (1976) refers to the process by which stress produces strain as the General Adaptation Syndome. After stress is perceived, the initial reaction is one of alarm. Alarm is followed by the more lengthy process of resistance. Humans are only able to resist for so long before stress takes its toll, resulting in various strains. Strain may be manifest in three forms: psychological, behavioral, and physical (Bryant & Veroff, 1984). The manifestations of strain are what are most often referred to in the writing about teachers' "stress."

The term "burnout" is often used to characterize a teacher who is experiencing severe strain (Maslach, 1982). Maslach's

symptoms of burnout correspond to the categories of strain mentioned previously. Burnout is characterized by emotional exhaustion, fatigue, or depression (psychological); a variety of physical symptoms such as frequent headaches, sleeplessness, lingering colds; and behavioral outcomes such as increased absenteeism, hostility towards students and reduced effort on the job. A great deal of research links job stress to strain (House, 1981; Kyriacou & Sutcliffe, 1979; McGrath, 1976, among others) and documents the symptoms of stress (Dunham, 1976; Schuler, 1980).

Given that teachers experience strain, it is important to uncover what elements of their jobs may be stressful. Past research suggests that the most important sources of stress are: physical environment, task characteristics, role characteristics, social/organizational environment, reward structure and intrinsic job characteristics. Let me now consider each of these sources of stress.

Sources of Stress: Experiences at School

As was mentioned, a stress may be conceptualized as a demand present in the work environment (Payne, 1979). In order to develop a detailed conceptualization of teachers' stress, it may be worthwhile to consider the specific experiences at school which may be perceived as stressful. Based on the work of Moos (1974) and the existing literature on job stress, it is possible to categorize the stressful elements of the work setting.

Physical environment. Certain elements of the physical work situation may be stressful. In the teaching environment three variables are of interest: noise, crowding and temperature. Work

by Glass and Singer (1972) has shown that noise is a significant source of stress. Blau (1981) documents the relationship of noise to perceived stress and to the resulting strain in a work environment. For teachers, noise may be present in classrooms or in crowded hallways and other common areas (e.g., cafeteria). Part of the stress produced by noise may relate to the teachers' lack of control over the noise (Glass & Singer, 1972). In the classroom, teachers can regulate the level of noise produced by students, but noise from the hallway or noise present in other common areas is beyond the teachers' control. While a primary concern with persistent noise is hearing loss, noise may also impair concentration, making work more difficult and therefore less satisfying.

Second, crowding is also considered to be a stressful environmental factor. Rudd and Wiseman (1962) report that, in addition to being noisy, many schools are generally too crowded. Along this line, research has established that crowding has negative effects on animals. Galle, Gove and McPherson (1974) point out that being with large numbers of people consistently is distressing because of the need to inhibit one's own desires. In addition, these researchers discuss the importance of the individual's need for privacy and territory. The philosophy of "the more stimulation the better" is not necessarily adaptive. People may adapt to crowded areas or to jobs with high volume human contact, but strains may become evident at some later point (Wohlwill, 1974). Indeed, surveys of teachers (Sparks & Hammond, 1981) as well as work on teachers' burnout (Cedoline, 1982; Maslach, 1982) show that the number of persons a teacher

deals with each day is directly related to his or her levels of stress and strain.

Finally, inadequately heated/cooled facilities have been found to contribute to work stress (Blau, 1981). Much of the work on temperature has focused on heat rather than on cold. Given the previously noted problems with crowding, schools seem more likely to be overly warm than to be too cold. In general, people are more aggressive and angry in overly hot temperatures than they are in cold (Griffitt & Veitch, 1974). Warm temperatures elicit more feelings of discomfort and negativity overall. Teachers who work in buildings with inadequate ventilation in warmer months or with too much heat in the winter may become increasingly angry and negative about their situation. Dealing with uncomfortable students may also be an additional stressor.

Social and organizational environment. The social environment refers to the relationships teachers have with students and colleagues. The organizational environment, or the manner in which the school is administered, is influenced primarily by administrators and school policy. In terms of the social environment, teachers report that they often have difficulty or unsatisfactory relationships with others in their work situation (Sparks & Hammond, 1981). Lack of relationships with colleagues or subordinates has been linked to higher levels of stress (Caplan et al., 1975; Pratt, 1979; Schuler, 1981).

There are several reasons why working relationships among teachers may be unsatisfying. First, poor relationships with colleagues may be a result of teaching schedules. Teachers do not generally

teach collaboratively, and they report that their hectic schedules do not afford adequate opportunity to interact with fellow teachers (Sparks & Hammond, 1981). Therefore, teachers may experience feelings of isolation. Second, the possibility always exists that teachers' colleagues may be unfriendly or uncooperative. Teachers within a discipline may feel unfriendly towards those in other areas, or feel competitive towards others teaching similar courses (Corwin, 1974).

A second factor in social relationships is the teacher's contact with students. As was mentioned earlier, the sheer number of students with whom the teacher interacts is a stressor; however, the nature of these relationships also can increase stress. In some instances the interaction between teacher and students is strained, even antagonistic. Teachers must be disciplinarians, particularly at the elementary level. Problems with discipline are frequently reported as stressors (Kyriacou & Sutcliffe, 1977). Although strained at times, the relationship between students and teachers is necessarily one of dependence. Students rely and are dependent upon teachers; indeed, teaching is classified as a human service profession (Maslach, 1982). As such, stress is often produced by the difficulty of adequately meeting students' needs. Often teachers would like to provide students with more individualized attention but cannot because of the numbers of students they teach. Maslach (1982) has found that (a) many teachers feel that they frequently disappoint their students and (b) this often leads to depression or even feelings of hostility towards students for being so needy.

In addition to relationships with students and other teachers, administrative policy and the relationship of the administration with the teaching staff may also be related to strain. Inadequate or negative feedback from supervisors is a common problem in many jobs (LaRocco & Jones, 1978). This may be indicative of poor relationships between faculty and administrators and may produce an "us" against "them" mentality. A second problem may be an over-adherence to standardization or bureaucracy. Corwin (1974) has suggested that adherence to rigorous standardization provides clarity, but often increases conflict and tension between teachers and administrators. Last, teachers are sometimes offered limited input into the decision-making process in areas of concern to them, such as text selection or class size. Corwin (1974) has found that, while participation does result in disputes, disagreements can then be aired and tension is reduced. Participation may help overcome an "us/them" orientation, which may help reduce feelings of isolation or powerlessness.

Role characteristics. The job stress literature most often defines stress in role theory terms. Two kinds of role stress are emphasized: overload and conflict (Kahn, 1973). Overload occurs when the role demands too much of the person performing it (akin to the definition of stress). Conflict refers to the stress of competing roles (e.g., spouse/teacher/swim coach) or conflict within a role (e.g., grading papers, advising students, planning classes).

Overload may be either quantitative or qualitative or both. Quantitative refers to having more work than can be done in a given period of time, pressures to do more work, or feeling that the amount

of work interferes with how well it gets done (Kahn, 1973). Qualitative overload occurs when the skills, abilities and knowledge required to do the job are beyond what the teacher possesses. There is evidence to support the idea that teachers experience role overload, although no evidence directly links this to stress-strain. In other job settings (e.g., office workers) overload correlates (r = .6) with job-related strain (Kahn, 1973). Rudd and Wiseman (1962) report that teachers complain of having inadequate time in which to complete their work. Maslach (1982) points out that volume of work teachers must do often makes them unsatisfied with the quality of teaching they provide. Cedoline (1982) as well as Maslach (1982) state that subtle pressure exists within school, as well as outside (e.g., from the general public), to "do more," spend more time one-on-one with students, get better results, and so forth.

Persons most likely to experience role conflict are those whose positions overlap with other roles or whose roles may be multifaceted. For example, teachers may need to grade papers at night, reducing time spent with their families. Teachers may also serve on school-related committees which take time away from planning and preparation for teaching classes. Caplan et al.'s (1975) discussion of role conflict includes the aforementioned "classic" examples of conflict plus several others; for instance, having to do work that one does not want to do and the pressure of having to "get along with" others. Caplan's research indicates that role conflict is related to stress and to negative health outcomes.

Task characteristics. Task may be viewed as a "subset" of role:

teacher is the "role," teaching is the "task." Pratt's (1979) study based on teachers' self-reports, revealed that certain elements of the task are stressful. Some evidence suggests that task characteristics are positively related to increased job stress and strain. Studies conducted in industrial settings indicate that pace and difficulty are stressful elements of the task (Frankenhauser & Gardell, 1976; Kornhauser, 1965). In teaching, the perceived difficulty of the task may be important to consider. Some teachers may find teaching classes more difficult than do others. Alternately, certain teachers may have more difficult teaching assignments that require more preparation or discipline. With respect to teachers, pace refers to the pace of the school day, the number of classes taught or time for breaks. Pace may also mean the internal pace of a class, e.g., the amount of material to be covered in a given amount of time.

Reward structure. Rewards in the teaching environment may be tangible (e.g., pay) or intangible (e.g., praise, approval from superiors). It is believed that a lack of sufficient reward of either kind will be stressful. For example, many teachers report that their pay is too low (Cedoline, 1982). As Pearlin et al. (1981) point out, workers often feel dissatisfaction with pay when comparing themselves to others with similar levels of education. This may be true for teachers. It is unclear, however, if one kind of reward might "make up for" another. For instance, does the rewardingness of the job itself overcome poor monetary compensation?

Intrinsic factors. Intrinsic factors refer to the components of the job itself. Is the job challenging? Does being a teacher

provide the individual with a feeling of pride and accomplishment? Herzberg (1965) refers to items such as these as "satisfiers" or motivational factors. In order for a worker to experience satisfaction, these intrinsic elements need to be present in the nature of the work itself. Without them, Herzberg (1965) states a worker will not experience satisfaction. None of the work on job stress focuses on the elements of work that might be motivating or satisfying. It seems important to discover if intrinsic factors are related to less strain and if the absence of such factors will result in strain. Herzberg (1965) argues that lack of intrinsic motivators will not result in dissatisfaction or strain, but, simply, will result in no satisfaction.

Clearly, the job of teaching contains many factors which have the potential to produce stress. It is important to discern which aspects of teaching are related to strain, and in a more general way, how higher stress is related to increased strain.

Dealing with Stress

The second major question posed at the outset of this paper was "what factors may help to ameliorate the effects of stress?" Three factors figure most prominently: 1) coping skills, 2) social supports, 3) personal characteristics.

Coping skills. Coping skills refer to the ways in which people deal with stressful events or situations. Coping begins with an initial appraisal of a situation. A person appraises a potential stressor in terms of the degree of perceived threat or harm. There are three kinds of appraisals. First, an appraisal of harm or loss

assesses the damage (strain) which a stress has already produced. Second, an appraisal of threat focuses on the anticipated harm or loss. Finally, anticipating mastery or gain in a situation is an appraisal of challenge (Folkman & Lazarus, 1980). Coping is aimed primarily at reducing or eliminating potential threats or handling damage from existing stress.

Just as there are different appraisals, there are different methods of coping. Lazarus (1966) discusses coping in terms of activity versus passivity. Activity is a specific behavioral action, such as opening windows in an overly warm classroom. Passivity refers to the absence of such an action (Gal & Lazarus, 1975), for example, reminding oneself that one has withstood hotter classrooms. As is evident, active strategies are generally aimed specifically at changing the situations, while passive strategies control or change the meaning of the stress. Fleming, Baum, and Singer (1984) concur with Lazarus' work but with some additions and modifications. They discuss three coping strategies: 1) problem-solving--actions aimed directly at the situation, 2) emotion-focused--control the meaning of the situation and emotional responses to it during the stressful experience, and 3) managing stress after its occurrence.

The choice of strategy may depend partly on the person's style of coping, as well as his/her assessment of the situation. Feasibility of change is important to consider in problem-solving, since some situations are simply not amenable to change. As Folkins et al.

