ABSTRACT

A STUDY OF THE IMPACT OF LIFE CHANGES ON HIGH SCHOOL TEACHER PERFORMANCE IN THE LANSING SCHOOL DISTRICT AS MEASURED BY THE HOLMES AND RAHE SCHEDULE OF RECENT EXPERIENCE

By

Elihu Carranza

The Purpose

The purpose of this study is to assess the impact of life changes as measured by the Schedule of Recent Experience on high school teacher performance defined in terms of selected Teacher Performance Variables. An analysis of the relationships between Teacher Performance Variables and Life Change Unit scores was undertaken by means of pairwise, multiple, and canonical correlation techniques. Eleven hypotheses were formulated:

Hypotheses I-VIII--There are no significant correlations between high school teachers' Life Change Unit scores and (I) days teacher was absent due to reported illness or injury; (II) frequency of teacher absenteeism; (III) duration of teacher absenteeism; (IV) requests for teacher transfer; (V) times teacher has moved;

(VI) units earned beyond Bachelor of Arts degree; (VII) student drop-outs; and (VIII) distribution of high and low student grades.

Hypothesis IX--There is no significant correlation between Teacher Performance Variables or any subset of these, when simultaneously included in a multiple regression equation, and Life Change Unit scores.

Hypothesis X--There is no significant correlation between Life Change Unit scores or any subset of these, when simultaneously included in a multiple regression equation, and Teacher Performance Variables.

Hypothesis XI--There is no significant correlation between the set of Teacher Performance Variables and the set of Life Change Unit scores.

A review of the literature revealed no studies directly related to the problem under investigation. No empirical investigations specifically concerned with the relationship between life changes and high school teacher performance, as defined in this study, have been conducted.

Methodology

The population under investigation consisted of high school teachers from three senior high schools in the Lansing School District, Lansing, Michigan, with teacher contracts for the years 1970-71 and 1971-72. A sample of N = 110 teachers out of 152 who responded to a letter soliciting teacher participation provided the basis for this study.

To test the hypotheses, data were collected on teacher life changes and performance. Life changes were measured by the Schedule of Recent Experience which comprises forty-two unique life event items divided into two categories: (1) those indicative of the life style of the individual, and (2) those indicative of occurrences involving the individual. Data on Teacher Performance Variables were collected from various sources through the Office of Research of the Lansing School District.

Findings of the Study

The tests of significance revealed the following findings:

1. There were significant, positive correlations between teacher Life Change Unit scores and teacher absenteeism due to reported illness or injury;
2. There were significant, positive correlations between teacher Life Change Unit scores and the number of times the teacher changed residence;
3. There were significant, negative correlations between teacher Life Change Unit scores and the units earned by the teacher beyond the Bachelor of Arts degree;
4. There was a significant, negative correlation between student drop-outs and transfer requests by the teacher;

5. There were significant, negative correlations between the teacher performance variable units earned and (1) absence-illness, (2) absence-frequency, and (3) absence-duration variables;
6. There were significant correlations between student drop-outs and (1) percent A's and B's, and (2) percent D's and F's distributed to students--the former was negative; the latter positive;
7. The multiple correlation coefficients between Teacher Performance Variables (as predictors), when simultaneously included in a regression equation, and Life Change Unit scores (as criterion variables) were significant;
8. The multiple correlation coefficients between Life Change Unit scores (as predictors), when simultaneously included in a regression equation, and Teacher Performance Variables (as criteria) were significant; and
9. The canonical correlation coefficient between the set of Teacher Performance Variables and the set of Life Change Unit scores was significant.

In sum, this study adduces evidence to support the thesis that life changes and selected Teacher Performance Variables are significantly correlated. Moreover, the evidence indicates that high life changes are associated with the less desirable aspects of the Teacher Performance Variables.

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CHAPTER I

THE PROBLEM

Toffler claims that millions of ordinary, psychologically normal people will suffer "future shock" within the next three short decades.[1] The term "future shock" denotes the consequent condition resulting from inducing a shattering and disorientating stress in individuals by subjecting them to change at too rapid a pace in too short a time.[2] Future shock thus defined has social and psychological implications and consequences for all.

There is now a growing body of evidence that supports the claim that acceleration of change beyond the limits the human organism can absorb results in both physical and psychological distress, the effects of which may lead to illness or breakdown.[3] Such indiscriminate acceleration of change may not

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[1] Alvin Toffler, Future Shock (New York: Random House, 1970), p. 11.

[2] Ibid., p. 4.

[3] John Cassel; "Social Science Theory as a Source of Hypotheses in Epidemiological Research," American Journal of

only be an important factor in undermining the health of those least able to adapt but may be a crucial factor in the erosion of the ability of millions to act rationally on their own behalf much less on the behalf of others.[4] If such claims prove valid, the effect of future shock (in any of its diverse manifestations) on teacher performance has profound implications for the education of children as well as the education of their teachers.

According to Toffler the lesson for education is clear. Education's ". . . prime objective must be to increase the individual's 'cope-ability'--the speed and economy with which he can adapt to continual change."[5] For teachers, the lesson is no

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Public Health, Vol. 54, No. 9 (September, 1964), 1482-88; see also Eli M. Bower and William G. Hollister, Behavioral Science Frontiers in Education (New York: John Wiley & Sons, Inc., 1967), pp. 26-28; see also George W. Brown and J. L. T. Birley, "Crises and Life Changes and the Onset of Schizophrenia," Journal of Health and Social Behavior, Vol. 9, No. 3 (September, 1968), 203-214; see also Frank A. Pedersen and Eugene J. Sullivan, "Relationships Among Geographical Mobility, Parental Attitudes and Emotional Disturbances in Children," American Journal of Orthopsychiatry, Vol. 34 (April, 1964), 575-580; see also Richard H. Rahe, Jack L. Mahan, Jr., and Ransom J. Arthur, "Prediction of Near-Future Health Change from Subjects' Preceding Life Changes," Journal of Psychosomatic Research, Vol. 14 (December, 1970), 401-406; see also T. Stephenson Holmes and Thomas H. Holmes, "Short-Term Intrusions into the Life Style Routine," Journal of Psychosomatic Research, Vol. 14 (June, 1970), 121-132.

[4]Toffler, op. cit., p. 305.

[5]Ibid., p. 357.

less clear although perhaps more difficult to realize. The teacher must capture control of the acceleration thrust by devising ways to achieve cope-ability in their students as well as for themselves. Also, teacher professionalism demands an open and direct teacher involvement that creates experiences for learning and integrating coping strategies for the mediation and management of change. Such may require, however, on the part of many teachers, a recognition of and an awareness for the negative impact of future shock particularly on the performance of teachers. The acquisition of such a perspective, i.e., one that anticipates the direction and rate of change, will be enhanced if we are able to effectively demonstrate that if teachers experience rapid life changes and are not adequately prepared to cope with such rapid life changes, then the effects of future shock are bound to have a negative impact on the teacher and therefore teacher performance. The underlying assumption is that there are discoverable limits beyond which, if the uncontrolled acceleration of change occurs, teachers will experience disorientation, inhibition of rational processes, in short, a "disease of change."[6] Such a malady of rapid change will have profound implications and consequences for teacher performance as well as the related student performance.

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[6]Ibid., p. 4.

This study hypothesizes that such limits are discoverable and measurable in terms of an instrument designed to measure the occurrence and frequency of recent life changes and certain teacher related variables.

Purpose of the Study

The purpose of the study, then, is to determine the impact of life changes, measured by the Holmes and Rahe Schedule of Recent Experience (SRE), on high school teacher performance, defined in terms of certain teacher related variables.

The Schedule of Recent Experience questionnaire comprises 42 items descriptive of life change events requiring change in individual adjustment ranging from matters of occupation, residence, community, family and marriage to matters of religion, personal habits and health.[7] (See Appendix A.) The Schedule combined with the Social Readjustment Rating Scale (SRRS), which assigns an empirically derived numerical weight to each type of life change, renders a total Life Change Units (LCU) figure for

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[7] Thomas H. Holmes and Minoru Masuda, "Life Change and Illness Susceptibility" (presented at the Annual Meeting of the American Association for the Advancement of Science, December, 1970, Chicago, Illinois), (Preprint); see also Richard H. Rahe, "Life-Change Measurement as a Predictor of Illness," Proceedings of the Royal Society of Medicine, Vol. 61 (November, 1968), 1124-1126.

each respondent. (See Appendix B.) Extensive research by Holmes and Rahe indicates that life changes tend to cluster significantly around health changes such that the magnitude of recent life changes correlates significantly with the onset of illness as well as the seriousness of disease. Here "disease" describes "a wide range of psychiatric, medical, and surgical diseases."[8] In sum, Holmes postulated, and a growing body of evidence confirms, ". . . that life change events, by evoking adaptive efforts by the human organism that are faulty in kind and duration, lower 'bodily resistance' and enhance the probability of disease occurrence."[9]

It is a basic assumption of the study that the Schedule of Recent Experience and the Social Readjustment Rating Scale are reasonably valid and accurate instruments, data from which, when assessed in conjunction with other appropriate data, demonstrate that rate of change in a person's life is closely related to the state of his physical and mental well-being.[10] Moreover, a logical extension of the basic assumption yields the reasonable consequent that too rapid or abrupt changes in living conditions inhibit effective

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[8]Holmes and Masuda, op. cit., p. 9.

[9]Ibid.

[10]Toffler, op. cit., p. 293.

functioning of a person's adaptive mechanisms which, in the case of teachers, can have a negative impact on teacher performance. The latter proposition, however, is more closely related to another basic assumption made in this study: "man . . . is a biosystem with a limited capacity for change."[11] When this capacity is approached or overloaded, the consequences can be detected and diagnosed not only in terms of illness or breakdown but, in the case of teachers, as an erosion in the quality of teacher performance. It is the latter assumption this study proposes to explore.

Assumptions often dictate a methodology. As a result, the study was developed as a means for initially determining the relation between life change events of high school teachers and teacher performance defined in terms of certain teacher related variables. Subsequently an assessment of the relation to determine negative or positive impact of life changes on teacher performance suggested, together with the assumptions, two closely related preliminary questions:

1. What is the relationship between life changes and high school teacher performance defined in terms of certain teacher related variables? and

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[11]Ibid., p. 304.

2. Is the impact of life changes on high school teacher performance (defined in terms of certain teacher related variables) negative or positive?

Both questions assume that the phrases "relationship between life changes and high school teacher performance" and "impact of life changes on high school teacher performance" denote sufficient and not necessary causes.

The research question comprises the two preliminary questions above:

> Is the relationship between the magnitude of life changes significantly correlated with high school teacher performance, the latter being defined in terms of certain teacher related variables?

The research question the study is designed to explore is intended to bring about a better understanding of the complex relations between changes and reactions to changes as crystallized in teacher performance.

In sum, the purpose of the study is to exact a determination of negative or positive impact of life changes on teacher performance by means of an assessment of the correlations between life changes as measured by the Schedule of Recent Experience and certain teacher related variables.

Significance of the Problem

Generally, the problem under investigation postulates that magnitude of life changes and certain teacher related variables (teacher performance) are closely associated variables.

A review of the literature reveals no studies directly related to the problem under investigation. Some research has been done, as previously noted, on the relationships between life changes and disease, broadly interpreted. However, no empirical investigations specifically concerned with the relationship between life changes and high school teacher performance, as defined in this study, have been conducted.

It appears self-evident that the more we know about the complex of relations contingent upon the rapid and accelerating pace of change, the more we shall come to understand the malady associated with it. In this regard, it is important to note that Toffler's conception of change emphasizes the rate of change. For Toffler, ". . . rate of change has implications quite apart from, and sometimes more important than, the directions of change."[12] Future shock is a result of not merely change but of the acceleration of change beyond the limits a human organism can absorb, for

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[12] Ibid., p. 5.