(1979) point out, failing to successfully change a situation (i.e., incorrectly assessing a situation) may lead to even greater disappointment. In addition, some teachers may have insufficient knowledge or experience with certain situations and may not know what direct actions are possible. Lastly, modifying a situation may have unpleasant side effects. For these reasons, emotion-focused coping may be used, or, after stress/strain has occurred, people may engage in stress management (e.g., exercise, TM, hobbies). Although these strategies are here discussed individually, most stressful encounters generate multiple coping activities (Folkman & Lazarus, 1980).

Research on coping effectiveness. There have been efforts to determine which kind of coping mechanism works "best" in alleviating stress and reducing strain. In a comparison of two types of coping, problem-solving and emotion-focused, Folkman and Lazarus (1980) found that people tend to use both successfully; but, at work, employees used more problem-solving coping tactics with better results than emotion-focused (passive) strategies. However, research also indicates that in situations where direct action is a difficult problem, emotion-focused coping is more effective (Folkins et al., 1979; Monat et al., 1972). Lazarus' (1965) analysis supports this finding, in that his appraisal theory predicts the success of emotion-focused coping in those threatening situations which lack the possibility for beneficial change. In addition, Pearlin and Schooler (1978), contrary to findings cited earlier, maintain that problem-solving coping is often unsuccessful in work settings.

It has also been suggested that the sheer number of coping

responses in one's coping repertoire is a crucial factor in alleviating stress. People generally do not apply one mechanism to one situation, but may cope with a stressful situation by using numerous strategies (Fleming, Baum, & Singer, 1984). In general, Pearlin and Schooler (1978) found that having a varied repertoire helps to alleviate stress across a variety of situations (e.g., marital and family stress). However, their research found that having a variety of coping skills at one's disposal did not help in managing stress in the workplace.

Social resources. Coping skills may be only one part of stress adjustment. Many researchers assert that social resources or social supports are beneficial in helping to bolster a person during times of stress. Payne (1979) recognized the value of social resources in the working environment in his conceptualization of the job setting as comprised of supports as well as demands (stress). Supports, in this sense, are the resources that a person may draw upon to counteract the effects of stress.

Payne's (1979) conception of support is somewhat broad. In general social support has had a variety of definitions, basically differing in their emphasis on quality versus quantity. Lin et al. (1979) consider support to be the number of social ties a person has. Cobb (1979), however, defines support in terms of the quality or depth of contact. Pearlin et al. (1981) concur with the latter definition. In their research, a supportive person was someone who could be counted on for understanding and for advice and with whom confidences might be shared. Although the number of relationships a person has may be beneficial as well, it is the closeness of contact

that seems most critical (Cobb, 1976).

Sources of support are several. The most commonly mentioned sources are spouses, relatives, friends, neighbors, as well as supervisors and co-workers (Gottlieb, 1978). More formal sources might be therapy groups or mental health professionals (House, 1981). Generally, medical research emphasizes the efficacy and importance of families and friends in alleviating stress (Cobb, 1976), while organizational research tends to focus on the positive effects of supportive supervisors and co-workers (Blau, 1981; LaRocco & Jones, 1978).

There is some debate regarding which sources of support are "better" for reducing job stress, or more basically, if total support (i.e., the breadth of support one has) is the crucial factor. LaRocco and Jones (1978) found that having supportive co-workers and supervisors relates to such positive outcomes as greater job satisfaction and greater propensity to stay with the organization. Beehr and Newman (1978) proposed that group cohesiveness and supervisor support are important in ameliorating role strain. Research in non-work settings, however, has demonstrated the efficacy of supportive family and friends during unemployment (Gore, 1978) and health crises (Nuckolls et al., 1972). House and Wells (1978) considered the impact of source of support on 2,000 factory workers. Their results showed that supervisor and co-worker support were related to lower levels of reported work stress, while support from family and friends was unrelated to reported work stress. The researchers also created an index of total support which they found to be significantly related to decreased strain. This effect has been called the "buffering

hypothesis" (House, 1981).

Exactly how social support "works" to aid persons under stress has not been determined. Lieberman and Mullan (1978) have suggested that there is no definitive answer to this question, as there are many ways (all positive) in which social resources may help to defray the effects of stress. Initially, social support may influence the perception of stress and may help persons to be more optimistic and to view potential stresses as challenges. Second, having support may help persons adjust to unfamiliar stresses by providing them with advice and guidance as to how to cope. In addition, as Lieberman and Mullan (1978) have noted, support may increase feelings of self-esteem and may help the person to feel more competent and better able to face stressors.

Personal resources. In discussing person characteristics, it is difficult to determine whether they are causes or effects. Until more longitudinal work is conducted, their role in the stress process will continue to be more an assumption than a certainty. Personal resources are thought to play a part in ameliorating strain and are believed to relate to the total coping process (Gottlieb, 1983; Kobasa, 1982; Pearlin et al., 1981). Two such personal resources are self-esteem and a sense of mastery (Pearlin & Schooler, 1980).

High levels of self-esteem are believed to relate to lower levels of strain and to more efficient coping (Maslach, 1982; Pearlin et al., 1981). One of the characteristics of Maslach's "bound for burnout" personalities is low self-esteem. Although Kobasa (1982) does not refer to self-esteem precisely, one of the characteristics

of a "hardy" (or stress-resistant) person is a sense of commitment. Commitment refers to an interest in oneself and a belief in maintaining an interest in who one is and what one does (Kobasa, 1982). This seems to describe a person with high self-esteem. In relation to coping, persons with higher self-esteem may be more likely to invest in themselves by engaging in self-enhancing stress management techniques or to "stand up" for themselves (direct action) in stressful situations.

A sense of mastery refers to a person's beliefs about their own level of personal control over events (Maslach, 1982; Pearlin et al., 1981). Mastery is important, as feelings of powerlessness in the face of stressors heightens the risk of strain (Maslach, 1982; Seligman, 1975). A sense of personal control is closely related to coping. At risk for strain are persons who incorrectly assess their potential for control of a situation. A person low on mastery may believe that s/he does not possess the resources necessary to handle difficult situations. As a consequence, in stressful situations the person may fail to use a coping strategy because of his/her doubts about the potential for successful action or favorable environmental response (Lazarus & DeLongis, 1983). Also, persons should not "overuse" direct action, but should attempt to assess correctly their potential for control rather than to overestimate it. Repeated failures to control eventually lead to frustration and depression (Wortman & Brehm, 1975). It is important not only to have a sense of mastery but to choose coping strategies wisely.

Strains

So far this paper has addressed the topics of stressors and potential moderators of stress. A third component of this study is the outcome of stress--namely, strain. Strain may be manifest in a variety of ways. Generally symptoms of stress are conceived as belonging to three categories: psychological symptoms, physical strain, and behavioral changes (Bryant & Veroff, 1984). Each of these categories of strain will be discussed in the paragraphs that follow.

Psychological. Psychological strain refers to an emotional, affective or cognitive response to stress. The psychological symptoms most frequently mentioned in the job stress and teachers' burnout literature are job satisfaction and depression. Job satisfaction has been linked to stress by a number of researchers (House, 1981; Kahn, 1973). The results of these studies indicate that greater job stress is linked to less job satisfaction. This relationship is particularly strong between role stress and satisfaction. Psychological depression is also believed to be a product of increased job stress. One of the typical symptoms of teacher burnout, according to Maslach (1982), is depression.

Physical. Another outcome of the process of resisting stress is physical strain (Selye, 1976). Physical strains vary greatly in their degree of severity. Stress has been linked to relatively mild physical symptoms such as headaches and colds to more serious problems such as hypertension and ulcers (Schuler, 1981). Symptoms measurable by self-report are of interest to this research. These symptoms include more minor health concerns, such as headaches, back pain, loss of

appetite and so forth. More severe symptoms or major illnesses which require medical advice/diagnosis will not be included because of the problems of obtaining reliable self-reports and the issue of teacher privacy.

Behavioral. In addition to psychological and physical changes, job stress also produces changes in behavior (Maslach, 1982). The most frequent behavioral changes which have been linked to stress are increased absenteeism and reduced job performance (Beehr & Newman, 1978). While behavioral manifestations are important aspects of strain, they were not incorporated in the present study.

As the preceding literature review points out, the interrelationships among stress, coping and strain are complex. Stress often results in strain, but in the presence of social supports, effective coping strategies and/or certain personal resources, the effects of stress may be reduced. The proposed study addresses several questions about the stress process: 1) What are the sources of stress for teachers and how strongly do they relate to strain?, 2) What effects do coping, social support and personal resources (singularly and together) have on strain?, 3) What differences exist between teachers with high stress and greater strain and high stress and low strain in terms of the three mediating variables? Do mediators buffer the effects of stress?, and 4) What variables are the best predictors of the several manifestations of strain?

The major categories of variables of interest in this study and their hypothetical interrelationships are portrayed in Figure 1. The next chapter explains how these variables were operationally defined

in a survey of teachers.

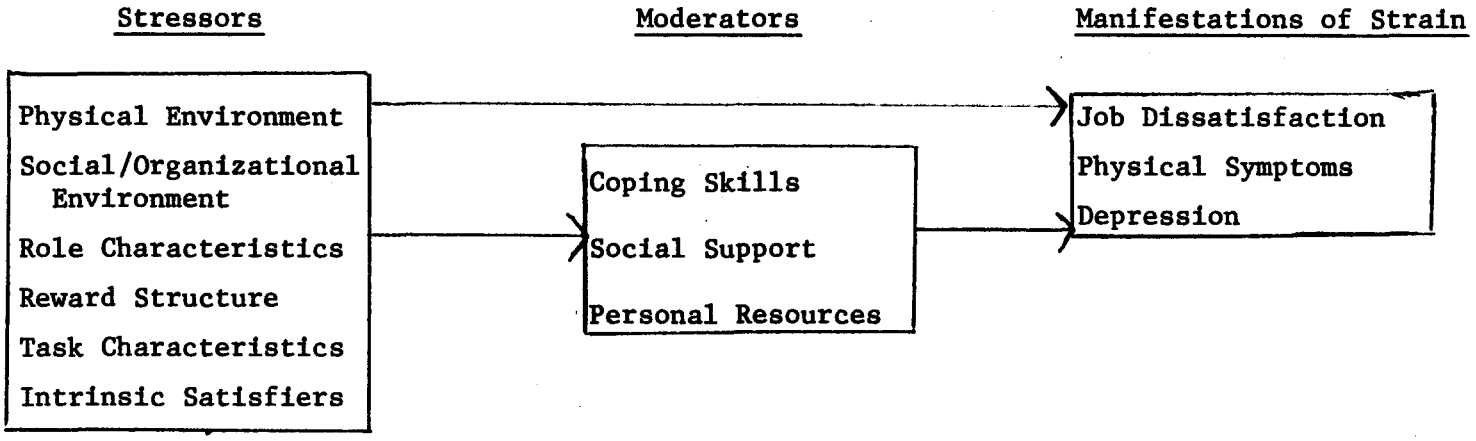

Figure 1. Relationships Among Stress, Strain and Moderators

METHOD

The approach used to study the issues of stress, strain and coping was a self-administered questionnaire. The questions derive from the categories of variables outlined in the introduction. The questionnaires were completed by a diverse sample of teachers from a single metropolitan area.

Sample

The respondent population consisted of elementary (kindergarten through grade six), junior high (grades seven and eight), and high school (grades nine through twelve) teachers from five suburban Chicago school districts. Lists of teachers and their schools were obtained for each district. List format was similar across districts, listing teachers by school. The combined lists formed the sampling frame. The combined districts contained 23 elementary schools, 5 junior high schools, and 3 high schools. The total number of teachers in the population was 584: 266 elementary, 138 junior high, and 179 high school. Approximately two-thirds or sixty-six percent (N = 389) of teachers were sampled.

A sample of this size was decided upon based on several factors. The sample needed to be relatively large in case of a high rate of non-response. It also needed to be of a size to produce reasonable statistical power, yet not so large that it exceeded the researcher's limited financial and other resources. A sample size of around 400 was selected given these criteria.

The specific sample size of 389 was chosen because it is approximately two-thirds of the population which afforded the use of a relatively convenient sampling fraction that would yield the desired sample size. In order to select the sample, it was necessary to choose approximately two of every three teachers. The sampling process was conceptualized in the following way. Two-thirds or four-sixths of the population were to be selected for the sample. By selecting half (three sixths) of the population and then an additional one-sixth, the sample could be completed. Sampling began, after a random start, by selecting every other name on the list (one out of two teachers), yielding three-quarters of the sample desired and one-half (three-sixths) of the total population. The remaining quarter of the sample (sixth of the population) was obtained by selecting every sixth name. If a name had already been chosen, the next name on the list was selected. A detailed breakdown of the number of teachers by school within district for the population and sample is given in Table 1.

Procedure

The method employed was a mailed cross-sectional survey. Permission to survey teachers was obtained through elected teacher representatives from each school district. Representatives provided the researcher with teacher names and school addresses. Materials were distributed to each teacher in his or her mailbox at school. Material included a cover letter explaining the purposes of the study (Appendix B), the survey instrument (Appendix A), and a stamped, pre-addressed envelope for convenient return of the survey. Ten days following survey distribution, a follow-up letter was sent to all teachers

Table 1

Total Number of Teachers/Teachers in Sample by School and School District

District	School	Total Teachers	Teachers Sampled
A	Elementary 1	9	6
	Elementary 2	18	12
	Elementary 3	12	8
	Junior High 1	30	20
	High School 1	36	24
	DISTRICT A TOTAL	105	70
B	High School 1	107	71
	DISTRICT B TOTAL	107	71
C	Elementary 1	16	11
	Elementary 2	15	10
	Elementary 3	15	10
	Elementary 4	13	9
	Elementary 5	12	8
	Elementary 6	9	6
	Elementary 7	19	13
	Junior High 1	38	25
	DISTRICT C TOTAL	137	92

Table 1 (continued)

District	School	Total Teachers	Teachers Sampled
D	Elementary 1	8	5
	Elementary 2	19	13
	Elementary 3	9	6
	Junior High 1	26	17
	High School 1	36	24
	DISTRICT D TOTAL	98	65
E	Elementary 1	11	7
	Elementary 2	9	6
	Elementary 3	12	8
	Elementary 4	8	5
	Elementary 5	7	5
	Elementary 6	6	5
	Elementary 7	11	7
	Elementary 8	9	6
	Elementary 9	12	8
	Elementary 10	8	5
	Junior High 1	16	11
	Junior High 2	28	19
	DISTRICT E TOTAL	137	91

thanking those who had participated and encouraging those who had not participated to do so (Appendix C).

Instrument

The survey instrument was divided into four sections. The first three sections included items covering the major topics discussed in the literature review: stressors, mediating variables, and strains. A fourth section contained questions regarding demographics and background information. The following discussion will provide a more detailed explanation of each section of the survey instrument.

Section I: Experiences at school. Section I contained thirty items designed to assess the amount of stress teachers experience as a result of their jobs. Items in this section were created based on the literature pertaining to stress reviewed at the beginning of this paper. To summarize briefly, it was hypothesized that the most common sources of stress would be: the task, the role, social/organizational factors, rewards, physical environment, and intrinsic factors. A theoretical breakdown of items by factor is provided in Table 2. Items were in the form of statements about the teaching environment to which teachers were instructed to express the degree to which they agreed or disagreed.

Section II: Possible difficulties. The second section contained three parts which explored the mediating variables of coping style and social support. Part A consisted of three open-ended items designed to elicit the teachers' style of coping across a variety of situations. The instructions asked teachers to describe how they would respond to such situations in "real life." The three situations

Table 2

Breakdown of Items in Section I by Factor

Factor Name	Item No.	Item
Task	4	The pace of the average school day is too hectic.
	6	I find teaching classes very difficult.
	10	There are many aspects of my job that have clear beginnings and endings.
Physical Environment	2	During regular school hours, the school I teach in is noisy.
	8	The temperature in my classroom is just right.
	9	Walking down the hall is difficult because there are so many students.
	16	My classroom is not crowded, the students and I have enough room to be comfortable.
	18	Noise from the hallway frequently distracts me while I am teaching.
	20	At school there is a quiet place where I can go to "get away from it all" and relax undisturbed.
Role	5	My work on school committees/extra-curriculars seldom interferes with my classroom teaching.
	11	My role as a teacher often conflicts with my relationships with family and friends.
	13	I have enough breaks during the day to feel relaxed and refreshed.
	14	During the average day I have more work to do than I can possibly finish.

Table 2 (continued)

Factor Name	Item No.	Item
Reward	3	The intangible rewards of teaching make my efforts all worthwhile.
	7	In view of the type and amount of work I do, my pay and benefits are much too low.
	17	There is little incentive for improving my teaching methods.
	22	The rewards and recognition I receive for teaching are based on the quality of my work.
Intrinsic	1	In my role as a teacher I often have a feeling of excitement that comes from fully using all my talents.
	12	In my role as a teacher I often have feelings of accomplishment.
	15	My work as a teacher involves doing the same thing over and over again, giving me little sense of progress.
	19	My job features a good balance of familiar and novel tasks.
	21	In view of my skills and knowledge, the job of teaching does not offer much of a challenge.
Social/ Organizational	1-8 in Section I, subsection B--See Appendix A	

were: 1) assignment to an undesired class without prior notice, 2) unwarranted criticism by a co-worker, and 3) a heating malfunction in the classroom. The situations were constructed to reflect the social/organizational and environmental stressors discussed in the literature review.

Part B contained ten closed-ended items which further assess coping style. The items were constructed as a series of statements about ways of dealing with problems at school. Teachers were asked to indicate the extent to which they agreed or disagreed with each statement. All items, except for three and eight, were derived from Pearlin and Schooler's (1983) work on methods of coping and assessed the extent to which the dominant coping style was active or passive. Items eight and three were included as measures of stress management activities.

Part C dealt with both the quality and quantity of social supports. The first question screened respondents who did not find social supports useful. Questions two and three assessed the quantity of support by asking about the breadth of support (e.g., the number of supporters) and the teachers' main source of support (e.g., co-workers, spouse). The final two questions concerned the quality of the major support provider (i.e., response to question three) and assessed overall helpfulness and specific types of supportive activities.

Section III: Feelings. The third section is comprised of three subsections dealing with the strains of job satisfaction, physical strain and depression, as well as the moderating variables of self-esteem and personal control. Part A contains three items on job

satisfaction from Quinn and Shephard (1974). These items have been used previously in other studies of stress and social support (Beehr & Newman, 1978).

Part B includes items on depression, perceived control and self-esteem. The six items pertaining to depression (numbers 1,3,4,6,7 and 9) are from the Zung (1965) inventory. These six items, suggest Bryant and Veroff (1984), constitute the minimum number of items which can be used for maximum reliability. The remaining four items in the ten-item set are from Paulus and Christie's (1981) Spheres of Control Battery. They were intended to determine the degree to which people believe they had control over life events. Finally, the three self-esteem items (Rosenberg, 1965) were also suggested by the work of Bryant and Veroff (1984).

Part C concerns the physical symptoms of stress. The 12 most commonly cited physical symptoms of stress measurable by survey are included (Bryant & Veroff, 1984; Selye, 1975; Yates, 1982). Teachers are instructed to indicate the frequency of occurrence of each symptom during the past month.

Section IV: Background information. The final section inquired about tenure in teaching, grade level taught, gender, age, and marital status.

RESULTS

Respondents

Two-hundred and fifteen of the 389 teachers returned surveys yielding an overall response rate of 55%. Response rate by grade level is difficult to determine as 29 teachers indicated that they taught at more than one level. (It should be noted that no teacher was sampled twice, nor were any teachers listed in two different places, e.g., an elementary and a junior high school). There are several possible explanations for the "cross-level" response pattern. First, certain kinds of teachers (e.g., music, special education, physical education) might teach across levels. Such teachers are often assigned a "home-base" school which would account for their inclusion in the sample and their categorization at a specific level. Another explanation is that teachers circled all grade levels they are qualified to teach or have taught. Therefore, the following percentages are low because responses are based only on those who could be identified. The rates for each level will thus be below the overall response rate of 55%.

Level	# Sampled	# Responding	Response Rate
Elementary	178	76	43%
Junior High	92	48	52%
High School	119	59	50%

As is evident, the lowest rate of response occurs among elementary teachers, with junior high and high school teachers showing a somewhat higher rate.

Respondents were predominantly female (73%) and married (70%). The average age was 40 with respondents ranging in age from 23 to 64. Average length in teaching was 14 years, with a mode of 20.

Stressors

Individual items were coded such that a high score (5 on a 1 to 5-point scale) indicates a higher level of stress. Table 3 provides a complete list of all stressor measures with their means and variances. Teachers expressed neither strong agreement nor strong disagreement (i.e., means between 2.5 and 3.5 on the 5-point scale) with 14 of the 30 items. Teachers' responses to 11 items, however, were rather positive. For instance, it appears that teachers do not find teaching itself a difficult task and they find other teachers and students friendly. These responses indicate that the responding teachers perceive few aspects of their teaching situation to be stressful. However, in response to item 5, teachers agree that work on school committees/extracurricular does interfere with their classrom teaching. Teachers also agree that, in view of the type and amount of work they do, their pay is too low (item 7) and that they generally have more work to do than they can finish (item 14). Taken at face value, these means suggest that the present sample of respondents experiences few stresses. However, the middling ratings for many of the items may reflect the fact that some people experience them as stressors and other people experience them as positive job aspects. Further, any

Table 3

Survey Items: Stressors

Item	Mean	Variance
1	2.0	.751
2	2.56	1.320
3	2.3	.914
4	3.25	1.170
5	4.0	1.400
6	1.72	.682
7	3.88	1.310
8	3.52	1.400
9	2.21	.995
10	2.73	1.180
11	2.7	1.550
12	1.99	.718
13	3.55	1.300
14	3.77	1.190
15	2.25	.750
16	2.5	1.250
17	2.82	1.290
18	2.42	1.170
19	2.4	.664
20	3.3	1.540
21	2.02	.850
22	3.3	1.600
1b	3.16	1.300
2b	1.86	.638
3b	2.5	1.280
4b	2.6	1.087
5b	3.43	1.290
6b	2.26	1.070
7b	1.9	.450
8b	3.01	1.360

particular teacher may experience some of these items as stressors and others not. When combined into general factors these variations across items may result in a wide range of factor scores that may be associated with variations in strains. It is how variations in stressors are associated with variations in strains which is the main issue here.

In accordance with the findings of other studies discussed in the literature review (Beehr & Newman, 1978; Blau, 1981; Moos, 1974; Schuler, 1980), it was proposed that stressors would be grouped into six categories: role, task, social/organizational, physical environment, rewards, and intrinsic factors. Factor analysis was conducted to determine if items would group in a fashion similar to the one proposed.

Using the SPSSX factor analysis program (principal component extraction with varimax rotation) several factor analyses were conducted to aid in the development of an appropriate factor model. The factor analysis yielded eight factors with eigenvalues $\geq$ 1.0; however, the clarity of factors in solutions with seven or more factors and four or fewer factors was poor. Therefore, the researcher concentrated on solutions with five and six factors, as they were closest to the theoretical six-factor solution and the most interpretable. Ultimately the five-factor solution proved more appropriate. It was felt that the six-factor solution, though similar in number of factors to the theoretical model, contributed little in terms of additional variance accounted for (49% as opposed to 47% for five factors) or additional interpretability.

Another purpose of developing factors was to reduce the 30 stress items into five or six which represent the proposed stressors and could be used more easily in future analyses. For this reason it was important that factors be interpretable and that their items be internally consistent so that they might be combined into indices of stress. Both the theoretical and statistically generated factors were evaluated for internal consistency using Cronbach's alpha. A comparison of both groups of factors is provided in Table 4.