"change is not merely necessary to life; it is life."[13] The crucial question Toffler's analysis raises is whether man has the capacity for adaptation.[14] For change continues to accelerate--unevenly, but precisely the unevenness of change together with the measuring rod of Time enables man to know that change is accelerating.[15]

Not only is change accelerating, however, but the accelerative thrust of change is altering the pace of life. According to Toffler, it is unfortunate that neither psychologists nor sociologists have met this challenge for the behavioral sciences, since the pace of life is a crucial variable profoundly influencing behavior.[16]

Nevertheless, such does not mean that Toffler's concern and admitted fascination with the topic of change is not shared by others. For example, the Greek philosopher Heraclitus the Obscure (c540-c470 B.C.) was perhaps the first to note that "Everything is on the move," i.e., that the process of change is perpetual and

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[13] Ibid., p. 304.

[14] Ibid., p. 19.

[15] Ibid., pp. 21-34.

[16] Ibid., pp. 35-36 and p. 42.

ubiquitous.[17] Heraclitus is often quoted as saying ". . . one cannot step twice into the same river," for it, like all things, is ever changing.[18] It was Cratylus (c5th Century B.C.), however, a Heraclitean, who presented Western civilization with perhaps the earliest formulation of "future shock" when he, in reaffirming Heraclitus' views, stated that in a world of constant change one cannot step into the same river once, much less twice.[19] The views of Heraclitus and Cratylus had radical implications for epistemology, an analysis of which falls outside the scope of this study. Nevertheless, both serve as reminders that different conceptions of change such as "rapid change," "accelerating change," "pace of life," "life changes," etc. have a history deeply rooted in human thought which educators can no longer afford to neglect.

Other writers and researchers support this view. Bower, for example, reminds his readers that Hippocrates thought change primarily responsible for disease and ". . . that changes in living conditions which are too rapid or abrupt do not permit adaptive

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[17]Kathleen Freeman, The Pre-Socratic Philosophers, A Companion to Diels, Fragmente der Vorsokratiker (Cambridge: Harvard University Press, 1966), p. 115.

[18]Ibid., p. 114.

[19]Ibid., p. 285.

mechanisms to function effectively."[20] Cassel concluded that ". . . disproportionately rapid rates of change in any one of the four linked open systems . . . the physiological, psychological, social, and cultural, could, by producing strains on the others, lead to breakdown."[21] A study by Brown and Birley supports the view that certain kinds of crises and life changes appear ". . . to increase the chances of patients becoming disturbed after such changes."[22] Pedersen and Sullivan, in their study of emotional disturbances in military children, concluded that parental attitudes about geographical relocation were responsible for a significant difference between the parents of disturbed military children and the parents of normals.[23] Hoffer claims that drastic change leads to a deeper and more lasting uneasiness, and "that a population undergoing drastic change is a population of misfits. . . ." Furthermore,

> we can never be really prepared for that which is wholly new. We have to adjust ourselves, and every radical adjustment is a crisis in self-esteem: we undergo a test, we have to prove

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[20] Bower and Hollister, op. cit., p. 27.

[21] Cassel, op. cit., p. 1486.

[22] Brown and Birley, op. cit., p. 203.

[23] Pedersen and Sullivan, op. cit., pp. 575-580.

> ourselves. It needs inordinate self-confidence to face drastic change without inner trembling.[24]

But lest one be misled into thinking that only drastic or too rapid life changes are significant, studies reveal that even minor life changes (low Life Change Unit scores) are followed subsequently by illness, although the health changes were minor in degree or did not require medical attention.[25]

Bower summarizes the preoccupation with change when he writes that:

> we do not need more formidable evidence in order to implicate rapid change as a villain unless our society can build into institutions experiences by which the mediation and management of change can be learned and integrated within the ego-processes of individuals.[26]

If this claim is correct and if "our educational system plays a major role in the process of change and does its share in guiding the direction of such change," then the significance of the problem under investigation is apparent.[27] An analysis of the

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[24]Eric Hoffer, The Ordeal of Change (New York: Perennial Library, 1963), p. 3.

[25]Holmes and Holmes, op. cit., pp. 121-132; see also Rahe, Mahan, and Arthur, op. cit., pp. 401-406.

[26]Bower and Hollister, op. cit., pp. 27-28.

[27]W. Fred Totten and Frank J. Manley, The Community School, Basic Concepts, Function, and Organization (Galien, Michigan: Allied Education Council, 1969), p. 11.

problem will constitute a firm step toward determining how teachers and those who train them ". . . can be helped to manage changes in an enhancing manner."[28]

Definition of Terms

The following terms have significance for educators concerned with the relation between life changes and teacher performance. These are stipulative definitions proposed for clarity and consistency.

1. Future Shock is ". . . the distress, both physical and psychological, that arises from an overload of the human organism's physical adaptive systems and its decision-making process."[29]
2. Rate of Change refers ". . . to the number of events crowded into an arbitrarily fixed interval of time."[30]
3. Rapid Change refers to a higher rate of change relative to the occurrence of another process. (Toffler appears to hold a Heraclitean view of change as process. "All 'things' . . . are, in reality, not things at all, but

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[28]Bower and Hollister, op. cit., p. 28.

[29]Toffler, op. cit., p. 290.

[30]Ibid., p. 22.

processes. . . . Change is, therefore, necessarily relative."[31])

4. Acceleration of Change is a relative increase in the rate of change.

5. Direction of Change refers to ". . . destinations toward which change carries us. . . ."[32]

6. Life Change (or Alteration of Life Style) refers to ". . . a broad spectrum of social interaction ranging from matters of occupation, residence, community, family, and marriage, to matters of religion, personal habits, and health," requiring some adaptive or coping behavior on the part of the individual involved.[33] In this study the terms "life change" and "life event" are used interchangeably.

7. Schedule of Recent Experience (SRE) is a paper pencil questionnaire comprising 42 items descriptive of occurrence and frequency of life changes. The items were empirically derived from clinical experience.

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[31]Ibid., p. 21.

[32]Ibid., p. 5.

[33]Rahe, op. cit., p. 1124; see also Minoru Masuda and Thomas H. Holmes, "The Social Readjustment Rating Scale: A Cross-Cultural Study of Japanese and Americans," Journal of Psychosomatic Research, Vol. 11 (August, 1967), 227.

8. Social Readjustment Rating Scale (SRRS) assigns an empirically determined magnitude to each of the 42 life change items ". . . according to the amount, severity, and duration of adjustment each is perceived to require."[34] (Also known as Life Units Scale.)

9. Life Change Unit (LCU) is an empirically determined number assignment for each of the 42 life change items of the SRE ranging from 11 for "minor violations of the law" to 100 for "death of spouse."

10. High School designates a three year school with grades ten, eleven, and twelve.

11. High School Teacher denotes a certificated secondary education person teaching either full or part time in the high school.

12. Teacher Related Variables are: (1) teacher absenteeism due to illness, (2) teacher absenteeism-frequency, (3) teacher absenteeism-duration, (4) requests for teacher transfer or reassignment, (5) number of times teacher has moved, (6) units or credits earned beyond the Bachelor of

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[34] Holmes and Holmes, op. cit., p. 121; see also Minoru Masuda and Thomas H. Holmes, "Magnitude Estimations of Social Readjustments, Journal of Psychosomatic Research, Vol. 11 (August, 1967), 219.

Arts degree, (7) student drop-outs, and (8) distribution of high and low student grades.

13. Teacher Performance is a construct of teacher related variables.

14. Drop-out is a high school pupil who has been officially classified as a drop-out by the Child Accounting section of the School District.

Hypotheses to Be Tested

There is one basic issue to be explored in this thesis: Teacher performance is significantly affected by life changes.

Research Hypothesis: There are no significant correlations between high school teachers' Life Change Unit (LCU) scores as measured by the Schedule of Recent Experience (SRE) and selected variables of high school teacher performance.

Null Hypotheses I-VIII: There is no significant correlation between high school teachers' LCU scores and

I--days teacher was absent due to reported illness or injury;

II--frequency of teacher absenteeism;

III--duration of teacher absenteeism;

IV--requests for teacher transfer or reassignment;

V--times the teacher has moved;

VI--units beyond the Bachelor of Arts degree;

VII--student drop-outs; and

VIII--distribution of student high and low grades.

Null Hypothesis IX: There is no significant correlation between teacher performance variables or any subset of these, when simultaneously included in a multiple regression equation, and LCU scores.

Null Hypothesis X: There is no significant correlation between LCU scores or any subset of these, when simultaneously included in a multiple regression equation, and teacher performance variables.

Null Hypothesis XI: There is no significant correlation between the set of teacher performance variables and the set of LCU scores.

Delimitations of the Study

This study proposes an exploration and an assessment of the relation between high school teacher performance, as defined, and life changes. As such it will not seek to establish necessary and sufficient cause-effect relationships between Life Change Unit scores and teacher related variables of (1) teacher absenteeism due

to illness, (2) teacher absenteeism-frequency, (3) teacher absenteeism-duration, (4) requests for teacher transfer or reassignment, (5) times teacher has moved, (6) teacher units or credits earned beyond the Bachelor of Arts degree, (7) number of student drop-outs, and (8) distribution of high and low student grades. Nor will the study seek to identify, establish, or assess relations involving teacher performance, as defined, and related secondary variables of student achievement, school curriculum (including special programs), or community involvement. All such questions fall beyond the purpose and scope of the study.

The population from which the sample for this study is drawn comprises the populations of high school teachers of three of the four 3-year high schools of the Lansing School District in Lansing, Michigan. The fourth high school is a new school undergoing organizational adjustments related to differentiated staffing. Differentiated staffing posed serious research problems related to the collection of data required for this study. Consequently, the high school teachers of only three high schools were used.

A sample of 152 senior high school teachers responded to a letter soliciting teacher participation in this study. A total of forty-two subject-questionnaires were rejected for missing data,

insufficient data or incorrect entries, leaving a sample of N = 110 for use in this study.

Generalizations based on the findings of this study must therefore reflect the purpose and scope of the study as well as the characteristics of the sample.

Summary and Overview

Studies by Holmes, Rahe, Cassel, Arthur, Masuda and other researchers reveal high correlations between life changes or life events and the onset and seriousness of illness. This thesis is a quantitative analysis of the impact of life changes on selected variables of high school teacher performance in the Lansing School District as measured by the Holmes and Rahe Schedule of Recent Experience (SRE).

Chapter 2 will review the literature relevant to the impact of change, rapid change, and life change on the individual as described by researchers and having implications for educators.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews the literature dealing generally with the impact of change, rapid change, and life change on the individual as described by researchers and having broad implications for educators. The first section of the chapter introduces the topic of change, emphasizing those aspects of change related to felt experience. The second section constitutes a descriptive account of rapid change in terms of technological innovation and cope-ability. A review of the literature dealing with life change and illness is undertaken in the third section. The fourth and last section is a summary and constitutes the setting for the problem under investigation: Magnitude of life change and certain teacher related variables (teacher performance) are closely associated variables.

Change and Felt Experience[1]

"'Change' is about the most important word in the world today."[2] So remarked Stevenson while campaigning for the Presidency of the United States in 1952. Since then "change" has become an ultimate term in contemporary rhetoric.[3] According to Bennis, it would appear that we have advanced beyond deciding whether change is inevitable for ". . . most students of our society agree that the one major invariant is the tendency toward movement, growth, development, process [in short]: change."[4] The central theme of this country has been ". . . its preoccupation, its obsession with change."[5] Such an obsession would appear to gain strength from the view of the world and change expressed by

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[1]See footnote 8 on page 23.

[2]"The Stevenson Touch," Intellectual Digest, Vol. 2, No. 5 (January, 1972), 31.