An examination of the two sets of factors demonstrates that each has strengths as well as weaknesses. The first three statistically-generated factors are far more internally consistent than any of the theoretically-generated factors. However, with one exception, the empirically-derived factors are not as clear as those proposed by the theory. Factor 3 contains many of the role items suggested by theory, but also contains items about pay and classroom crowding which make it difficult to interpret. Factor 2 includes both reward items and social/organizational items. All of these items seem to share some common reference to the organizational environment, but this is a loose connection at best. All of the environmental items but one appear in Factor 4. The addition of the missing item (#16 which appears in Factor 3) does not increase the alpha tremendously (from α = .6201 to α = .6214), but it does fit the theory more neatly. Factor 5 borders on meaninglessness as it contains a small group of social/organizational items and one unrelated task item (#10). It also lacks sufficient internal consistency (α = .599). Factor 1, however, combines both intrinsic and task factors in a very useful way. The task factors did

Table 4

Comparison of Factors Produced by Factor Analysis, Theory, and Combined Theory and Empirical Method

FACTOR LABEL	Factor Items	Loadings	Alpha		Theory Items	Alpha		Combined Items	Alpha
Factor 1	1	.6831	.1730		1	.6532		1	.7202
(Intrinsic)	12	.6485		Intrinsic	2		Intrinsic	12	
	19	.5656			15			19	
	15	.6042			21			15	
	3	.5583		Task	6	.3543		21	
	21	.5266			10			6	
	3B	.5037			19				
	6	.4835							
Factor 2	8B	.6861	.7956		3	.6752		3	.7279
(Reward)	5B	.6773		Reward	7		Reward	17	
	22	.6555			17			22	
	1B	.6304			22				
	17	.5084							

Table 4 (continued)

FACTOR LABEL	Factor Items	Loadings	Alpha		Theory Items	Alpha		Combined Items	Alpha
Factor 3	4	.6813	.7303		5	.6910		5	.7010
(Role)	13	.6543		Role	11		Role	11	
	14	.6140			13			13	
	11	.5510			14			14	
	4B	.5127			4			4	
	5	.4776						10	
	7	.4482							
	16	.3845							
Factor 4	18	.7303	.6201		2	.6214		2	.6214
(Environment)	2	.6544		Environment	18		Environment	18	
	9	.5962			9			9	
	8	.4487			8			8	
	20	.4100			20			20	
					16			16	
Factor 5	2B	.8387	.5990		1B 7B	.6813		1B 7B	.6813
(Social)	6B	.6660		Social	2B 8B		Social	2B 8B	
	10	.5578			3B			3B	
	7B	.3986			4B			4B	
					5B			5B	
					6B			6B	

not stand alone (α = .3543) but can be incorporated with the intrinsic items as demonstrated by the factor analysis. It appears that intrinsic and task items overlap somewhat and that this factor gains power when the two are combined.

As the previous paragraph suggests, some of the proposed theoretical factors were not as reliable as the statistically-generated factors. The first three empirically-based factors have high internal consistency but are somewhat unclear. The first four theory-based factors (intrinsic, reward, task, and role) are clear, but have mediocre to poor internal consistency. The theory-based social/organizational factor has a fair alpha (.6813) and is clearer than either Factor 5 or Factor 2. Factor 4 and its theoretical counterpart (environment) are quite similar.

Because of the shortcomings of both sets of factors, it was determined that, based on both theoretical and empirical information, a third set of factors would be constructed which would be both interpretable and internally consistent. The third column of Table 4 shows the results of this effort. The Intrinsic factor gained strength (α = .7202 from α = .6537) from the addition of two task items (#19--"My job features a good balance of familiar and novel tasks," and #6--"I find teaching classes very difficult"). The Reward variable now only contains items pertaining to intangible reward. The elimination of pay (item #7) increased the alpha from .657 to .730. Item #10 ("There are many aspects of my job that have clear beginnings and clear endings.") was added to the Role variables. This item contributed somewhat to the internal consistency of the index and also supported

the theory behind the role variable, that stress is produced because work seems hectic and unending. Physical environment and social/organizational items were retained "as is" from the theoretical proposal.

The second purpose of determining factors and assessing their reliability was to develop composite variables to represent each of the types of stressors discussed. Based on the findings in Table 3, items grouped by factor were combined into a sum, creating a new set of variables for each respondent. Table 5 provides means, variance and ranges of scores for each variable.

Based on these variables some general statements about stress can be made. Teachers, in general, do not appear to be extremely stressed. In fact, it might be cautiously asserted that there are aspects of their jobs about which teachers feel positive. The most stress seems to be produced by role stressors, having too much to do and/or having conflicting roles, and receiving a lack of monetary compensation (item #7 taken as a single indicator of tangible rewards). Teachers appear to like teaching (intrinsic) and feel that they receive adequate intangible reinforcement for the work they do. The social/organizational environment appears to be a slightly positive factor for most teachers. However, teachers are relatively neutral about their physical environments.

Moderators: Coping, Social Support and Personal Characteristics

Coping. Responses to the open-ended items were coded as either active ($x = 2$) or passive ($x = 1$). For instance, a reply of "ignore it" or "forget it" was coded as passive, while a reply of "talk to

Table 5

Stressors: Means, Variances, Range of Scores

Stressor	Mean	Scale Midpt	Variance	#Item	Possible Range
Role	19.19	18	17.92	6	6-30
Environment	16.465	18	15.66	6	6-30
Social	20.702	24	21.053	8	8-40
Intrinsic	12.393	18	11.24	6	6-30
Reward	8.371	9	7.35	3	3-15

the person" or "straighten things out" was coded as active. Only first responses were considered in the analysis. Up to three responses were coded per situation but less than half of respondents provided a second response and only 6-10% responded a third time. Most teachers responded with active coping strategies. Eighty-five percent of teachers said that they would take some action if faced with an overheated classroom (situation 3) and 73% indicated they would act to have an unwanted class assignment changed (situation 2). A majority of teachers (58%) said that they would take some action if a co-worker made a disparaging remark.

The teachers' responses to closed-ended items (Table 6) also revealed a preference for active coping. Teachers agreed most strongly with the statements: "I frequently seek the advice of other teachers when I have a problem at school" ($\overline{X}$ = 3.94) and "it is best to take direct action when a problem arises" ($\overline{X}$ = 3.9 on a 5-point scale). An attempt was made to factor analyze the nine closed-ended items in order to reduce the number of measures of coping into three variables: active coping, passive coping, and stress management. However, a factor analysis produced three factors which were completely unintelligible and lacking in internal consistency.

Social support. Most teachers (74%) reported that it was always or often helpful to talk about work-related problems. Most teachers felt they could confide in a co-worker (83%) or spouse (56%) or friend (50%) with relatively few teachers (20%) mentioning a family member as a source of support. Major supporters or most frequent confidantes were also co-workers (43%) and spouses (37%). Teachers

Table 6

Coping Items

A. OPEN-ENDED

	# Active	% Active	# Passive	% Passive	Mean	Variance
Problem 1	144	73%	52	27%	1.74	.196
Problem 2	118	58%	87	42%	1.58	.245
Problem 3	171	85%	29	14%	1.85	.125

B. CLOSED-ENDED

Item	Mean	Variance
1	3.01	.99
2	3.50	.83
3	1.81	.68
4	3.94	.86
5	3.92	.73
6	3.57	.63
7	2.08	.56
8	4.03	.50
9	3.44	.85

felt that their major supporter was very (72%) or somewhat (28%) helpful and no one reported major supporters as unhelpful. Furthermore, teachers indicated that their main source of support offered each of the types of supports (e.g., advice, emotional support, positive feedback and so forth) sometimes or often.

For use in subsequent analyses, measures of quantity of support and quality of support were created. Each teacher's responses to question #2 ("If it helps you to talk to someone, in whom do you feel you can confide?") were counted to form an indicator of the number of supporters available to each teacher. The average number of supporters was 2.45. Quality of support was defined as the sum of items 5a-g, or the sum total of all supportive actions provided by the teachers' major source of support. It appears that the teachers' major source of support provides high levels of all of the types of support mentioned in question #5 (i.e., advice, emotional support, positive feedback, and so forth). With a possible range of scores from 7-28, 64% percent of teachers had scores of 26-28, with a mean score of 25.64 (See Table 7).

Personal characteristics. The two personal characteristics measured were self-esteem and sense of mastery (See Table 8). Individual items measuring self-esteem were recorded such that a high score relates to a higher level of self-esteem. The three items were combined to form a single score (α = .8213). Using this as an indicator of esteem, teachers report high levels of self-esteem ($\bar{X}$ = 11.33, possible range of 4-12).

Regarding mastery, results also indicate that most teachers feel

Table 7

Social Supports

A.

Item	Mean	Variance
1	4.06	.75
2	2.45	1.01
4	2.71	.22
5A	3.87	.14
B	3.50	.29
C	3.82	.19
D	3.48	.32
E	3.63	.30
F	3.65	.30
G	3.69	.29
5A-G SUM	25.64	6.35

B. Responses to Items 2 and 3:

Response	Item #3 % Responding Most Frequent	Item #2 % Responding, Can Confide
Co-Worker	43%	83%
Dept. Head	3%	34%
Friend	14%	50%
Spouse	37%	56%
Family Member	2%	20%
Other	1%	5%

Table 8

Responses to Personal Characteristic Items

A. Mastery

Item	Mean	Variance
2	1.86	.62
5	1.57	.34
8	1.88	.50
10	2.15	.59

B. Self-Esteem

Item	Mean	Variance
1	3.83	.155
2	3.72	.211
3	3.77	.183
SUM	11.33	1.200

they have the ability to get what they want ("When I get what I want it's usually because I worked hard for it; $\bar{X}$ = 3.43) and to solve any problem they may have ("There is really no way I can solve some of the problems I have; $\bar{X}$ = 1.8). Unfortunately, the four items (see Table 8 for the results of the other two items) could not be combined into a single measure because of poor internal consistency (α = .400). In subsequent analyses, therefore, the two items mentioned above will be tested as separate indicators of control/mastery. They were selected because they most closely resemble the construct of mastery as characterized in the literature (Kobasa, 1982; Kobasa & Kahn, 1982; Wortman, 1975).

Strain

Job satisfaction. A majority of teachers stated that they were somewhat (36%) or very (56%) satisfied with teaching as a job. However, teachers were not certain they would again decide to become teachers; 46% would do so without hesitation, while 54% would have some second thoughts or would definitely decide not to become a teacher. Teachers also hesitated to recommend teaching as a profession. Sixty-three percent would have some doubt or would strongly recommend against teaching (Table 9).

After assessing the reliability of the three items as an index of job satisfaction (α = .777), these items were summed to provide a single indicator of job satisfaction. Based on this single score, teachers appear to be largely satisfied with their jobs ($\bar{X}$ = 8.13, scale range 3-10).

Depression. The six items from the Zung (1965) depression

Table 9

Means and Variances of Job Satisfaction, Depression, and Physical Strain

A. Job Satisfaction

Item	Mean	Variance	% Very	% Somewhat	% Not Too, Not At All
1	3.48	.432	56%	36%	7%
2	2.39	.382	46%	49%	5%
3	2.26	.447	37%	50%	13%
SUM	8.13	2.66			

B. Depression

Item	Mean	Variance
1	1.69	.60
3	2.02	.69
4	1.72	.54
6	1.65	.48
7	1.49	.46
9	1.80	.51
SUM	10.87	9.39

Table 9 (continued)

C. Physical Strain

Item	Mean	Variance
1	1.86	1.20
2	1.89	1.20
3	1.36	.57
4	2.50	1.63
5	1.97	1.33
6	1.43	.732
7	2.34	1.64
8	1.40	.898
9	1.07	.136
10	2.34	1.65
11	1.30	.534
12	1.36	.568
SUM	20.82	41.59

inventory were summed to create a single depression score for each teacher. Using Cronbach's alpha, scale reliability was determined to be .7834. With a high score indicative of greater depression, the mean score was 10.4 with a range of 6 to 20. Teachers seem to be relatively non-depressed (See Table 9).

Physical strain. The most frequently reported physical symptoms were compulsive eating ($\overline{X}$ = 2.5), pain in the back or neck ($\overline{X}$ = 2.34), and difficulty getting up in the morning ($\overline{X}$ = 2.34). As with previous outcome measures, reliability was assessed (α = .792) and a composite index of physical strain was created by summing each teacher's scores on the individual strain items. The mean score was 20 (with a possible range of 12-60). This suggests that teachers experience a relatively slight amount of strain. It should be noted that it would be difficult to obtain a high physical strain score and still be functioning adequately enough to teach (See Table 9).

Testing Relationships

Analyses

This study investigated several facets of the stress-strain relationship. In order to fully describe these relationships, the following statistical analyses were performed. As has already been shown, frequencies, means and variance for all variables were calculated, and factor analysis was used as a tool for reducing the large number of individual items into more manageable and meaningful groups. Correlations were then calculated to assess the relationships of stressors to strains. Regression was also used to determine how well

strain might be predicted from stress. Correlation and regression were also used to assess the relationship of potential moderators (i.e., coping, social support, and personal characteristics) to strains. To determine whether or not these presumed moderators actually influenced the stress-strain relationship, they were partialled out of the stress-strain correlations. Analyses of variance were also performed to see if teachers with high stress/greater strain differ from those with high stress/low strain in terms of use of coping, social support, or their personal characteristics. Finally, for each of the three strains, a set of predictors (using stressors and moderators) was determined. The primary goal was to develop the most parsimonious predictive model possible for each strain and to discover what difference might exist between strains in terms of their predictors.

Relationship of Stress to Strain

All in all, stressors are highly related to strains. Correlations between stressors and strains were all significant and in the expected directions. That is, higher levels of stress were associated with higher levels of strain. Relationships between stressors and the three strain variables: depression, job satisfaction and physical strain will be discussed in the following paragraphs.

Job satisfaction was correlated highly with both intrinsic satisfiers (r = -.54) and intangible rewards (r = -.54) (See Table 10). Stress due to the physical environment had only a relatively modest relationship to satisfaction. It should be noted that the direction of the relationships indicate that higher stress is associated with

Table 10

Correlations Between Stressors and Strains

	Depression	Satisfaction	Physical Strain
Role	.40**	-.37**	.42**
Environment	.13*	-.17*	.29**
Social	.36**	-.40**	.39**
Reward	.37**	-.54**	.37**
Intrinsic	.50**	-.54**	.35**

*p >.05

**p >.01

decreased job satisfaction.

Intrinsic satisfiers also correlated highly with depression (r = -.50); higher levels of depression are related to lower levels of perceived intrinsic satisfiers in the teaching environment. Stress from the physical environment, however, has less of a relationship to depression than all other stressors (r = .14).

Physical strain correlates most strongly with role strain (r = .42). Unlike its relationships with the two other outcomes, physical environmental stress does have a fairly strong relationship to physical strain (r = .29).

Relationships of Moderators to Strains

Correlations were calculated to assess the strength and direction of the relationships between moderators and strains (See Table 11). The possible moderating effects of social supports, personal characteristics and coping on the stress-strain relationship will be addressed in later sections.

Compared to the strong associations between stressors and strains, the relationships of moderators and strains are generally much less exceptional. Certain indicators of coping, personal characteristics and social supports do not correlate with strain at all. However, a few moderators are somewhat to strongly associated with all three outcomes; other moderators relate to perhaps one or two of the three strain variables.

Personal characteristics. Of all the moderators, as well as indicators of personal resources, self-esteem shows the strongest relationship to all three strains (depression, r = -.57; job

Table 11

Correlations Between Moderators and Strains

	Depression	Satisfaction	Physical Strain
Social Support			
Qual Support	-.29**	.17*	-.15*
Total Support	-.09	.03	-.05
Coping			
Cope 1	-.24**	.21**	-.29**
Cope 2	-.05	.01	.014
Cope 3	-.01	-.02	-.002
Cope 4	-.14*	.20*	.01
Cope 5	-.04	-.07	.03
Cope 6	-.21**	.19*	-.25**
Cope 7	-.002	.02	-.08
Cope 8	-.13*	.15*	-.076
Cope 9	-.38**	.32**	-.22**
Prob 1	-.063	.004	-.08
Prob 2	.04	-.14*	.17*
Prob 3	-.05	-.02	.008
Personal Characteristics			
Esteem	-.57**	.42**	-.38**
PC 1	.29**	-.16*	.19**
PC 2	.31**	.008	.01

*p >.05

**p >.01

satisfaction, r = .42; and physical strain, r = -.39). As is obvious, the strongest relationship is between self-esteem and depression; as self-esteem increases, the level of depression decreases. This is consistent with Bryant and Veroff's (1984) results, in which these two indexes loaded on the same factor, labeled "self-confidence." Perceived control also loaded on this same factor. Both of the indicators of personal control: PC1, "There is no way I can solve some of the problems I have" and PC2, "When I get what I want it's usually because I worked hard for it" were correlated with depression (r = -.29 and r = -.31, respectively). The directions of the relationships indicate that personal control is associated with less depression. PC1 also has modest associations with satisfaction and physical strain, though PC2 does not.

Social support. Quality of support (i.e., better quality) relates somewhat to strain, especially to depression. Quantity of support is not at all related to any of the strains.

Coping. Three closed-ended coping items: Cope 1--"At work I find that time solves most problems; Cope 6--"I view problems as challenges, not hardships" all show the same pattern of relationship to strain. Agreement with these items is associated with less depression, greater job satisfaction, and less physical strain. In addition, Cope 4 (seeking advice from other teachers) correlates with satisfaction and depression, though to a lesser extent than Cope 1, Cope 6 or Cope 9.

Moderators of the Stress-Strain Relationship

Two different analyses were used to test the moderating effects

of social support, coping, and personal resources on the relationship between stress and strain: 1) the moderating variables were partialled out of the correlations between stress and strain to see if the relationship between stress and strain diminish or disappear when the effects are considered; and 2) analysis of variance was used to determine the extent of the difference between persons with high stress/high strain and high stress/low strain in terms of the moderating variables.

For the most part, correlations between stressors and strains changed very little or not at all when the single and combined effects of moderators were partialled out (See Appendix D). There exist a few exceptions of slight decreases in the partial correlations. While not large, they may indicate a slight moderating effect and might be worth investigating further in subsequent research. Esteem may moderate the relationships between satisfaction and role stress and satisfaction and intrinsic satisfiers. A similar pattern occurs in the relationship between the stressors (all except environment) and depression, with esteem having a more pronounced impact on the correlations between intrinsic satisfiers and depression ($\underline{r}$ = .32 versus $\underline{r}$ = .50). This trend alters somewhat in the relationship between stressors (again, all but environment) and physical strain. It appears that esteem may have a slight impact on the relationship as may quality of support (though not in the reward-strain relationship).

Analyses of variance were performed for all five stressors and all three strains using the 9 closed-ended coping items, the three open-ended coping items, self-esteem and personal control as dependent

variables. Stressors were dichotomized into high and low stress groups using a median split as were the three strain variables. The theory predicts that persons with high stress/low strain and high stress/high strain should differ in their style of coping, producing an interaction effect. However, analyses of variance yielded non-significant results across the board. Because of the number of analyses and the redundancy of the results, a table is not provided.

Predicting Strain

Earlier analyses indicated that both stressors and moderators are correlated with strains; however, it has yet to be determined if stressors or moderators (alone or in combination) predict strain. Accordingly, multiple regression was used to compare different sets of predictors (i.e., stressors; moderators; stressors and moderators combined) in terms of the amount of variance they explained in each outcome. In addition, the "buffering" effect of moderators was again tested. Specifically, an interaction term (stress X moderator) was introduced into the multiple regression model containing stressors and moderators. (The moderator was paired with a stressor based on the results of the partial correlations. In all cases the moderator was self-esteem).

Because moderators are represented by multiple indicators, not all indicators could efficiently be accommodated in the multiple regression analyses. To reduce the number of moderators included in the analyses, only moderators with $\beta = \pm .15$ and/or t-values with $p < .05$ were included (See Appendices D, E, F, G). All multiple regressions used forward entry (using SPSSX) of variables; variables were entered into

the equation one at a time in the order specified by the researcher and indicated in Tables 12, 13 and 14.

Predicting job satisfaction. All five stressors were significant independent predictors of job satisfaction. The two best predictors are the presence/absence of intrinsic satisfiers and intangible rewards (See Appendix E). Job satisfaction is best predicted by a combination of the two stressors mentioned above and low pay (R^2 = .45) (See Table 12 A).

Moderators are less predictive of job satisfaction than job stressors. Of the moderators, self-esteem again emerges as the best predictor. The two "next best" predictors are indicators of passive coping: Cope 9 (viewing problems as challenges) and Cope 1 (severity of problems). In addition, two more active coping variables Cope 4 (seeking the advice of other teachers) and Cope 8 (managing stress by developing a hobby) were also significant predictors of satisfaction, though they account for much less variance than the other predictors (See Appendix E). Taken together, all the moderators discussed account for 27% of the variance in job satisfaction. A more parsimonious model consists of self-esteem, Cope 9, and Cope 4 (R^2 = .24) (See Table 12 B). However, both of these models account for less variance than the two best single predictors of satisfaction, i.e., intrinsic satisfiers (R^2 = .29) and intangible rewards (R^2 = .29).

The best combination of stressors and moderators (Table 12 C) is intrinsic, rewards, self-esteem, and Cope 4 and accounts for 46% of the variance in job satisfaction. To determine the possible buffering effects of moderators, an interaction term (intrinsic X

Table 12

Predictors of Satisfaction

A. Stressors

Variable	Beta	F	R^2
Reward	-.30	18.19**	
Intrinsic	-.40	34.16**	
Pay Low	-.19	9.18**	.45

B. Moderators

Variable	Beta	F	R^2
Esteem	.35	4.93**	
Cope 9	.18	2.57*	
Cope 4	.17	2.52*	.24

C. Stressors and Moderators

Variable	Beta	F	R^2
Intrinsic	-.31	18.11**	
Reward	-.33	22.767**	
Cope 4	.12	3.94*	
Esteem	.19	8.14**	.46

D. Interaction

Variable	Beta	F	R^2
Intrinsic	-.42	24.80**	
Reward	-.33	22.03**	
I x E	.09	.031	
Cope 4	.12	3.62*	
Esteem	.15	.322	.47

*p >.05
**p >.001

esteem) was entered into the regression equation along with the other four variables. The effects of Cope 4 and reward were not combined into an interaction term, based on the results of the partial correlations which suggest that Cope 4 does not moderate the reward-satisfaction relationship. This interactive model does not account for any additional variance ($\underline{R}^2$ = .46). It should be noted that, in order to include the interaction term in the regression equation, the computer specified probability of $\underline{F}$ to enter the regression equation (Pin) had to be lowered to .9.

Predicting depression. Four stressors (all except physical environment) were significant predictors of depression (See Appendix F). Together, the four stressors account for 30% of the variance in depression. However, depression can be predicted more parsimoniously ($\underline{R}^2$ = .29) by a combination of role stressors and intrinsic satisfiers (See Table 13 A).

A large number of moderator variables predict depression. By far, the best single predictor is self-esteem. The next best predictor is Cope 9. Seven other variables were also predictive of depression (See Table 13 B). The best predictive multiple regression model includes all three types of moderators; coping (Cope 1) quality of social support, and personal characteristics (PC 1 and PC 2, and self-esteem); it accounts for 48% of variance.