[3]Richard M. Weaver, "Ultimate Terms in Contemporary Rhetoric," Perspectives USA, No. 11 (Spring, 1955), 123.

[4]Warren G. Bennis, Kenneth D. Benne, and Robert Chin (eds.), The Planning of Change (2d ed.; New York: Holt, Rinehart and Winston, Inc., 1969), p. 2.

[5]Warren G. Bennis, "Changing Organizations," The Planning of Change, ed. Warren G. Bennis, Kenneth D. Benne, and Robert Chin (2d ed.; New York: Holt, Rinehart and Winston, Inc., 1969), p. 568.

Oppenheimer when he said that ". . . the world alters as we walk in it."[6] In brief, the Heraclitean principle of ubiquitous and continuous motion, of movers and moved alike, has permeated our vision of the world. And if the world alters as we walk in it, what of one's views, perspectives or perceptions of the world, one's relations in it and to it?

It would appear that one's perception of the world and relation to it as well as relations within it are in large measure dependent on (if not caused by) the changes one experiences and one's reaction to such changes. Chin and Benne, for example, claim that change and perceptual orientations are closely associated.

> At the personal level, men are guided by internalized meanings, habits, and values. Changes in patterns of action or practice are, therefore, changes not alone in the rational informational equipment of men, but at the personal level, in habits and values as well and, at the sociocultural level, changes are alterations in normative structures and in institutionalized roles and relationships, as well as in cognitive and perceptual orientations.[7]

In this way it could be said that a person can change much that is happening to him by changing his "personal" meanings of "actual"

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[6] J. Robert Oppenheimer, "Prospects in the Arts and Sciences," Perspectives USA, No. 11 (Spring, 1955), 10-11.

[7] Robert Chin and Kenneth D. Benne, "General Strategies for Effecting Changes in Human Systems," The Planning of Change, ed. Warren G. Bennis, Kenneth D. Benne, and Robert Chin (2d ed.; New York: Holt, Rinehart and Winston, Inc., 1969), p. 43.

events, i.e., by changing his perceptions about himself and his perceptions of his relations to others and his relation to the world in which he lives.

All of this is by way of saying that people react according to what events mean to them. Many practitioners and researchers have known that the behavior of people could not be understood simply in terms of the event but rather in terms of what the "actual" event meant to the person. To ignore this dimension in an assessment of the impact of changes, rapid changes, and life changes on individuals would appear to construe the human experience of events much too narrowly.

> Meaning is not only about things and it is not only a certain logical structure, but it also involves felt experiencing. Any concept, thing, or behavior is meaningful only as some noise, thing, or event interacts with felt experiencing. Meanings are formed and had through an interaction between experiencing and symbols or things.[8]

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[8]Eugene T. Gendlin, Experiencing and the Creation of Meaning (New York: The Free Press of Glencoe, 1962), p. 1. According to Gendlin, "meaning is formed in the interaction of experiencing and something that functions symbolically. Feeling without symbolization is blind; symbolization without feeling is empty." (p. 5) Experiencing, as Gendlin uses the term, is a process which includes two other processes: perceiving and thinking. "Subjectively felt experiencing (perceiving included) consists of trains of feelings, a continuous stream of change." (pp. 239-40 fn.) Other perhaps useful phrases are "felt meaning," "experienced meaning," "our experience of a meaning," "our having a meaning," "our phenomenological apprehension of meaningfulness," "the meaningfulness to us of a symbol or thing or

According to Asch, human beings choose and act on the basis of what is seen, felt, and believed; "meanings and values are part and parcel of our actions." For example, when a person is mistaken about things, he acts in terms of his erroneous motives, ". . . not in terms of things as they are."[9]

A similar emphasis on felt experiencing or felt meaning is expressed by Lawrence when he asserts that what determines behavior are "code items" rather than ". . . the events with which the items are associated; i.e., we react more to our symbolic representation of things than to the things per se."[10]

In a similar vein, Combs has claimed that what affects human behavior are the meanings existing within the individual. For Combs, "it is feelings, beliefs, convictions, attitudes and understandings of the person who is behaving that constitutes the

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experience," or the "feel of a meaning." (p. 45) These phrases and others "name the experienced dimension of meaning, as [one] experiences it." (p. 45) Thus "our experience of meaning" is one dimension of meaning; another is "the relations of symbols to each other and to objects." (p. 45)

[9]S. E. Asch, Social Psychology (New York: Prentice-Hall, 1952), p. 646.

[10]Douglas H. Lawrence, "The Nature of a Stimulus: Some Relationships Between Learning and Perception," Psychology: A Study of a Science, Vol. 5, ed. Sigmund Koch (New York: McGraw-Hill, 1963), p. 189.

directing forces of behavior."[11] Combs, like other perceptual psychologists, has based such a claim on the premise that "all behavior is a product of the perceptual field of the behavior at the moment of action."[12] To understand and to change behavior, from this perceptual view, requires ascertaining the meanings that exist for a particular person. It is assumed that such meanings can be known. "To understand behavior we need to understand the personal meanings existing for the people who are behaving," otherwise ". . . we may make serious errors in our efforts to deal with them."[13]

If, then, behavior is viewed as a function of perceptions and perceptions include what other psychologists have labeled the first (sensory) and the second (symbolic) signalling systems, then it would appear that the relation between an individual and his environment is essentially a transactional relation.[14] The scope

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[11]Frank McLaughlin, "Conversation, Two Humanists," Media and Methods, Vol. 8 (December, 1971), 24.

[12]Arthur W. Combs, "A Perceptual View of the Adequate Personality," Perceiving, Behaving, Becoming: A New Focus for Education, ed. Arthur W. Combs (Washington, D.C.: Association for Supervision and Curriculum Development, National Education Association, 1962), p. 50.

[13]McLaughlin, op. cit., p. 27.

[14]The first and second signalling systems are two of three functional levels of the central nervous system distinguished by

and depth of such a transaction, Combs has suggested, depend on at least four characteristics of the individual's perceptual field: (1) the view of the self, (2) the degree of identification with others, (3) the degree of openness to experience and acceptance, and (4) the richness and the availability of the individual's perceptual field.[15]

Such a perceptual view of behavior would appear to ". . . put back into the center the immediate and personal nature of awareness, responsibility, choice, and action," so that the individual

> . . . stands at the creative, choosing focus of a moving web of past antecedents and future consequences that branch out from our present choices and actions, propagating and amplifying themselves indefinitely.[16]

Russian experimentalists. (1) "the first signalling system, [is] a primary conditional reflex system formed from the individual's direct experience with objects and events;" and (2) "the second signalling system, [is] a secondary conditional reflex system formed from the individual's indirect experience--i.e., his knowledge about subjects and events and their relationships." From Marjorie B. Creelman, The Experimental Investigation of Meaning (New York: Springer Publishing Company, Inc., 1966), p. 19.

[15]Combs, op. cit., p. 51. Note: In fairness to Combs, he uses the four characteristics noted above to describe "adequate" persons. I have stated his four characteristics in a general way to apply to persons.

[16]John Platt, Perception and Change, Projections for Survival (Ann Arbor: University of Michigan Press, 1970), pp. 70 and 72.

Such a view of man was the basis for Fromm's analysis of the "productive" human being. The productive man for Fromm is a man in possession of a certain kind of orientation toward the world. Such an orientation constitutes "a fundamental attitude," or "a mode of relatedness" covering all realms of human experience: the mental, the emotional, the sensory responses to things, to other persons, and to oneself.[17] "Productiveness," according to Fromm, means that a person "experiences himself as the embodiment of his powers . . . and at the same time that they [the person's powers] are not masked and alienated from him."[18]

Thus, productiveness is essentially the process of self-actualization of the potentialities of man, i.e., the use of man's powers. By powers, Fromm means "power of = capacity" and not "power over = domination."[19] When man uses his powers productively, he experiences the world in two ways: (1) reproductively, and (2) generatively. One experiences the world reproductively by perceiving actual events "in the same fashion as a film makes a

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[17]Erich Fromm, Man for Himself, An Inquiry into the Psychology of Ethics (Greenwich, Connecticut: Fawcett Publications, Inc., 1947), p. 91.

[18]Ibid.

[19]Ibid., p. 94.

literal record of things photographed" requiring, of course, the active participation of the individual's mind. One experiences the world generatively "by conceiving it, by enlivening it and re-creating this new material through the spontaneous activity of one's own mental and emotional powers."[20]

> The normal human being is capable of relating himself to the world simultaneously by perceiving it as it is and by conceiving it enlivened and enriched by his own powers. If one of the two capacities is atrophied, man is sick; but the normal person has both capacities even though their respective weights differ. The presence of both reproductive and generative capacities is a precondition for productiveness; they are opposite poles whose interaction is the dynamic source of productiveness.[21]

A more specific characteristic of the productive orientation of normal man reveals that productive thought is determined by the nature of both the object and subject in interaction.[22] Such implies that productive thought is perspectivistic, i.e., "it grasps all conceivable perspectives and dimensions, not only the practically relevant ones."[23] The felt experience of the productive thinker and the object in his perceptual field constitutes a

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[20]Ibid., p. 95.

[21]Ibid., p. 97.

[22]Ibid., p. 111.

[23]Ibid., p. 109.

relationship which stimulates the thinker in the first place. Moreover, the process of productive thinking is essentially a creative process stimulated by the interest of the thinker. The person who becomes aware of and productively uses his powers "gains in strength, faith, and happiness, and is less and less in danger of being alienated from himself. . . ."[24] He becomes a person who achieves what Maslow calls "peak experiences," i.e., moments "in the individual's life when he is functioning fully, feels strong, sure of himself, and in complete control."[25]

The relative atrophy of either the generative or the reproductive capacities of a person yields sickness according to Fromm. A relative loss of the generative capacity, for example, leads to an impoverishment of the person's world view, i.e., "his view of reality is . . . distorted because of its lack of depth and perspective."[26] Since such a person is "incapable of penetrating below the surface to the essential, and of visualizing what is not yet apparent, . . . he is apt to err when more than manipulation of immediately given data and short-range aims are involved."[27]

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[24]Ibid., p. 231.

[25]Frank G. Goble, The Third Force, The Psychology of Abraham Maslow (New York: Pocket Books, 1970), p. 56.

[26]Fromm, op. cit., p. 97.

[27]Ibid., pp. 96-97.

Similarly the relative atrophy of the reproductive capacity of perceiving actuality yields a distortion in a person's world view in that such a person "interprets events in terms of his own feelings, without reference to, or at least without proper acknowledgement of, what goes on in reality."[28] In either case, such persons are in possession of something less than a realistic perception of the world, and such is one of the characteristics that distinguishes Maslow's "self-actualizing" individual or Fromm's "productive" person from the "disturbed person," i.e., the emotionally sick and cognitively wrong person.

In Maslow's words, "Neurosis, psychosis, stunting of growth--all are, from this point of view, cognitive diseases as well, contaminating perception, learning, remembering, attending and thinking."[29] Given the above, it would be a mistake to assume that the topic of change is divorced from these considerations or to treat change as if man were merely a passive organism to whom change merely happens.

> Man, the organism, does not passively await given stimuli from his environment in order to respond. He takes

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[28] Ibid., p. 96.

[29] Abraham H. Maslow, Toward a Psychology of Being (2d ed.; Princeton: D. Van Nostrand Co., Inc., 1968), p. 203.

stimuli as furthering or thwarting the goals of his ongoing action.[30]

Truly, as Chin has stated, "the web of ramifications of a change . . . is real and necessitates some refined orientations about it."[31] Such orientations have been lacking. For one thing the American process of change ". . . is not guided by a set of sharply defined master symbols that tell just what the change is about."[32]

However, not only are such master symbols lacking, but the nature of the American value pattern, one which both breeds and breeds on changes piled upon changes in an unrestrained display of novelty, diversity, and transcience makes for considerable unsettlement and confusion in the personal adjustments of individuals.[33] The point is well established by Toffler in Future Shock.

Today, man sees and feels change piled upon change to the extent that Platt, for example, finds it difficult to believe that

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[30]Chin and Benne, op. cit., p. 43.

[31]Robert Chin, "Some Ideas on Changing," Perspectives on Educational Change, ed. Richard I. Miller (New York: Appleton-Century-Crofts, 1967), p. 326.

[32]Talcott Parsons, "Youth in the Context of American Society," Youth: Change and Challenge, ed. Erik H. Erikson (New York: Basic Books, Inc., 1963), p. 96.

[33]Platt, op. cit., pp. 96 and 101.

such conglomerations of changes are not pressing mankind toward another "jump in evolution."[34] Platt's reasoned argument is worth noting:

> . . . new technical developments almost necessarily force all mankind to communicate and to interact more and more strongly, to become more and more closely knit together, whether we like it or not. This is producing great new problems and great new national and international stresses. These stresses may yet kill us. But if we have the sense and the will to solve these problems and to learn how to survive together over the next few years, it seems almost inevitable that we will move toward some wholly new form of human organization and interaction around the world.[35]

The changes, however, that Platt has in mind are not merely technological and social changes, for such changes "in a broad sense . . . are also biological."[36] According to Platt, they are biological in that man's greatest achievements both in the sciences and in large scale social organization are shaped by man's biological demands, his emotions, and his brain tissue. At the same time, however, "these new developments also react back and change man's biology," affecting man's foods, drugs, habitat, health, population, peace, and "his interrelations with

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[34]Ibid., p. 120.

[35]Ibid.

[36]Ibid., p. 119.

the rest of mankind and with all the rest of the biological world of plants and animals that he multiplies and destroys."[37]

Moreover, Platt's view of the world and change has raised important questions concerning a high-interaction society. For Platt, as noted above, changes piled upon changes force mankind to communicate and to interact more closely, more strongly, and more independently of whether it suits anyone.[38] Such "high-intensity" communications mean "high-intensity" interactions and "real communication is interaction."[39]

> Today, our new picture of perception and of communication is bringing us around on a scientific basis to Martin Buber's point of view. Buber said, "We do not see 'its,' but 'I-its'." Our relation to objects of the world is an interaction relation, which is what the perception story has told us.[40]

The quality of the relationships created by "high-intensity" interactions, symbolized by Buber's "I-it" and "I-thou," signals a society in which the question of the prediction of the behavior of people, i.e., control, looms ominous. For given Platt's view of communication and interaction, it is impossible to predict another

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[37] Ibid.

[38] Ibid., p. 120.

[39] Ibid., pp. 111 and 113.

[40] Ibid., p. 114.

person's behavior. In communicating with another ". . . the other person becomes unpredictable because our communication makes him part of ourselves. We are members, one of another."[41]

> . . . in this same sense one cannot predict the behavior of a society, because the very basis of society is communication-interaction. A single act in the brain of a single individual can change the whole future of the world . . . because we are an intercommunicating group. And in this sense the future of society cannot be predicted any more accurately or scientifically than my own future. . . .[42]

Essentially, then, the impossibility of predicting the future society rests on the assumption that "the freedom of man makes him unpredictable."[43] Man "is continually open to change, adapting and creating at rates we should not have believed possible before this generation."[44] For Platt, high-intensity interaction begotten by high-intensity communication (i.e., "the new picture of perception and communication") has created a collective existentialism--

> a collective existentialism, in which the world is decided on afresh at every moment, and where no one, neither the fathers nor the books nor God nor a theory of what is best, makes the rules for us except as we choose them freely anew at every moment.[45]

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[41]Ibid., p. 115.

[42]Ibid., pp. 115-116.

[43]Ibid., p. 158.

[44]Ibid.

[45]Ibid.

Platt's world, it would appear, like Oppenheimer's, changes as we walk in it, and the death of permanence, it would also appear, is the only event that is permanent.

For Oppenheimer, however, "to assail the changes that have unmoored us from the past is futile, and in a deep sense . . . wicked."[46] What must be done, he claims, is to recognize the changes and to learn what resources are available. Such a perception of the world and change is creative because it is open-ended, (in Combs' sense of the word) and in contradistinction to a closed system of thought which stifles creativity, innovation, and leads to alienation or dehumanization.[47] The open-end quality of Oppenheimer's view of the world permits him to both be shaped by and to shape change via the discovery of personal meaning: the "new" is always possible and problematic.

> One thing that is new is the prevalence of newness, the changing scale and scope of change itself, so that the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval.[48]

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[46]Oppenheimer, loc. cit.

[47]McLaughlin, op. cit., p. 26.

[48]Oppenheimer, loc. cit.

Thus Oppenheimer rejects the cliché that the more things change, the more they remain the same.[49] For Oppenheimer, the more things change the less things remain the same, for a different perspective of the world and change creates in an important sense ". . . a new world, in which the unity of knowledge, the nature of human communities, the order of society, the order of ideas, the very notions of society and culture have changed and will not return to what they have been in the past."[50]

In sum, the preceding remarks were offered in articulation of the relation between changes and personal meanings or felt experiences at the personal and sociocultural levels for the individual. The concern in this section was to show that change and felt experience create meanings for an individual which affects his perceptions of the world.

In the succeeding section rapid change is approached from the point of view of technolgical innovation and cope-ability.

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[49]Seymour B. Sarason, The Culture of the School and the Problem of Change (Boston: Allyn and Bacon, Inc., 1971), p. 2.

[50]Oppenheimer, loc. cit.

Rapid Change and Cope-ability[51]

The robust confidence expressed by the assertion "What man has made, man can change," would surely be qualified by many today with a less robust "We hope!" particularly with regard to the pace of technological change in this society. For according to Keniston, what has distinguished this country from all other industrially advanced nations is ". . . the intensity of and the relative absence of restraint on technological change."[52] Moreover, such unrestrained technological change ". . . guarantees the continual transformation of other sectors of society to accommodate the effects and requirements of technology."[53] It has also virtually assured not only that changes have continued, but that the pace of change will accelerate and continue to accelerate.[54]

Some of the assumptions and broad implications of unrestrained and accelerating technological innovations as they relate to man's ability to adapt are recorded in this section.

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[51] "Cope-ability" is defined by Toffler as the speed and economy with which a person can adapt to continual change. (Future Shock, p. 357.)

[52] Kenneth Keniston, "Social Change and Youth in America," Youth: Change and Challenge, ed. Erik H. Erikson (New York: Basic Books, Inc., 1963), p. 163.

[53] Ibid., p. 165.

[54] Ibid., p. 166.

Unrestrained technological change, i.e., rapid change, constitutes one of the crucial discontinuities which may test, perhaps to the limit, the speed and the economy with which a person can adapt to continual change. For, according to Keniston, rapid changes mean that little, if anything, can be counted on to endure from one generation to the next; almost everything is open to revision and obsolescence. Moreover, "continual innovation as we experience it . . . profoundly affects our conceptions of ourselves, our visions of the future, the quality of our attachment to the present, and the myths we construct of the past."[55]

The outcomes have not been clear and, of course, that has been part of the difficulty. Nor can the outcomes become clear by denying rapid change in order to gain momentary reassurances that all will somehow "in the natural course of events" return to "normal."[56] Our entire society, as Keniston and others have noted, has been in flux--a flux that vibrates to the tune of unrestrained technological innovation.[57]

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[55]Ibid., p. 162.

[56]Alvin Toffler, Future Shock (New York: Random House, 1970), p. 192.

[57]Keniston, loc. cit.

> In our society at present, "the natural course of events" is precisely that the rate of change should continue to accelerate up to the as-yet-unreached limits of human and institutional adaptability.[58]

If such be the case, a logical question to raise concerns the persistence of an almost unqualified acceptance of unrestrained technological innovation by the American people.

One approach to this question has suggested that the perceived alternatives are unacceptable to the American people because all such alternatives are perceived as alternatives to growth and progress. Drucker suggests as much when he says that ". . . the alternative to technological change and economic growth, especially in a period of rapid innovation, is not maintenance of the old; it is decay."[59]

Apparently, the American people "value scientific innovation and technological change almost without conscious reservation."[60] And, we are assured, these attitudes extend to other areas--to every kind of change.[61] Change is good when it is

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[58] Ibid., p. 166.

[59] Peter F. Drucker, The Age of Discontinuity, Guidelines to Our Changing Society (New York: Harper & Row, 1968), p. 70.

[60] Keniston, op. cit., p. 164.

[61] Ibid.

perceived as youthful, expanding, growing, dynamic, or recent, current, new, modern, and even thrilling, pleasant, and productive. The opposite of change is perceived as stagnating, stand-still, outmoded, old-fashioned, obsolete, antiquated, and idle, insipid, or outdated.[62]

It appears logical, then, given the general and vague "change is good" philosophy that institutions should have developed that guarantee change and its acceleration. Of course that is precisely what has happened. At hand and on call has been pure science, "probably the most potent innovating institution in our society," and applied science and technology, the "converters" of "abstract scientific principles into concrete innovations. . . ."[63] The result has been the institutionalization of technological innovation into a profession, research and development departments, and planned obsolescence to assure "the rise of disposability" and the continued selling and buying emphasis on the newest and the latest.[64]

The institutionalization of technological change or any change is never as clear as when it is assigned value in budgets.

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[62] Ibid., p. 165.

[63] Ibid.

[64] Ibid.; see also Toffler, op. cit., pp. 52-53.

> [In] 1980 the . . . government alone will spend close to $35 billion on research and development: $10 billion on arms and arms control, $7 billion on basic research, and $18 billion on vast, civilian welfare programs and new technology.[65]

As a direct consequence of such a high regard for technological innovation and the institutionalization of technological innovation, this society has virtually assured not only that the rate of change will continue, but that change may exceed the limits of human and organizational adaptability.[66]

Drucker, for example, has already sensed the discontinuity of such outcomes:

> What used to be simple relationships in which major institutions rarely met with each other . . . is becoming an increasingly complex, confused, diffuse and crowded living-together. It is a chaotic, a developing, and by no means a clear, let alone clean, relationship. . . . what we now have could only be described as a "felt" in which strands of the most diverse kind are tangled together in no order at all.[67]

Similarly, for Bennis, the remark, for example, that "Everything nailed down is coming loose," does not appear to be an exaggeration of the impact of technological innovation. Given the extent and pace of modernization, "it does seem that no exaggeration, no

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[65]Bennis, "Changing Organizations," p. 569.

[66]Keniston, op. cit., p. 166.

[67]Drucker, op. cit., p. 182.

hyperbole, no outrage can realistically appraise [it]. . . ."[68] According to Drucker, ". . . our man-made environment, our communities, our societies, and our governments have been changing much faster than our grasp of them."[69]

In short, "technology is producing change too fast and without effective opportunities to debate its effects and trade-offs."[70] Change, as rapid change, the basic characteristic of the scientific and technological society, has meant "dislocation" in society and culture; it is, as Drucker has affirmed, "neither easy nor comfortable" and indeed could be dangerous. For change is growth, according to Drucker, and "growth is never orderly."[71]

According to Keniston, two factors have augmented the accelerative thrust of technological innovation: (1) ". . . the relative absence of traditional institutions or values opposed to change," and (2) ". . . our unusual unwillingness to control, limit, or guide directions of industrial and social change. . . ."[72]

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[68]Bennis, "Changing Organizations," p. 569.

[69]Drucker, op. cit., p. 366.

[70]Lewis M. Branscomb, "Why People Fear Technology," The Futurist, Vol. 5, No. 6 (December, 1971), 232.