A model which included not only role stress and intrinsic satisfiers, but also self-esteem and personal control 2 account for nearly 50% of the variance in depression scores (See Table 13 C). This is slightly better than the prediction achieved by a combination of

Table 13

Predictors of Depression

A. Stressors

Variable	Beta	F	R^2
Intrinsic	.358	24.882**	
Role	.305	17.996**	.29

B. Moderators

Variable	Beta	F	R^2
Esteem	-.525	-8.33**	
PC 2	.220	3.54**	
PC 1	.156	2.49*	
Cope 1	-.160	-2.63**	
Qual Sup	-.133	-2.13*	.48

C. Stressors and Moderators

Variable	Beta	F	R^2
Esteem	-.44	-6.18**	
PC 2	.22	3.73**	
Role	.20	3.3**	
Intrinsic	.18	2.86*	.49

D. Interaction

Variable	Beta	F	R^2
Esteem	-.37	2.059	
PC 2	.24	15.932**	
Role	.19	9.32**	
Intrinsic	.36	.323	.49
I X E	-.15	.086	

*p >.05
**p >.001

moderator variables. The introduction of an interaction term (intrinsic rewards X self-esteem) did not increase the amount of variance accounted for ($\underline{R}^2$ = .49) (See Table 13 D). Again this variable had to be forced into the regression equation by lowering the Pin limit to .9.

Predicting physical strain. All five stressors were significant predictors of physical strain (See Appendix G). Physical strain is the only outcome which is predicted by physical environment. Intrinsic satisfiers predict physical strain to a lesser extent than do the other four stressors. A combination of role stress, physical environment, and intrinsic satisfiers were the best predictive combination of stressors ($\underline{R}^2$ = .256) (See Table 14 A).

Moderators were equally predictive of strain as stressors. The best predictor of strain was self-esteem. Four indicators of passive coping--Cope 1, Cope 6, Cope 9 and responses to Problem 2--were also significant individual predictors of strain (Appendix G). The best multiple regression model of moderators consists of Self-esteem and Cope 1 ($\underline{R}^2$ = .22) (Table 14 B).

Combining stressors with moderators increased prediction somewhat ($\underline{R}^2$ = .32) over the prediction achieved by either stressors ($\underline{R}^2$ = .256) or moderators ($\underline{R}^2$ = .22). The best predictive model combines self-esteem, role stress, physical stress, environmental stress, and cope 1 (Table 14 C). Including an interaction term (role X esteem) did not explain more variance ($\underline{R}^2$ = .32) (Table 14 D). Less of the variance in physical strain is accounted for than in any other outcome measure. This may be, in part, due to the lack of indicators of pre-existing health.

Table 14

Predictors of Physical Strain

A. Stressors

Variable	Beta	F	R^2
Role	.319	23.4**	
Intrinsic	.188	8.66**	
Environment	.172	7.08*	.256

B. Moderators

Variable	Beta	F	R^2
Esteem	-.403	32.80**	
Cope 1	-.273	15.00**	.22

C. Stressors and Moderators

Variable	Beta	F	R^2
Role	-.244	10.15**	
Environment	-.177	6.4**	
Esteem	-.320	18.5**	
Cope 1	-.207	8.4**	.32

D. Interaction

Variable	Beta	F	R^2
Esteem	-.464	1.22	
Role X Esteem	.380	.211	
Cope 1	-.196	7.48**	
Environment	.105	1.84	
Role	-.173	.04	.31

*p >.05
**p >.001

DISCUSSION

This research was intended to accomplish several things: 1) to describe the levels of stress, strains, social supports, coping skills, and personal resources present in the sample of teachers, 2) to determine which stressors are related to strain and the nature of the relationship, 3) to establish whether personal resources, social support and/or coping skills moderate the stress/strain relationship, or if their impact on strain is direct, and 4) to identify the best predictors of the three varieties of manifestations of strain: job satisfaction, depression, and physical strain. It is important to discuss the levels of stress, strain, social supports, coping skills, and personal resources present in the sample of teachers before examining the relationships between and among these same variables. Most other researchers have found teachers a somewhat "stressed" population (Maslach, 1982; Cedoline, 1981). This study does not show the same results. Therefore, it is important to view the relationships between stressors, strains and moderators with some caution, in light of the low levels of stress and strain in the sample. Finally, directions for future research will be considered.

Levels of Stress, Strain and Coping

Overall, the teachers sampled look relatively healthy in terms of their reported levels of stress, strain, social support, personal control, self-esteem and coping skills.

Results confirm that there are generally six types of stressors which are related to strains: intrinsic satisfiers, role characteristics, social/organizational factors, physical environments, intangible rewards and pay. Although all factors are related to strain not all teachers experience stress from all of the factors. Teachers generally seem to like their jobs (intrinsic), their social and working environments (social/organizational), and feel good about the intangible rewards they receive. Most teachers appear to be rather neutral about their physical working environments. Stress comes mainly from role conflicts or overload and inadequate pay. When looking at individual items rather than factors it appears that many of the items ($\underline{N}$ = 14) cluster around the midpoint of the scale (3 on a 1 to 5-point scale). This suggests that some teachers feel somewhat positive about these items while others are somewhat negative. Further, any particular teacher may perceive some of these items as stressors and others not. When combined into factor scores these variations across items may result in a wide range of factor scores that may be associated with variations in strains. It is how variations in stressors are associated with variations in strains which is the main issue, so the aforementioned points should be kept in mind when considering the relationship of stressors to strains.

Not surprisingly, low levels of stress were strongly associated with low levels of strain. Teachers appear to be nondepressed, under limited physical risk and relatively satisfied. However, similar to the findings of Sparks and Hammond (1981), many teachers stated they would advise against teaching or would themselves decide not to

become a teacher if given the opportunity to choose again. Despite these feelings, the majority of teachers are satisfied with their careers. Results of a pilot study of the survey instrument and a subsequent workshop with the respondents suggest a possible explanation. While teachers like what they do, economic concerns would encourage them to look into another, more lucrative form of employment and to caution future teachers.

In terms of the moderating variables, the results are also optimistic. Teachers report a preference for active coping strategies, though correlations between coping and strain suggest that passive coping is related to less strain. This suggests that, although active coping may be preferred, teachers in the sample have no need to use it given their relatively unstressful circumstances. These results, combined with the fact that teachers also have a sense of control, tentatively suggest that teachers are choosing the appropriate coping strategy but have other coping skills in their repertoire. As Wortman and Brehm (1975) conclude, it is most important to correctly assess one's potential and need for control rather than to overuse direct action. Teachers also report that they have adequate social resources, both in terms of quality and quantity. It appears that sources of support are available both at school (e.g., co-workers) and at home (e.g., spouses). Higher levels of quality seem to be the most important factors, since quality is more highly related than is quantity of support to lower levels of strains. This is similar to the findings of Cobb (1976). In addition, teachers report high levels of self-esteem. All of the "moderators" were directly

related to strain in the expected way, though to a lesser extent than were stressors.

There are several possible explanations for these findings. First, teachers in the sample work in fairly affluent suburban school districts. It might be expected that teachers in urban or poorer areas might have less pleasant working conditions and higher levels of stress. Second, the time of year of the survey may have played a role in the generally positive responses. Teachers were surveyed in May near the end of the school year. It is possible that teachers, in anticipation of their summer vacations, were somewhat more positive about their situations. Of course, another highly plausible explanation for the results is that stressed teachers selected themselves out of the sample. Either teachers who were under stress did not wish to participate or were so overloaded that they could not participate, or they have left teaching altogether. Finally, it is always possible that teachers underreported their levels of stress and strain and tried to appear healthy.

Future research might be designed so as to guard against these possible problems. The present study is cross-sectional assessing teachers' levels of stress, strain, and coping at one point in time; therefore, it allows for only tenuous causal assertions and is subject to biases of history. A longitudinal design would allow for more definitive statements about the temporal ordering and causal connections between and among stressors, strains and moderators, and would lessen the impact of history and other time-related circumstances. A longitudinal design might also help avoid consistency bias that

may operate on responses given at any one point in time, e.g., people may have reported good job satisfaction because it is consistent with having just reported low stress, high esteem, etc. Greater efforts should be made to include teachers from urban and rural areas, and to perhaps stratify school districts based on socio-economic status. Also, specific subpopulations of teachers (i.e., special education teachers, English teachers, or math teachers) might be compared/contrasted in terms of stress and strain. In order to assess the stress-strain relationship in a stressed population, it might be beneficial to look at teachers who recently left the teaching profession, to determine their reasons for leaving and assess their perceived levels of stress and strain. In addition, in future research the analysis and development of factors might be changed. This study used factor analysis for the development of a factor model of stressors. This model was then compared to a theoretical factor model, using the criteria of reliability and interpretability. The best way to compare factor models, however, would have been confirmatory factor analysis. This analysis technique should be incorporated in future research.

It is very important to keep these cautions and the relatively healthy or positive "complexion" of the population in mind when looking at the inferences drawn about the relationships of stress and strain.

Relationships of Stressors and Moderators to Strains

As was stated earlier in this chapter, stressors are correlated with strains; higher levels of stress are associated with higher

levels of strain. An important outcome of this research was the discovery of the strength of the relationship of intrinsic factors to reduced strain. Intrinsic factors were not mentioned specifically in any of the literatures reviewed earlier in this paper. While the literature does refer to task (Pratt, 1979), "task" generally refers to the pace of the job or difficulty performing the task. This is a somewhat superficial treatment of the subject. Feelings of accomplishment, a good balance of familiar and novel tasks, feelings of excitement while engaged in the task, and so forth are also important. These types of elements, when present in the teaching environment are highly related to job satisfaction, less depression and fewer physical strains. Physical environment, however, was less strongly related to strain than any other stressor. Its strongest relationship was to physical strain. Although it is impossible to make direct connections between environmental factors (e.g., noise) and physical strain (e.g., hearing loss or headache), the results do suggest that stressors in the physical environment are related to strain.

Despite the findings of other researchers (e.g., House, 1981; Cobb, 1976) this study does not find that social supports, personal resources or coping skills moderate the stress-strain relationship. The results of this research are similar to those of LaRocco and Jones (1978) whose "moderated regression analyses" (regression with the addition of an interaction term (e.g., stressor X moderator) yielded no increase in the percent of variance accounted for in strain. In order to provide a more empirical test of the buffering

hypothesis, it would be beneficial to use the measures identical to those of other researchers. Measures used in this study, while similar to those used by other researchers (House, 1981; Pearlin & Schooler, 1981), are not identical. It should also be noted that in previous research (Gore, 1978; Cobb, 1976) social support has shown the greatest buffering effect of all of the moderating variables in this study. In this research self-esteem is the only variable which seems to suggest a moderating effect, and its impact on the stress-strain relationship is modest. Even so, active steps to improve self-esteem of teachers are suggested by the present results as a means of ameliorating the stress/strain relationship.

Moderators did show a direct relationship to strain, though the correlations between moderators and strains tended to be smaller than those between stressors and strains. Self-esteem has the strongest relationship to strain of all the moderators; high self-esteem correlates with less depression, greater job satisfaction and less physical strain. Passive coping was also related in a similar fashion as self-esteem was to strains. As was mentioned earlier, this is an interesting relationship, as teachers indicated that their preference was for an active coping style. It seems likely that, given the relatively low levels of perceived stress, passive coping (i.e., realizing that there is no need for action under positive circumstances) would relate to lower levels of strain.

On the whole, the interrelationships among the variables suggest that positive circumstances, good personal resources and skills, and low levels of strain all go together. Similar

relationships are found when looking at the variables which predict strain. However, as will be discussed in the section which follows, each strain is not predicted by the same set of stressors and moderators.

Predicting Strain

Another goal of this study was to identify factors which would predict each of the three strains. Given the relatively low levels of strain in the sample, it might be appropriate to reconceptualize this question as: which aspects of the teaching environment and which personal skills and characteristics are associated with low strain? It seems that for each strain, the answer to this question is different.

Job satisfaction was predicted equally well by a combination of stressors and moderators as it was by stressors alone. In terms of the job environment, in order to experience satisfaction, the key components are intrinsic satisfiers, intangible rewards, and--to a lesser extent--pay. When considering moderators as well as stressors, the intrinsic factors and intangible rewards are still important, as are high self-esteem and a tendency to seek the advice of other teachers when a problem at school arises. This more elaborate set of predictors or model appears most appropriate because it considers not only the teaching environment (intrinsic satisfiers and intangible rewards) and individual differences (self-esteem), but also responses to the teaching situation (seeking advice).