[71]Drucker, op. cit., pp. 64 and 134.

[72]Keniston, op. cit., pp. 166-167.

Given, then, these two dimensions and the American public's high regard for institutionalized and accelerating technological innovation, it ought not surprise anyone that ". . . we have no way of knowing where we are headed."[73] Moreover, the "limits" of such technological innovations would increasingly appear to be identical to the limits of human and organizational cope-ability. For what must be kept in mind is that changes today ". . . are not merely two or three times faster or more powerful than before . . . ," but rather that changes of today represent many "orders of magnitude"; they represent ways that are ". . . hundreds or thousands or millions of times beyond the ways of previous centuries."[74]

A perhaps more important consideration, however, related to the accelerative thrust of technological innovations is the realization of how little is known concerning the limits of organizational and human cope-ability.

> The last three hundred years have been marked by an increase in man's power over his surroundings unexampled in any equal period of the past. One cannot help asking how long it will last. Will this rate of material progress, which seems to be steadily accelerating, continue faster and faster,

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[73] Ibid., p. 167.

[74] Platt, op. cit., p. 121.

> will it level off to a steady and much slower advance, or will it end in a catastrophe and a dark age?[75]

Similarly, Drucker, Platt, Branscomb, Bennis, Keniston and many others including government officials and politicians would agree that "our time . . . is a time of momentous changes--in politics and in science, in world view and in mores, in the arts and warfare."[76] Beyond this "felt" knowledge expressed in diverse ways, very little is known about the impact of rapid changes on organization and human cope-ability. What is known, however, would appear to have made the task of assessment of the impact of rapid changes more urgent, for drastic changes occur and occur rapidly, according to Drucker, wherever there is a conjunction of needs and knowledge.[77] Such conjunctions have been the common coin of industrial nations.

As a result of the conjunction of needs and knowledge, ". . . we are almost certain to see great, rapid, and disturbing change in the industrial sector that for hundreds of years has been the most clearly defined and the most clearly delineated one. . . ."[78]

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[75]Sir George Paget Thomson, The Foreseeable Future (New York: The Viking Press, 1960), p. 1.

[76]Drucker, op. cit., p. 3.

[77]Ibid., p. 347.

[78]Ibid., p. 33.

Teaching and learning also will be transformed in the next few decades. "Economic necessity forces us to tackle the job, no matter how great the resistance of citizens and educators."[79] And similarly in other areas, for

> the most drastic strains occur . . . at the peripheries of purely technological innovation, because of changes in other social institutions which follow in the wake of new commodities and technologies.[80]

In an age whose single constant has been radical change, what is required is that change be made easier and ". . . as painless as possible," as Drucker suggests. This admission of the inevitable and perhaps increasing discomfort associated with rapid change acknowledges that

> all men are in urgent need of whatever resources may be made available as they seek to understand and manage themselves and their environment, to understand and solve the unprecedented personal and social problems confronting them.[81]

A necessary condition, however, to the solution of problems in an age of a radical increase in the rate of change would appear to call for a new knowledge base to include knowledge of the impact of radical change on human and organizational copeability.

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[79] Ibid., p. 347.

[80] Keniston, op. cit., p. 165.

[81] Bennis, Benne, and Chin, The Planning of Change, p. v.

> We need a knowledge base for a society that contains a tremendous and rapidly shifting diversity of knowledges and puts to work a tremendous diversity of knowledge applications.[82]

The established institutions and wisdoms from the past have proven to be ". . . less and less dependable as guides to the effective and humane management of new knowledges and technologies in the conduct of life."[83] The need, therefore, is not for a slowing down of technology. For such a slow-down would sacrifice the expectations, hopes, and interests of millions of underprivileged people in this country and in the world whose needs cannot be met without more technology.

> The need is rather for more thoughtful and careful application of new technologies to prevent both long range damage to the earth and violence to human values and to foster social, economic, and cultural development.[84]

In sum, a careful examination of some of the assumptions and implications of unrestrained and accelerating technological innovation shows that

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[82] Drucker, op. cit., p. 361.

[83] Bennis, Benne, and Chin, The Planning of Change, p. 530.

[84] From "Technology, Man and Nature," a statement issued at the conclusion of a conference under the joint sponsorship of the Aspen (Colorado) Institute for Humanistic Studies and the International Association for Cultural Freedom, September 6, 1970, in Franklin P. Huddle, "The Social Management of Technological Consequences," The Futurist, Vol. 6, No. 1 (February, 1972), 17.

1. a high regard for technological innovation which has become institutionalized has virtually assured not only that rapid change will continue, but also that such change may exceed the limits of human and institutional cope-ability, and
2. a new knowledge base is required to manage the drastic changes that will occur as a result of the conjunction of needs and knowledge in an age where the single most important constant is rapid change.

Any attempt to accurately assess the impact of rapid changes on human and organizational cope-ability based merely on past experiences and the accumulated traditional approaches to organizational and human adaptability will, so it would appear, result in violence to human values. According to Keniston, what is needed is a rediscovery of vital ideals of the past together with a willingness to create new ideals, new values, new myths, and new utopias which will help man to adapt creatively to a world undergoing continual and rapid changes.[85]

This section has set forth an examination of rapid change from the point of view of technological innovation and cope-ability.

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[85]Keniston, op. cit., p. 186.

In the succeeding section the effects of life changes on illness will be considered.

Life Change and Illness[86]

Keniston has argued that continual change profoundly affects man's conception of himself, his vision of the future, his myths about the past, and even the quality of his attachment to the present.[87] The list, however, would be incomplete if one were to omit that change also affects a man's well-being, i.e., his health.

To answer the question "What actually happens to people when they are asked to change again and again?" Toffler has cited impressive facts based on recent research dealing with the interaction between life changes and illness.[88] His conclusion as well as his answer to the above question is that "the study of life change patterns . . . contributed significantly to success in predicting the amount and severity of illness in widely varied populations."[89]

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[86]"Illness" is defined by Holmes as change in health status and includes a broad spectrum of medical, surgical and psychiatric disorders. Thomas H. Holmes and Minoru Masuda, "Life Change and Illness Susceptibility" (presented at the Annual Meeting of the Americal Association for the Advancement of Science, December, 1970, Chicago, Illinois), (Preprint), p. 1.

[87]Keniston, op. cit., p. 162.

[88]Toffler, op. cit., pp. 289-326.

[89]Ibid., p. 295.

In this section, the relation between life changes and illness as well as Toffler's apparently conclusive answer to the question above are documented.

According to Meyer, "life problems" and "life situations" are intricately associated. Any study of life problems, according to Meyer, will always concern itself with the relation of an individual organism and his life situations.[90] Such a relation, moreover, will be found to be one of interaction and transaction again related to other life situations which with others constitute a complex, open-ended "field of transaction."

> The person, all that he brings with him from the past, his component parts functioning somatically and psychologically, his emotions and affects constitute, with specific stresses and time elements of the total life situation, a field of transaction.[91]

In other words, organism and environment, life problems and life situations are not independent entities. Moreover, the specific outcomes of the interactions of these entities would appear to be contingent on the fitness of the individual to function. Thus, while the interaction-transaction thesis agrees with the view that

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[90]Alfred Lief (ed.), The Commonsense Psychiatry of Dr. Adolf Meyer (New York: McGraw-Hill Book Co., Inc., 1948), p. 5.

[91]Harold Basowitz and others, Anxiety and Stress (New York: McGraw-Hill Book Co., Inc., 1955), p. 299.

man does not passively await stimuli from his environment in order to respond, it adds that the concept of fitness of the individual to function is a basic factor in assessing the quality of the responses of the individual to life situations.

Bower has implied as much when he emphasizes the importance of the concept of fitness to function in relation to the health and development of an individual.[92] According to Bower, fitness of an individual to function is dependent on or shaped by the equilibrium and disequilibrium with his own bodily system. These two dimensions of fitness to function have been found to be intricately associated with other systems in which an individual functions: the physiological, the psychological, the social, and the cultural.[93] It is assumed that there are no sharp boundaries or barriers between these systems because of continuous transaction between them, i.e., they are linked (open) systems. Too rapid or abrupt life situations in the form of ". . . disproportionate rates of change in any one of the four linked systems of man . . . could affect the others in a way that might lead to illness or breakdown."[94]

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[92]Eli M. Bower and William G. Hollister, Behavioral Science Frontiers in Education (New York: John Wiley & Sons, Inc., 1967), p. 27.

[93]Ibid.

[94]Ibid.

According to Bower then, rapid change and the fitness of an individual to function are intimately related factors in the health and development of an individual.

Such an approach to man and his life situations has been labeled the "human ecology" approach by Hinkle and others. This approach argues that illness or disease ". . . need not be the result of any single, specific agent, such as a germ or virus, but a consequence of many factors, including the general nature of the environment surrounding the body."[95]

According to Cassel, the germ theory of disease causation or the mono-etiological model has given way to a "human ecology" or multiple causation model primarily because (1) the former approach provided only partial and in some cases unimportant knowledge concerning the cause of certain diseases, (2) the former approach failed to explain the epidemic scope of some diseases, e.g., cholera and influenza, and why some diseases are more viable or virulent in some countries and not in others, (3) the former approach is unlikely to furnish very many useful leads to problems in (1) and (2) above, and (4) the former approach stultifies intelligent investigation since its basic premise narrowly

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[95]Toffler, op. cit., p. 291.

construes causation of disease to a specific agent and each agent causing a specific disease.[96]

For Cassel then, the mono-etiological model requires extensive modification to ". . . one which recognizes that factors which may be causal under certain circumstances may under other circumstances be neutral or perhaps even beneficial."[97] Moreover, the need for a new or modified model of disease causation has become more urgent by the inclusion of environmental factors in medicine.

> Today with the spreading alarm over air pollution, water pollution, urban crowding and other such factors, more and more health authorities are coming around to the ecological notion that the individual needs to be seen as part of a total system, and that his health is dependent upon many subtle external factors.[98]

Recent research seeking the identification of these "subtle external factors" and the specific patterns or configurations they assume relevant to the health status of an individual has confirmed that the relation between the body's defenses and the magnitude of

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[96]John Cassel, "Social Science Theory as a Source of Hypotheses in Epidemiological Research," American Journal of Public Health, Vol. 54, No. 9 (September, 1964), 1483.

[97]Ibid., p. 1484.

[98]Toffler, loc. cit.

the impact of rapid changes on those defenses may lead to illness or breakdown.[99]

> "There may well be generalized body defense systems that prove inadequate to cope with the flood of demands for change that come pulsing through the nervous and endocrine systems."[100]

There is evidence, moreover, that a generalized body defense system would appear to be in part culturally determined. In a study by Hinkle of two homogeneous groups of men and women workers the mean number of episodes of illness and the mean number of days of disability recorded over a 25 year period were higher for women than for men; although "seriousness of illness rates" indicate that the men were more likely to die of their illnesses than the women in a ratio of about 4:3. For Hinkle, it seemed likely that culturally determined attitudes toward what constitutes illness and what creates an acceptable reason for diability in men and in women are crucial factors in the higher incidence and greater amount of disability experienced by women over men.[101]

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[99] Ibid., p. 295.

[100] Ibid.

[101] Lawrence E. Hinkle and others, "An Examination of the Relation Between Symptoms, Disability, and Serious Illness, in Two Homogeneous Groups of Men and Women," American Journal of Public Health, Vol. 50, No. 9 (September, 1960), 1336.

In another study relevant to culturally shaped attitudes, Pedersen and Sullivan found that parental attitudes about geographical mobility distinguished the parents of disturbed military children from the parents of normal military children. In particular, it was determined that "mothers of normal children appear significantly more accepting of frequent relocation. . . ."[102] These researchers think it likely that the actual effects of geographical mobility on children were mediated by these attitudes.[103]

A number of relatively recent studies cited by Cassel have indicated a remarkable similarity in the social experiences of persons who subsequently developed tuberculosis or schizophrenia, or who commit suicide.[104] According to Cassel, it was found that such people had come from broken families, had lived in "ghettos," had experienced an excessive number of job and residence moves, had experienced continual and mounting life stress, and were more likely to have been single, divorced, or widowed. These facts suggested that cultural as well as other environmental factors might

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[102] Frank A. Pedersen and Eugene J. Sullivan, "Relationships Among Geographical Mobility, Parental Attitudes and Emotional Disturbances in Children," American Journal of Orthopsychiatry, Vol. 34 (April, 1964), 580.

[103] Ibid.

[104] Cassel, op. cit., p. 1485.

be relevant in the determination or assessment of the health status of an individual.

In a related study, Brown and Birley adduced evidence that the quality of relationships in the home can influence the course taken by an illness. These researchers found that "long-term tension in the home appeared to increase the chances of patients becoming disturbed after such changes."[105] For Brown and Birley a number of factors contribute to produce the conditions for an attack of acute schizophrenia and one of these is ". . . some sort of crisis or life change."[106]

These studies and others have reinforced the need for a modified or new model of disease causation to deal with current problems. Cassel's analysis of the germ theory of disease does point out its benefits for explanation and intervention as well as its limitations which have been cited. Cassel, however, was concerned with the development of a process by which factors in the environment are assessed as relevant to health states. A multiple cause theory or a "human ecology" approach, he felt, was supported by

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[105]George W. Brown and J. L. T. Birley, "Crises and Life Changes and the Onset of Schizophrenia," Journal of Health and Social Behavior, Vol. 9, No. 3 (September, 1968), 203.

[106]Ibid., p. 211.

research. Previously cited studies and other studies as well had suggested to Cassel that there were general social processes which could be deleterious to health in that (1) the disproportionate rates of change in any one of the four linked open systems--the physiological, the psychological, the social, or the cultural--could affect the others in a way or ways which would lead to illness, and (2) the degree of integration among individuals within a social group, if inadequate, could lead to illness.

In one study a comparison was made between the health of rural mountaineers who were the first of their families to engage in industrial work and the health of co-workers drawn from the same stock but who were children of parents who had worked in this factory before them. Cassel postulated that the group undergoing the most recent rapid social change would have poorer health indexes. In a second study, stable groups of rural residents living in counties with differing degrees of urban growth were chosen. In this case, Cassel postulated that the larger the size of the city in the county in which the rural residents lived, the higher the rates of illness. Cassel and his associates found in both cases that no matter how human difficulties were measured, the group undergoing the greatest change had the higher rates--in illness,

absence from work, scores on the Cornell Medical Index, and coronary heart disease or death.[107]

In another study, cited by Cassel, a study designed to test the degree of integration with a social group and its potential relevance to health, the serum cholesterol levels of two groups of hourly paid male employees doing similar jobs was measured. In one group (Group A) the subjects had a constant set of fellow-workers. In another group (Group B) the employees worked with persons who changed shifts periodically or the employees themselves changed shifts periodically, having no opportunity for close continuous interaction with the same group of fellow-workers. The results, according to Cassel, were startling. After adjusting for age differences, the proportion of Group B men who were hypercholesteremic was twice as great as was the proportion of Group A men.[108]

These studies as well as studies by Holmes, Rahe, Arthur, McKean, and others have confirmed that life changes tend to cluster around health changes such that the magnitude of life

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[107]Cassel, op. cit., pp. 1486-1487; see also John Cassel and Herman A. Tyroler, "Epidemiological Studies of Culture Change," Archives of Environment and Health, Vol. 3 (July, 1961), 25-33.

[108]Cassel, op. cit., p. 1487.

changes correlates significantly with the onset of illness. It was Holmes, however, who postulated that the general rate of change in a person's life could be one of those "subtle external factors" on which health is dependent.[109] Holmes together with Rahe developed a scale, the Social Readjustment Rating Scale (SRRS), for measuring the rate of change in an individual's life. Holmes hypothesized that

> . . . life change events, by evoking adaptive efforts by the human organism that are faulty in kind and duration, lower "bodily resistance" and enhance the probability of disease occurrence.[110]

In one study, Rahe and Holmes worked with a sample of 84 University of Washington resident physicians in a follow-up to a pilot study. Life changes for the previous 18 months were used in this study as the quantitative base for predicting illness onset in the near future. Eight months later, disease occurrence data indicated that 49 percent of the high risk group (300+ Life Change Units), 25 percent of the medium risk group (200-299 Life Change Units), and 9 percent of the low risk group (150-199 Life Change Units) had reported illness.[111]

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[109] Toffler, op. cit., p. 291.

[110] Holmes and Masuda, op. cit., p. 9.

[111] Ibid., p. 7.

Holmes and Holmes in another study adduced evidence about the association of life changes and minor health changes which suggested that minor health changes were causally related to events requiring adaptive behavior.[112] According to Holmes and Holmes, subjects with the highest amounts of life change demonstrated the most signs and symptoms of everyday life (e.g., cuts, bruises, headaches, stomach aches, back aches, colds, etc.). Also, a person was much more likely to experience the signs and symptoms of everyday life on days of greater than average life changes; conversely, a person was much less likely to experience signs and symptoms on days of less than average life change as reflected by his Life Change Units point total. In addition, life changes tended to cluster around health changes.[113]

Rahe, Mahan, and Arthur report results of a study in which a test of the life change and subsequent illness hypothesis was carried out using the entire complements of three U. S. Navy cruisers (N = 2664). A modified version of the Schedule of Recent Experience (SRE) was administered prior to a 6-8 month cruise

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[112] T. Stephenson Holmes and Thomas H. Holmes, "Short-Term Intrusions into the Life Style Routine," Journal of Psychosomatic Research, Vol. 14 (June, 1970), 129.

[113] Ibid.

assignment. Subsequently, illness data were gathered on over 90 percent of the subjects who took the SRE. The results indicated a positive relationship between subjects' pre-cruise life change intensity and the number of reported illnesses throughout their time at sea.[114]

In a study by Rahe of 2,500 military subjects aboard three U.S. Navy cruisers, the results of testing the life change subsequent illness thesis revealed that the high risk group (the top 30 percent of Life Change Unit scores) (1) had 90 percent more first illnesses in the first month than the low risk group (the bottom 30 percent of Life Change Unit scores), (2) reported more total illnesses each month, for the six-month cruise period, (3) had more illness severity each month over the six-month cruise period, and (4) had 30 percent more total illness severity than the low risk group over the full six-month cruise period.[115]

Rahe, McKean, and Arthur randomly selected a sample of 50 out of a total population of 200 servicemen retired for

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[114]Richard H. Rahe, Jack L. Mahan, Jr., and Ransom J. Arthur, "Prediction of Near-Future Health Change from Subjects' Preceding Life Changes," Journal of Psychosomatic Research, Vol. 14 (December, 1970), 405.

[115]Richard H. Rahe, "Life-Change Measurement as a Predictor of Illness," Proceedings of the Royal Society of Medicine, Vol. 61 (November, 1968), 1125.

psychiatric reasons for purposes of a life change and illness study. The results indicated that subjects with the higher total Life Change Unit scores experienced more severe illness and more clustering of severe illnesses than subjects with lower total Life Change Unit scores. In general, a cluster-year of life changes occurred immediately prior to an illness or to a clustering of illnesses. Clusterings of high life change magnitude preceded two instances of death and one instance of near death.[116]

In sum, an extensive body of research has indicated that life changes, by evoking attempts at adaptive behavior, also evoke major alterations in bodily systems, organs, and tissue. The data from these and other studies have indicated that the greater the significance of the life situation or life change, the greater the risk of subsequent illness or breakdown. The life change and subsequent illness hypothesis appears to have been confirmed.

Summary and Overview

A review of the literature relevant to change and felt experience; rapid change and cope-ability; and life change and

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[116]Richard H. Rahe, Joseph D. McKean, Jr., and Ransom J. Arthur, "A Longitudinal Study of Life-Change and Illness Patterns," Journal of Psychosomatic Research, Vol. 10 (May, 1967), 365-366.

illness has been presented in this chapter. Three general propositions linked together by the concept of change constitute the logical structure of its contents. These propositions follow:

1. Changes and the felt experiencing of changes create meanings for the individual which affect his perceptions of the world;
2. Rapid changes, of which unrestrained accelerating and institutionalized technological innovation is the paradigm, threatens to exceed the limits of human and organizational cope-ability by overloading the organism's capacity for adaptation; and
3. Life change and illness are significantly associated such that the magnitude of the occurrence and frequency of life changes significantly forecast the onset and seriousness of illness or illnesses.

As previously noted, the supposition fundamental to these propositions as well as this study assumes that man is a biosystem with a limited capacity for change. When such limits are approached or overloaded, the consequences register affecting an individual's perceptions, cope-ability, and health.

It would appear that changes which affect an individual's perceptions of the world, including his self-image, his cope-ability,

or the state of his physical and mental well-being would also tend to vitiate his performance. Research testing the life change subsequent illness hypothesis tends to support this inference.

The life change-performance inference has important implications for educators.

> The rapid changes in the economic-occupational system, in communications, in urbanization, and in human interdependency have created great changes in what must be learned, how much must be learned, and how fast it must be learned.[117]

Lippitt's words suggest a rapid change-learning orientation which, if effective, must come to grips with teacher and student cope-ability problems. According to Toffler, the prime objective of education must be to increase the individual's speed and economy with which he can adapt to the continuous changes he experiences.[118] However, objectives, like targets, tell one what to aim at without necessarily indicating the means for scoring a bull's-eye.

Nevertheless, it would appear that the life change-performance inference implies that educators will find themselves held increasingly accountable for capturing the control of the accelerative thrust of rapid change. If such proves to be the case,

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[117]Ronald Lippitt and Colleagues, "The Teacher as Innovator, Seeker, and Sharer of New Practices," Perspectives on Educational Change, ed. Richard I. Miller (New York: Appleton-Century-Crofts, 1967), p. 307.

[118]Toffler, op. cit., p. 357.

the assessment of the life change-performance relation for individuals, i.e., students, teachers, and administrators, may prove to be one step towards eventual control.[119]

In conclusion, the propositions concerning change and felt experience; rapid change and cope-ability; and life change and illness underlie the review of the literature as well as the preceding remarks in this section. These propositions together with the basic assumption tend to support the conclusion that magnitude of life changes and teacher performance are closely associated.

Chapter III presents the specific procedures and statistical methods used to test this hypothesis.

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[119] Life-change assessment can be defined as a reasoned response to the stress that a rapidly changing environment puts on our complex, and increasingly industrialized, urbanized, and densely populated society. In short, it is the systematic study of the effects on individuals that may occur when life changes are experienced.

CHAPTER III

METHODOLOGY

This chapter comprises descriptions of the population and sample, specific procedures for the collection of data, descriptions of the selected variables on teacher performance, instrumentation, and statistical methods used to test the research hypothesis: There is no significant correlation between the magnitude of life changes and teacher performance defined in terms of certain teacher related variables.

Definition of Population

The population for this study consisted of senior high school teachers from three senior high schools in the Lansing School District, Lansing, Michigan, with teacher contracts for the years 1970-71 and 1971-72 who were employed at the time of this study (December, 1971).

The Sample

A sample of 152 senior high school teachers responded to a letter soliciting teacher participation in this study. (See Appendix C.) A total of 42 subject-questionnaires were rejected for missing data, insufficient data or incorrect entries, leaving a sample of N = 110 for use in this study. The sample represents approximately 46 percent of the population.

Table 3.1 displays the percentages of the sample in selected demographic categories taken from the personal history section of the Schedule of Recent Experience (SRE).