Depression was predicted equally well by moderators (two indicators of personal control, self-esteem, passive coping and

quality support) as it was by a combination of stressors (intrinsic and role) and moderators (personal control and self-esteem). Depression is the one outcome of the three which is most likely to be most affected by personal characteristics and by influences outside of the teaching environment (e.g., family relationships). It is difficult and perhaps superfluous to advocate one model over another. What should be noted is that self-esteem and personal control are influential components of both models. This suggests that feeling good about one's self and one's capabilities are the best predictors of low levels of depression. In terms of the teaching environment, the presence of intrinsic satisfiers and freedom from role stress are also important predictors of low depression.

Physical strain was less well predicted than the other two strains. The best model included a passive style of coping, high self-esteem, and low levels of role and environmental stress. Perhaps physical strain was underidentified because it was not well measured. Because of the self-report format, it was not possible to assess blood pressure, levels of adrenolin, or to conduct other medical tests which already identify strain. However, supporting the construct validity of the present measures, it should be noted that a physically stressful and hectic environment was linked to physical strain.

There is one similarity between all of the models: the presence of self-esteem as a predictor of strain. High levels of self-esteem are predictive of less strain regardless of which particular strain measure one chooses. While this does not have

implications for the restructuring of the teaching environment, it does hint at the importance of having positive feelings about one's worth and the impact of such feelings on one's well-being and physical health, as well as feelings about one's work.

One way to conceptualize the results of this study is to think in terms of "person-environment fit" (Schaier, 1980) or what Csikszentmihalyi (1982) refers to as the optimal or "flow" experience. From a person-environment fit viewpoint, teachers in this sample are particularly well-suited to their environments. In other words, there is a good fit between the teacher and the characteristics of the teaching environment. This may be why teachers do not experience much strain or perceive much stress. Although this is a plausible explanation, it is somewhat simplistic. Csikszentmihalyi (1982) provides a more complex conceptualization. He feels that when people's skills and capabilities are in balance with the challenges present in their environment, they have an optimal or flow experience. If the challenges are too great for one's skills, then anxiety or worry (i.e., stress) will result. If one's skills and abilities exceed the environment, challenges and opportunities, then boredom will result. Csikszentmihalyi's (1982) conceptualization is very similar to Selye's (1975) conceptualization of stress. According to Selye (1975) stress ranges from too much (i.e., burnout) or too little (i.e., what Selye refers to as being "unlit"), with an optimal level somewhere in-between. Perhaps it is at this optimal stress level where the "flow" experience occurs; where there is just enough stress to provide an adequately challenging and stimulating

environment. Since people differ in the amount of stress they like, this might account for the variation in the stress factors, the relatively low levels of strain, and the relationship between the two. This may also explain why intrinsic factors and role factors are two of the best predictors of strains (discussed in the previous section). Both factors concern the richness or fullness of the teaching environment, and to some extent are factors which the teacher can manipulate. That is, the teaching environment need not be the same for every teacher. It may be enriched by engaging in extra activities or scaled down by choosing to do fewer and/or easier tasks.

The results of this research indicate several things about stress in teaching. First, the reported levels of stress and strain in this sample of teachers were relatively low while levels of social support, coping skills, self-esteem and personal control were all fairly high. Taken together, these results suggest that teachers sampled are quite healthy and "unstressed." Along these lines, it was also demonstrated that low levels of stress and high levels of quality social supports, self-esteem, personal control and coping are all related to low levels of depression, job dissatisfaction and physical strain. Finally, it should be emphasized that a longitudinal design would be extremely useful for making more definitive statements about the temporal ordering and causal relationships between and among stressors, strains, and moderators. A longitudinal design would also ensure that the relatively healthy complexion of the sample was not influenced by

consistency bias or history. The topic of stress in the workplace is an important one, well worth further research.

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APPENDIX A

Teachers' opinions about their teaching experiences are the focus of this questionnaire. This is part of an on-going research project at Loyola University and reflects an interest in teachers and issues important to them.

As you will see in looking at the questions, the survey deals with experiences and events at school and your reactions to them. Although the survey appears lengthy, most questions only require a rating so it should be easily finished in 15-20 minutes. Please be assured that all of your answers are completely anonymous. A large group of teachers in the Chicago metropolitan area is participating in this research, thus there is no way that your answers can be identified with you personally. Your cooperation and frank opinions are greatly appreciated.

Teacher Survey

Section I. Experiences at School

LISTED BELOW ARE SOME STATEMENTS THAT MAY REFLECT YOUR EXPERIENCES AT YOUR SCHOOL, BOTH IN THE TEACHING ENVIRONMENT AND IN INTERPERSONAL RELATIONS. READ EACH STATEMENT ON THE LEFT AND THEN MARK YOUR RESPONSE ON THE RIGHT BY CIRCLING THE ONE NUMBER THAT INDICATES HOW STRONGLY YOU AGREE OR DISAGREE WITH THE STATEMENT.

A. Teaching Experiences

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. In my role as a teacher I often have a feeling of excitement that comes from fully using all my talents	5	4	3	2	1
2. During regular school hours, the school I teach in is noisy.	5	4	3	2	1
3. The intangible rewards of teaching make my efforts all worthwhile.	5	4	3	2	1
4. The pace of the average school day is too hectic.	5	4	3	2	1
5. My work on school committees/extracurriculars seldom interferes with my classroom teaching.	5	4	3	2	1
6. I find teaching classes very difficult.	5	4	3	2	1
7. In view of the type and amount of work I do, my pay and benefits are much too low.	5	4	3	2	1
8. The temperature in my classroom is just right.	5	4	3	2	1
9. Walking down the hallway is difficult because there are so many students.	5	4	3	2	1

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
10. There are many aspects of my job that have clear beginnings and clear endings.	5	4	3	2	1
11. My role as a teacher often conflicts with my relationships with family and friends.	5	4	3	2	1
12. In my role as a teacher I often have feelings of accomplishment.	5	4	3	2	1
13. I have enough breaks during the day to feel relaxed and refreshed.	5	4	3	2	1
14. During the average day I have more work to do than I can possibly finish.	5	4	3	2	1
15. My work as a teacher involves doing the same thing over and over again giving me little sense of making any progress.	5	4	3	2	1
16. My classroom is not crowded, the students and I have enough room to be comfortable.	5	4	3	2	1
17. There is little incentive for improving my teaching methods.	5	4	3	2	1
18. Noise from the hallway frequently distracts me while I am teaching.	5	4	3	2	1
19. My job features a good balance of familiar and novel tasks.	5	4	3	2	1

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
20. At school there is a quiet place where I can go to "get away from it all" and relax undisturbed.	5	4	3	2	1
21. In view of my skills and knowledge, the job of teaching does not offer much of a challenge.	5	4	3	2	1
22. The rewards and recognition I receive for teaching are based on the quality of my work.	5	4	3	2	1
B. Interpersonal Relationships					
1. School administrators typically treat teachers in a fair and equitable way.	5	4	3	2	1
2. The teachers at school are very friendly.	5	4	3	2	1
3. Students often act towards me as if I do not have real feelings.	5	4	3	2	1
4. I have time during the school day to chat with fellow teachers.	5	4	3	2	1
5. I have input into decisions about school policy.	5	4	3	2	1
6. I feel isolated from the other teachers at my school.	5	4	3	2	1
7. Students are generally friendly.	5	4	3	2	1

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
8. I receive helpful feedback about my teaching from the administrator(s) at my school.	5	4	3	2	1

Section II. Possible Difficulties

Teaching, like other professions, sometimes is difficult. This section concerns the ways that you find are most helpful and effective in dealing with problems at school.

A. LISTED BELOW ARE SOME SITUATIONS. READ EACH ONE, AND, IN THE SPACE PROVIDED, DESCRIBE WHAT YOU MIGHT DO IF IT HAPPENED TO YOU.

1. Without consulting you, your department chairperson or immediate supervisor assigns you to teach a class that you do not want to teach.

2. You inadvertently overhear a co-worker, who has not observed your teaching, make disparaging remarks about your abilities.

3. You arrive at school to discover that the temperature in your classroom is approximately 80 degrees due to a heating malfunction.

B. LISTED BELOW ARE SOME STATEMENTS WHICH MAY REFLECT YOUR FEELINGS ABOUT DEALING WITH PROBLEMS. HOW STRONGLY DO YOU AGREE OR DISAGREE WITH THESE STATEMENTS? PLEASE CIRCLE THE ONE NUMBER THAT BEST INDICATES HOW YOU FEEL ABOUT THE STATEMENT.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. At work I find that time solves most problems.	5	4	3	2	1
2. Whenever something goes wrong at school it helps to know that most teachers are in the same boat as I.	5	4	3	2	1
3. I do not think that exercising is of any help in reducing job stress.	5	4	3	2	1
4. I often seek the advice of other teachers when I have a question or a problem related to an event at school.	5	4	3	2	1
5. It is best to take direct action when a problem at school arises.	5	4	3	2	1
6. Most problems at work aren't as bad as they first seem.	5	4	3	2	1
7. When there is a problem at school I try to overlook it.	5	4	3	2	1
8. Hobbies are a good way to take your mind off your troubles.	5	4	3	2	1
9. I view problems as challenges--not hardships.	5	4	3	2	1

C. PLEASE READ EACH QUESTION AND CHECK THE ANSWER THAT MOST CLOSRLY REFLECTS YOUR OPINION.

1. When there is a problem at work that bothers you do you find that it helps you to talk about it? (CHECK ONE)

_____ always
_____ often
_____ sometimes
_____ rarely
_____ never (PLEASE SKIP TO SECTION III, PAGE 6)

2. If it helps you to talk to someone, in whom do you feel you can confide? (CHECK ALL THAT APPLY)

_____ a co-worker
_____ my department head/immediate supervisor
_____ a friend (outside of work)
_____ spouse
_____ family member, not a spouse
_____ other, please specify _____

3. In whom do you most frequently confide? (CHECK ONE)

_____ a co-worker
_____ my department head/immediate supervisor
_____ a friend (outside of work)
_____ spouse
_____ family member, not a spouse
_____ other, please specify _____

Please answer questions 4 and 5 with your answer to #3 in mind.

4. In the past, how helpful has it been for you to talk to this person? (CHECK ONE)

_____ very helpful
_____ somewhat helpful
_____ not at all helpful

5. Please indicate how much the person does each of the following.

	Often	Sometimes	Rarely	Never
a. S/he is willing to just listen to me.	4	3	2	1
b. Offers useful advice.	4	3	2	1
c. Gives me emotional support.	4	3	2	1

	Often	Sometimes	Rarely	Never
d. Provides me with a new perspective on my problems.	4	3	2	1
e. Gives me positive feedback.	4	3	2	1
f. Makes me feel good about myself.	4	3	2	1
g. Makes me feel more confident about my abilities to handle difficulties.	4	3	2	1

Section III. Feelings.

This section concerns your feelings about yourself and your job.

A. PLEASE READ EACH QUESTION AND PLACE A CHECK MARK NEXT TO THE STATEMENT THAT MOST CLOSELY REPRESENTS YOUR ANSWER.

1. All in all, how satisfied would you say you are with teaching as a job?

_____ Very satisfied
_____ Somewhat satisfied
_____ Not too satisfied
_____ Not at all satisfied

2. Knowing what you know now, if you had to decide all over again whether to become a teacher, what would you decide?

_____ Decide without hesitation to become a teacher
_____ Have some second thoughts
_____ Decide definitely not to become a teacher

3. In general, if a good friend of yours told you that she/he was interested in becoming a teacher, what would you tell him/her?

_____ Strongly recommend teaching
_____ Have doubts about recommending teaching
_____ Strongly advise against teaching

While the previous questions have dealt with feelings about work, the following deal with more general feelings.