Procedures for the Collection of Data

General procedures for the collection of the data were developed at individual conferences with the Superintendent of Lansing Schools, Dr. Carl Candoli, the Director of Research, Dr. Edward Remick, the Director of Secondary Education, Mr. Robert Lott, Michigan Education Association officers Messrs. Darrell DaFoe and Roger Stephon, and the principals of Everett High School, Eastern High School, and J. W. Sexton High School, Messrs. Calvin C. Anderson, Donald F. Johnson, and Dale E. Metts, respectively.

Table 3.1

Percentages of Sample in Ten Selected Demographic Categories of SRE

Categories		Percentages
Sex	Male	57
	Female	43
Race	White	95
	Black	5
Age	21-30	29
	31-45	41
	46-65	30
Religion	Protestant	73
	Catholic	16
	other	11
Marital Status	Married	81
	Divorced	5
	other	14
Education Attained	Advanced Graduate Degree	68
	College	31
	High School	1
Time at Present Residence	1-2 years	39
	3-5 years	27
	6-10+ years	34
Geographical Area of U. S. Where Most of Life Spent	East	11
	Midwest	85
	other	4
Population of Birthplace	Rural Area	18
	Less than 5,000	12
	More than 5,000	22
	More than 50,000	33
	More than 500,000	15
Most of Life Spent in	Rural Area	9
	Less than 5,000	7
	More than 5,000	22
	More than 50,000	53
	More than 500,000	9

N = 110

From these and other meetings, a schedule for the administration of the SRE to each of the three senior high school faculties was determined. Letters requesting teacher participation in the study were placed in individual teacher school mail boxes by school personnel at least one week in advance of the date the SRE was to be administered in each school. At Everett High School the SRE was given on Monday, December 6, 1971, at 2:30 p.m. in the (small) auditorium of the school. At J. W. Sexton High School the SRE was administered on Wednesday, December 8, 1971, at 2:30 p.m. in the school cafeteria. At Eastern High School, the SRE was given on Monday, December 13, 1971, at 2:30 p.m. in the school social room.

Each teacher-SRE session was preceded by a reading of "A Request For Your Assistance" letter and subsequently a reading of the "Instructions for SRE." (See Appendix D.) In this way uniformity of responses to the items of the SRE was assured.

Information collected by means of the SRE represents data for the variable--Life Change Unit (LCU) scores. The SRE booklet is a two-part questionnaire. The first section, as previously mentioned, records the personal history of the subject; the second section records recent experience.

Scorings on answer sheets of the recent experience section had to be translated into workable data cards by means of IBM machine #1230, a #534 key punch, and the SRE Fixer CDC 6500 Program according to the instructions in the "Plan to Convert Schedule of Recent Experience (SRE) Answer Sheets to Usable Cards." (See Appendices E and F respectively.) Data on punched output cards and printed output sheets were interpreted according to the "IBM Coding for Schedule of Recent Experience (SRE)" instructions. (See Appendix G.) The resultant punched output cards were of the form necessary for the statistical methods selected for this study.

Data for the selected variables on teacher performance were collected from various sources through the Office of Research of the Lansing School District and recorded on the individual teacher's "SRE Worksheet" developed for this specific purpose. (See Appendix H.) The data from the SRE Worksheet were later punched onto cards necessary for the statistical methods selected for this study.

Descriptions of Selected Variables

In this study "teacher performance" is a construct of certain selected variables, descriptions of which follow.

1. Teacher Absenteeism - Illness is comprised of total number of days teacher was absent due to reported illness or injury during the time period beginning September, 1970, to December, 1971.
2. Teacher Absenteeism - Frequency is comprised of total number of occasions teacher was absent during the time period beginning September, 1970, to December, 1971.
3. Teacher Absenteeism - Duration is comprised of total number of days teacher was absent during the time period beginning September, 1970, to December, 1971.
4. Total Number of Requests for Reassignment or Transfer refers to all requests (e.g., leaves of absence, creative leaves, sabbaticals, etc., whether approved or not) either by the teacher or by an administrator for the reassignment or transfer of the teacher within the district or within the school during the time period beginning September, 1970, to December, 1971.
5. Total Number of Times Moved refers to changes in the high school teacher's residence within the previous five years up to December, 1971.
6. Total Units or Credits Earned Beyond Bachelor of Arts Degree refers to one of four categories: (1) no units

beyond Bachelor of Arts degree, (2) Bachelor of Arts degree plus 23 units, (3) Master of Arts degree, or (4) Master of Arts degree plus 45 or more additional units or credits during the period beginning September, 1970, to December, 1971.

7. Student Drop-Outs is composed of the total number of student drop-outs who as former students attended one or more of the classes of one or more of the teachers in this study during the period beginning September, 1970, to December, 1971.

8. Distribution of Student Grades denotes the percentage of A's and B's and D's and F's the teacher assigned to students during the time period beginning September, 1971, to January 28, 1972.

Instrumentation

The Schedule of Recent Experience (SRE) and the Social Readjustment Rating Scale (SRRS) as developed by Holmes and Rahe constitute the instrumentation for this study.

The SRE comprises forty-two unique life event items divided into two categories: (1) those indicative of the life style of the individual (Part A), and (2) those indicative of occurrences

involving the individual (Part B).[1] (See Appendix A.) These life change events cover a broad spectrum of ordinary social and interpersonal transactions ranging from matters of occupation, residence, community, family and marriage to matters of religion, personal habits, and health.

The items in Part A number twelve. Response modes for these items are either affirmative or negative. As previously noted, responses to these items are indicative of the life style alterations of the respondent. Changes in the respondent's life style are recorded in four time periods: (1) from 0 to 6 months ago, (2) from 6 months to 1 year ago, (3) from 1 to 2 years ago, and (4) from 2 to 3 years ago.

Part B items are similarly divided. These items number thirty. Responses to these items record the number of occurrences of a life event (from 0 to 4+) involving the individual.

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[1] Thomas H. Holmes and Minoru Masuda, "Life Change and Illness Susceptibility" (presented at the Annual Meeting of the American Association for the Advancement of Science, December, 1970, Chicago, Illinois), (Preprint), 2; see also Minoru Masuda and Thomas H. Holmes, "The Social Readjustment Rating Scale: A Cross-Cultural Study of Japanese and Americans," Journal of Psychosomatic Research, Vol. 11 (August, 1967), 227; see also Robert L. Casey, Minoru Masuda and Thomas H. Holmes, "Quantitative Study of Recall of Life Events," Journal of Psychosomatic Research, Vol. 11 (August, 1967), 239.

Item #46 of the SRE (Residence Moves) was not scored since it duplicates in part one of the teacher performance variables (Times Moved) selected for this study.

Some of the life events are perceived as socially desirable; others are not. Those that appear to be socially desirable also appear to be consonant with American values of achievement, success, materialism, practicality, efficiency, future orientation, conformism, and self-reliance.[2] The life events described in both sections, however, share a common characteristic in that an occurrence of a life event usually is associated with some coping or adaptive behavior on the part of the individual concerned. In this regard, it is important to keep in mind that the emphasis is on change from the existing steady state of an individual and not necessarily on psychological meaning, emotion, or social desirability.[3]

The SRRS is the product of a method for quantifying the amount of change in life adjustment required by the life events described in each of the forty-two items of the SRE. The SRRS assigns a certain magnitude denoted by a number (Life Change Unit or LCU) to each of the life change items according to the amount, severity, and duration of adjustment each item (in comparison to the other items) is perceived to require. Thus a subject's life

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[2]Masuda and Holmes, loc. cit.

[3]Ibid.

changes measured with the SRE are ". . . numerically scaled according to their estimated amount of life pattern change for an individual and the degree of readjustment required in coping with each change."[4] The scale ranges from 11 LCU to 100 LCU. The position on the scale of any life change event is indicated by the number of LCU estimated to apply to the life change event in question. The result is quantification of life changes for a specified period of time in terms of LCU scores.

According to Holmes and Masuda, the method for quantifying life changes was derived from psychophysics.[5] Psychophysics may be defined as the study of the psychological perceptions of the quality, quantity, magnitude, and the intensity of physical phenomena. Stevens thinks of psychophysics ". . . as the science of the response of organisms to stimulating configurations."[6]

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[4]Richard H. Rahe, Joseph D. McKean, Jr., and Ransom J. Arthur, "A Longitudinal Study of Life-Change and Illness Patterns," Journal of Psychosomatic Research, Vol. 10 (May, 1967), 355.

[5]Holmes and Masuda, loc. cit.; see also Minoru Masuda and Thomas H. Holmes, "Magnitude Estimations of Social Readjustments," Journal of Psychosomatic Research, Vol. 11 (August, 1967), 224; see also Thomas H. Holmes and Richard H. Rahe, "The Social Readjustment Rating Scale," Journal of Psychosomatic Research, Vol. 11 (August, 1967), 217.

[6]S. S. Stevens, "Mathematics, Measurement, and Psychophysics," Handbook of Experimental Psychology, ed. S. S. Stevens (New York: John Wiley & Sons, Inc., 1951), p. 31.

According to Stevens,

> Psychophysics sees the response as an indicator of an attribute of an individual--an attribute that varies with the stimulus and is relatively invariant from person to person.[7]

Holmes and Rahe in developing the SRRS postulated that participants' psychological capacity for making quantitative judgments about psychosocial and psychophysical phenomena provide a reliable basis for the quantification of life change process. Data generated in studies by Holmes and Rahe; Ruch and Holmes; Pasely; Casey; and others, all cited by Holmes and Masuda in their article "Life Change and Illness Susceptibility," support the validity of the assumption.[8] The results of these and other studies demonstrate a high degree of consensus suggesting agreement among individuals and between groups concerning the significance of life events which transcend or cut across ". . . differences in age, sex, marital status, education, social class, generation American, religion and race."[9]

Moreover, the method of subjective magnitude estimations of psychosocial phenomena generates a ratio scale. The claim is

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[7] Ibid.

[8] Holmes and Masuda, loc. cit.

[9] Holmes and Rahe, loc. cit.

(and rapidly mounting evidence strongly supports) "that individuals can and do make valid psychological magnitude estimations which can be treated by parametric methods of statistical analyses."[10] This claim, according to Masuda and Holmes, is supported by the following:

1. correlation coefficient of item scoring between different subgroups in one study were found to be almost identical whether calculated by Pearson's r (parametric) on mean item scoring or Spearman's rank order r_s (non-parametric);
2. the arithmetic mean has been used by Holmes and Rahe in other studies testing and confirming the life change subsequent illness hypothesis; and
3. the use of the geometric mean scores in lieu of the arithmetic mean scores did not improve on the association of life change and illness onset provided by the latter.[11]

In sum, as previously noted, it is a fundamental supposition of this study that the SRE and SRRS are reasonably valid and accurate instruments. In this section, the reasonableness of this

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[10]Masuda and Holmes, "Magnitude Estimations of Social Readjustments," p. 224.

[11]Ibid.

assumption was outlined. In the following section, the statistical methods used to test the research hypothesis are described.

Statistical Methods

The research hypothesis of this study states that there is no significant correlation between the magnitude of life changes (LCU scores) and teacher performance defined in terms of selected teacher related variables described in a previous section.

The research hypothesis can also be expressed in the following form.

> Correlation coefficients between LCU scores and teacher performance variables will be significantly greater than zero. Multiple correlation coefficients between LCU scores and teacher performance variables will be significantly greater than zero. Further, the deletion of some of the teacher performance variables or LCU scores from multiple regression equations will not significantly reduce the multiple correlation coefficients, and the maximum correlation between the two sets of measures (LCU scores and teacher performance variables) will be significantly greater than zero.

This statement of the research hypothesis suggested three procedures.