B. CIRCLE THE ONE NUMBER THAT BEST INDICATES YOUR RESPONSE.

How often do you feel:

	All or part of the time	A good part of the time	Some of the time	A little or none of the time
1. My mind is as clear as it used to be.	4	3	2	1
2. There is really no way I can solve some of the problems I have.	4	3	2	1
3. I find it easy to do the things I used to.	4	3	2	1
4. My life is interesting.	4	3	2	1
5. When I get what I want it's usually because I worked hard for it.	4	3	2	1
6. I feel that I am useful and needed.	4	3	2	1
7. My life is pretty full.	4	3	2	1
8. The extent of personal achievement is often determined by chance.	4	3	2	1
9. I feel hopeful about the future.	4	3	2	1
10. Bad things happen to everyone, they are a matter of fate.	4	3	2	1

How often are these true for you:

	Often True	Sometimes True	Rarely True	Never True
1. Feel that I am a person of worth, at least as much as others.	1	2	3	4
2. I am able to do things as well as most other people	1	2	3	4
3. On the whole, I feel good about myself.	1	2	3	4

C. DURING THE PAST MONTH OR SO, HOW OFTEN HAVE YOU EXPERIENCED THE FOLLOWING?

	Almost Always				Almost Never
1. dryness of the mouth and throat	5	4	3	2	1
2. insomnia	5	4	3	2	1
3. loss of appetite	5	4	3	2	1
4. compulsive eating	5	4	3	2	1
5. indigestion or queasiness	5	4	3	2	1
6. migraine headaches	5	4	3	2	1
7. pain in the neck or back	5	4	3	2	1
8. increased smoking	5	4	3	2	1
9. increased use of legally prescribed drugs, such as tranquilizers or emphetamines	5	4	3	2	1
10. difficulty getting up in the morning	5	4	3	2	1
11. hand sweating so that you feel damp and clammy	5	4	3	2	1
12. increased use of alcohol	5	4	3	2	1

Section IV. Background

The following types of general background information are needed to help us learn a little bit more about the persons who participated in this survey.

1. How long have you been teaching? _____ (years)

2. At what grade level are you currently teaching: (CIRCLE ALL THAT APPLY)

K	3	6	9	12
1	4	7	10	
2	5	8	11	

3. Gender: _____ female
_____ male

4. What is your age? _____ (years)

5. Marital Status: _____ married _____or living as married
_____ single (widowed, divorced, separated, or never married)

Please use the following space to make any further comments you might have about teaching, teacher stress or ways of dealing with problems.

We would also appreciate any comments you may have about this questionnaire. Please use the space below, or the back of this page.

Thank you for your participation.

APPENDIX B

May 21, 1984

The topic of job stress, especially in teaching, is important and has received a great deal of attention in recent years. However, there is still much to be discovered about the sources and outcomes of teachers' stress. Your school district is one of a small number in the area selected to be a part of a research project on stress conducted at Loyola University. In order that the results truly represent teachers in your area, it is important that each questionnaire be completed and returned. A stamped, pre-addressed envelope is provided for your convenience.

You may be assured that your responses are anonymous and that neither you nor your school can be identified in any way. The results of this research will be made available to all interested participants. You may receive a summary of results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. Please do not put this information on the questionnaire itself.

I would be happy to answer any questions you might have. My telephone number is: 508-3026.

Thank you for your assistance.

Sincerely,

Kerry Smith-Bandy
Project Director

KSB/mem

APPENDIX C

May 29, 1984

Last week a questionnaire asking your opinions about your teaching experiences was sent to you. Your school was selected from many in the Chicago area to take part in this research project.

If you have already completed and returned your survey, I thank you for giving it your prompt attention. If not, please do so today. It is extremely important that all teachers participate if the results are to accurately reflect the opinions of Chicago area teachers.

If by some chance you did not receive the questionnaire, or if it got misplaced, please call me (508-3026) and I will get another one in the mail to you today.

Sincerely,

Kerry Smith-Bandy
Project Director

KSB/lc

APPENDIX D

SIMPLE CORRELATION		PARTIAL CORRELATIONS										
		Coping										
	Satis	C1	C2	C3	C4	C5	C6	C7	C8	C9	CSD	OPN
Role	-.37	-.36	-.39	-.40	-.38	-.39	-.35	-.36	-.37	-.32	-.26	-.39
Social	-.40	-.37	-.40	-.41	-.38	-.40	-.38	-.40	-.38	-.34	-.37	-.54
Reward	-.54	-.50	-.53	-.53	-.51	-.53	-.49	-.51	-.50	-.48	-.45	-.54
Intrinsic	-.54	-.51	-.53	-.53	-.53	-.53	-.50	-.51	-.50	-.46	-.51	-.56
Environ	-.17	-.13	-.17	-.17	-.16	-.17	-.19	-.20	-.20	-.17	-.20	-.30

SIMPLE CORRELATION		Personal Characteristics						Social Support		
	Satis	E	P1	P2	P3	P4	PC	QUAL	QNTY	SPT
Role	-.37	-.27	-.36	-.38	-.38	-.38	-.24	-.39	-.41	-.35
Social	-.40	-.32	-.38	-.40	-.40	-.40	-.40	-.42	-.43	-.48
Reward	-.54	-.48	-.51	-.52	-.51	-.52	-.48	-.53	-.53	-.54
Intrinsic	-.54	-.42	-.50	-.52	-.51	-.51	-.46	-.53	-.54	-.56
Environ	-.17	-.20	-.16	-,17	-.16	-.17	-.23	-.16	-.17	-.25

SIMPLE CORRELATION		PARTIAL CORRELATIONS: Coping										
	Depress	C1	C2	C3	C4	C5	C6	C7	C8	C9	CSD	OPN
Role	.40	.38	.42	.42	.40	.42	.38	.41	.40	.35	.33	.39
Social	.36	.34	.37	.37	.36	.37	.34	.37	.35	.29	.24	.36
Reward	.37	.33	.36	.36	.35	.36	.30	.34	.32	.27	.24	.35
Intrinsic	.50	.46	.48	.48	.47	.48	.45	.46	.45	.40	.37	.41
Environ	.13	.09	.15	.15	.14	.15	.13	.16	.16	.13	.05	.09

SIMPLE CORRELATION		Personal Characteristics						Social Support		
	Depress	E	P1	P2	P3	P4	PC	QUAL	QNTY	SPT
Role	.40	.27	.37	.45	.41	.42	.24	.37	.41	.37
Social	.36	.25	.34	.38	.36	.37	.19	.32	.36	.33
Reward	.37	.28	.33	.35	.34	.34	.28	.34	.36	.33
Intrinsic	.50	.32	.45	.46	.45	.46	.24	.42	.44	.42
Environ	.13	.16	.13	.16	.14	.15	.07	.10	.13	.09

SIMPLE CORRELATION		PARTIAL CORRELATIONS										
		Coping										
	Strain	C1	C2	C3	C4	C5	C6	C7	C8	C9	CSD	OPN
Role	.42	.36	.42	.43	.43	.42	.40	.44	.44	.41	.35	.38
Social	.39	.33	.39	.39	.39	.38	.35	.39	.39	.35	.31	.37
Reward	.37	.33	.39	.39	.39	.39	.32	.37	.36	.33	.27	.39
Intrinsic	.35	.32	.35	.35	.36	.35	.31	.35	.34	.30	.27	.25
Environ	.29	.26	.32	.32	.32	.32	.29	.30	.31	.29	.29	.28

SIMPLE CORRELATION		Personal Characteristics						Social Supports		
	Strain	E	P1	P2	P3	P4	PC	QUAL	QNTY	SPT
Role	.42	.34	.39	.44	.44	.45	.31	.37	.39	.42
Social	.39	.30	.35	.40	.39	.39	.28	.32	.34	.39
Reward	.37	.31	.39	.35	.34	.34	.28	.37	.38	.35
Intrinsic	.35	.22	.30	.34	.33	.32	.14	.28	.29	.31
Environ	.29	.29	.33	.34	.33	.32	.27	.31	.33	.27

APPENDIX E

DEPENDENT VARIABLE: SATISFACTION

Predictor	Beta	R^2	T	Sig
Intrinsic	-.55	.29	-7.97	.000
Reward	-.54	.287	-7.75	.000
Social	-.435	.189	-5.0	.000
Esteem	.420	.176	6.0	.000
Role	-.413	.17	-5.54	.000
Intrinsic X Esteem	-.36	.13	-4.76	.001
Cope 9	.314	.09	4.04	.001
Pay	-.30	.094	3.95	.001
Cope 1	.278	.07	3.53	.005
Cope 8	.214	.046	2.67	.008
Cope 4	.207	.04	2.587	.01
Cope 6	.177	.03	2.2	.03
Environ	-.17	.03	-0.216	.03
Problem 2	-.14	.02	-1.73	.086
Supporter	.14	.02	1.73	.086
PC 1	-.124	.015	-1.63	.105
Cope 5	.07	.005	-0.866	.38
PC 4	.067	.0048	-0.870	.413
Cope 2	.05	.002	.575	.5658
PC 3	.047	.0018	.4876	.632
Cope 3	-.04	.0014	-0.4153	.651
PC 2	.031	.00099	.410	.682
Total Sup	-.03	.0008	.361	.7189
Problem 3	-.013	.0002	-0.154	.8779
Problem 1	.004	.00002	.054	.9578

APPENDIX F

DEPENDENT VARIABLE: DEPRESSION

Predictors	Beta	R^2	T	Sig
Esteem	-.60	.365	-9.13	.000
Intrinsic	.45	.20	6.25	.000
Role	.4067	.16	5.54	.000
Social	.365	.13	4.89	.000
Reward	.36	.13	4.84	.000
Cope 9	-.34	.11	-4.64	.000
PC 1	.28	.08	3.587	.0005
Supporter	-.24	.061	-3.18	.0017
Pay	.24	.061	3.18	.0017
PC 2	.237	.056	2.94	.0038
Intrinsic X Esteem	.22	.05	2.80	.006
Cope 1	-.216	.046	-2.756	.006
Cope 6	-.21	.04	-2.68	.008
Cope 4	-.177	.031	-2.24	.026
Cope 8	-.16	.03	-2.10	.04
Environ	.132	.02	1.78	.097
Total Sup	-.106	.01	-1.30	.184
Problem 2	.09	.009	1.24	.217
Master 4	.08	.006	.978	.329
Cope 7	-.035	.001	.1994	.656
Cope 5	-.032	.001	-.407	.685
Cope 2	-.031	.001	-.394	.694
Problem 3	-.025	.0006	-.312	.7552
Problem 1	-.016	.0002	-.205	.838
Cope 3	-.016	.0002	-.202	.8401
Master 3	.007	.00006	.091	.9276

APPENDIX G

DEPENDENT VARIABLE: PHYSICAL STRAIN

Predictors	Beta	R^2	T	Sig
Esteem	-.405	.164	-5.54	.000
Role	.3914	.15	5.17	.000
Reward	.3892	.15	5.14	.000
Social	.345	.119	4.5	.000
Environ	.327	.107	4.21	.000
Cope 1	-.31	.096	-3.97	.0001
Intrinsic	.304	.09	3.881	.0002
Pay	.248	.061	3.18	.0017
Role X Esteem	.248	.061	3.18	.0017
Cope 6	-.2196	.05	-2.74	.007
Problem 2	.199	.04	2.46	.015
Cope 9	-.198	.04	-2.46	.015
PC 1	.1906	.036	2.43	.01
Supporter	-.144	.024	-1.89	.06
Cope 7	-.1257	.016	-1.54	.125
Total Sup	-.115	.013	-1.41	.1606
PC 3	.101	.01	1.279	.203
Cope 8	-.083	.007	-1.011	.314
Problem 1	-.073	.005	-0.891	.374
Cope 3	.045	.002	.554	.957
Cope 4	.0126	.0002	-.153	.8787
PC 4	.0123	.00018	-.156	.8790
Problem 3	.0031	.00001	.038	.969
Cope 5	.0044	.00002	.054	.957
PC 2	-.006	.00004	-.079	.94
Cope 2	.007	.00005	.085	.9324

APPROVAL SHEET

The thesis submitted by Kerry Smith-Bandy has been read and approved by the following committee:

Dr. John Edwards, Director
Associate Professor, Psychology, Loyola

Dr. Fred Bryant
Assistant Professor, Psychology, Loyola

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

April 19, 1985
Date

John O. Edwards
Director's Signature