First, the correlation coefficients of each of the teacher performance variables and the LCU scores were tested against the hypothesis that none are significantly different from zero. The test statistics for the first procedure were as follows:

$$(1)\quad r_{xy} = \frac{N \; E \; XY - (E \; X)\,(E \; Y)}{\sqrt{[N \; E \; X^2 - (E \; X)^2]\;[N \; E \; Y^2 - (E \; Y)^2]}}$$

$$(2)\quad t = \frac{r_{xy}\sqrt{N - 2}}{\sqrt{1 - r_{xy}^2}}$$

with N - 2 degrees of freedom.[12] Or, since N is greater than 30, the following statistic can be used in place of (2) above.

$$(3)\quad Z = r\sqrt{N - 2}$$ [13]

Second, on the assumption that some (if not all) of the correlation coefficients were significantly different from zero, a step-wise deletion of variables was used (a) to determine whether

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[12]William L. Hays, Statistics for Psychologists (New York: Holt, Rinehart and Winston, Inc., 1963), pp. 506 and 529.

[13]N. M. Downie and R. W. Heath, Basic Statistical Methods (3rd ed.; New York: Harper & Row, Publishers, 1970), pp. 231-232.

the deletion of variables produced a significant subset, i.e., a subset which contributed significantly to the overall prediction, and (b) to achieve the most parsimonious, yet precise solution possible. The latter procedure systematically deleted those variables in the original equation which did not contribute significantly to the overall prediction of a multiple regression equation.

As such, this procedure represented a modification of multiple regression procedures which required that the various multiple correlation coefficients be tested against the hypothesis that each of the squared multiple correlation coefficients (R^2) is equal to zero. According to Hays, such a procedure assumes that N cases represent a sample of cases from a multivariant normal distribution, each case representing an occurrence of some joint event.[14]

Thus, the test statistic $F = \left[\frac{R^2}{1 - R}\right]\left[\frac{N - K}{K - 1}\right]$ for this procedure is distributed as F with K - 1 and N - K degrees of freedom where K is equal to the number of variables, and N is the number of subjects in the sample (N = 110).[15]

This statistic, however, merely tests the hypothesis that the true value of R^2 is zero, which is not ordinarily a hypothesis

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[14]Hays, op. cit., pp. 570-573.

[15]Ibid.

of overwhelming interest in studies where variables are deleted from the equation by the step-wise deletion process described earlier. A more meaningful statistic can be used to determine whether the decrease in R^2 is significant when variables are deleted by the step-wise deletion procedure:

$$F = \frac{(R_1^2 - R_2^2) / (m_1 - m_2)}{(1 - R_1^2) / (N - m_1 - 1)}$$

where R_1 equals the multiple of m_1 independent variables, R_2 equals the multiple of m_2, a subset of variables selected from among m_1 variables, and N equals the number in the sample with $n_1 = m_1 - m_2$ and $n_2 = N - m_1 - 1$.[16]

The statistic above, described by McNemar, tests whether the inclusion or exclusion of additional variables in the multiple regression equation leads to a significant increase or decrease in the accuracy of predictions.[17]

In sum, since the deletion of variables in the equation tends to reduce the error of estimate somewhat, thus achieving

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[16]Quinn McNemar, Psychological Statistics (3d ed.; New York: John Wiley and Sons, Inc., 1962), pp. 283-284.

[17]Ibid.

some decrease in observed R, can it be said that the decrease in R possesses statistical significance? The above test statistic determines the significance between R_s. Also, the step-wise deletion procedure provides a basis for achieving the most accurate prediction with the least number of predictor variables.

Third, Cooley and Lohnes suggest that the technique of canonical correlation should be used when it is necessary to relate two sets of measurements on the same subjects.[18] Since the study makes use of two sets of measurements on the same subjects, LCU scores and teacher performance variables, an assessment of the strength of relationship between the two sets of variables by means of the technique of canonical correlation was made. This technique produces the maximum correlation between linear functions of two sets of variables. It is, in effect, the correlation between two multiple regression equations. Thus, canonical correlation is a special case of multiple regression where the number of criteria is greater than one. The number of possible canonical correlations is equal to the number of variables in the smaller set subject to the restriction that each canonical variate be orthogonal to all other canonical variates on its side of the equation.

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[18]William W. Cooley and Paul R. Lohnes, Multivariate Procedures for the Behavioral Sciences (New York: John Wiley & Sons, Inc., 1962), pp. 35-45.

In sum, both multiple criteria (p) and multiple predictors (q) are involved in canonical correlation. The number of linear combinations are p or q, whichever is smaller. It is irrelevant whether the variables on the left or on the right are considered as the criterion or predictor variables so far as computations are concerned. What is of importance, then, in canonical correlation, is the determination ". . . of the extent to which individuals occupy the same relative positions in the p-dimensional space as they do in the q-dimensional space."[19]

The various statistical hypotheses were tested at the .05 alpha level of significance with the appropriate degrees of freedom where applicable.

Summary and Overview

The specific procedures for the collection of data, related descriptions of population, sample, variables, instruments, and the statistical methods used to test the research hypothesis of this study were presented in this chapter.

Data resulting from the application of these procedures and statistical methods will be presented in Chapter IV.

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[19] Cooley and Lohnes, op. cit., p. 36.

CHAPTER IV

ANALYSIS OF THE DATA

Purposes

The purpose of this study, as previously noted, is to determine the impact of life changes on teacher performance by means of simple, multiple, and canonical correlations between life changes as measured by the Schedule of Recent Experience (SRE) and certain teacher related variables.

Chapter IV presents the findings of the study. The analysis of the data is presented in five parts. The first part restates each of the original hypotheses of the study in versions modified to adequately assess relationships between Life Change Unit (LCU) scores and selected teacher performance variables (TPV). Thus each of the first eight original hypotheses includes five sub-hypotheses which were tested in terms of simple (pair-wise) correlations. The findings are presented in Part II. Part III includes Hypotheses IX and X tested in terms of multiple correlation procedures. Part IV is comprised of Hypothesis XI tested in

terms of canonical correlation procedures. The second, third, and fourth parts of Chapter IV, then, present the results or findings, and interpretation of the hypotheses under investigation in terms of simple correlations, multiple correlations, and canonical correlations, respectively, between LCU scores and teacher performance variables. Part V lists the relevant multiple regression equations representing the most parsimonious, yet precise, solutions possible.

Hypotheses

Null Hypothesis I--There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or the total LCU score and the total number of days the high school teacher was absent due to reported illness or injury.

Null Hypothesis II--There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the frequency of high school teacher absenteeism.

Null Hypothesis III--There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the total number of days the high school teacher was absent.

Null Hypothesis IV -- There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the total number of requests for high school teacher's transfer or reassignment.

Null Hypothesis V -- There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the total number of times the high school teacher moved.

Null Hypothesis VI -- There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the total number of units beyond the Bachelor of Arts degree earned by the high school teacher.

Null Hypothesis VII -- There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the total number of student drop-outs.

Null Hypothesis VIII -- There is no significant correlation between either 0 to 6 months, 6 months to 1 year, 1 to 2 years, 2 to 3 years, or total LCU score and the percent of high (A's and B's) or the percent of low (D's and F's) grades assigned to the student by the high school teacher.

Null Hypothesis IX--Neither teacher absenteeism due to illness, frequency of teacher absenteeism, duration of teacher absenteeism, requests for teacher reassignment or transfer, number of times the teacher has moved, number of units or credits the teacher has earned beyond the Bachelor of Arts degree, number of student drop-outs, distribution of high and low student grades, nor any subset of these variables, when simultaneously included in a multiple regression equation, will significantly correlate with LCU scores.

Null Hypothesis X--Neither the 6 months to 1 year LCU score, 1 to 2 year LCU score, 2 to 3 year LCU score, total LCU score, nor any subset of these, when simultaneously included in a multiple regression equation, will significantly correlate with teacher performance variables.

Null Hypothesis XI--There is no significant correlation between the set of teacher performance variables and the set of LCU scores.

Simple Correlations

Table 4.1 depicts the pair-wise correlation coefficients for the five LCU scores and teacher performance variables. Three of the first eight null hypotheses were rejected ($p < .05$ level of

Table 4.1

Simple Correlation Matrix for LCU Scores and Teacher Performance Variables (TPV)

TPV	LCU Scores				
	0-6 mos.	6 mos. - 1yr.	1-2 yrs.	2-3 yrs.	Total
Absence - Illness	.16	.21*	.02	.20*	.20*
Absence - Frequency	.09	.06	.12	.15	.13
Absence - Duration	.14	.15	.09	.14	.17
Transfer Requests	-.13	-.11	-.05	-.11	-.13
Times Moved	.29*	.26*	.35*	.18	.34*
Units Earned	-.20*	-.15	-.15	-.15	-.21*
Student Drop-outs	.18	.01	-.04	.08	.08
Percent A's & B's	-.14	.05	.15	.00	.02
Percent D's & F's	.07	-.04	-.07	.06	.01

*$R \geq \pm .187$, $P \leq .05$ (N = 110)

significance): Hypothesis I (Absence-Illness), Hypothesis V (Times Moved), and Hypothesis VI (Units Earned). The correlation coefficients were positive for the relationship between LCU scores and TPV indicated for Hypotheses I and V; negative for Hypothesis VI supporting the thesis that life changes are associated with teacher performance. Thus, with Hypotheses I and V, the higher the total LCU score, the more days absent due to illness or injury, and the more residence moves, respectively, reported by the high school teacher. With the rejection of Hypothesis VI, on the other hand, the higher the total LCU score, the less units or credits earned beyond the Bachelor of Arts degree, indicating that participation in post graduate efforts is significantly inhibited by the amount of recent life changes experienced by the high school teacher.

While all three of the rejected nulls indicated significant correlation coefficients for total LCU scores and the TPV indicated, Hypothesis V (Times Moved) showed significant correlation coefficients for four of the five categories of LCU scores at levels of significance ranging from $p < .006$ (6 months-1 year LSU score) to $p < .0005$ (Total LCU score). Thus, association between LCU scores and Times Moved is not only significant and positive but very strong, indicating that the amount of life changes is a crucial

factor in the mobility versus stability orientation of the high school teacher.

Although the relation between Transfer Requests and LCU scores may or may not be significant, Hypothesis IV (Transfer Requests) as with Hypothesis VI (Units Earned) exhibit negative correlation coefficients in every cell of the LCU score - TPV matrix. Such consistent negative correlation coefficients appear to be logically related to positive correlation coefficients of LCU scores and Absence - Illness and Times Moved in that high school teachers who experience many residence moves and many days of illness would tend to request less or no transfers or engage in less graduate work than would be the case if they experienced less life changes.

The correlations between teacher performance variables are presented in Table 4.2. The correlation coefficients which had a value of $R \geqslant \pm .187$ were significant at $p \leqslant .05$ level. The highest correlations were between Percent A's and B's and Percent D's and F's (-.85), between Absence - Duration and Absence - Frequency (.85), and between Absence - Duration and Absence - Illness (.76). The perhaps more relevant coefficient correlations, however, were between Units Earned and Absence - Illness (-.28), Units Earned and Absence - Frequency (-.24), and

Table 4.2

Correlation Matrix of Teacher Performance Variables

	1 Times Moved	2 Absence-Illness	3 Absence-Frequency	4 Absence-Duration	5 Transfer Requests	6 Units Earned	7 Student Drop-Outs	8 Percent A's & B's	9 Percent D's & F's
1 Times Moved									
2 Absence-Illness									
3 Absence-Frequency		.55							
4 Absence-Duration		.76	.85						
5 Transfer Requests									
6 Units Earned		-.28	-.24	-.25					
7 Student Drop-Outs					-.19				
8 % A's and B's							-.19		
9 % D's and F's							.23	-.85	

$R \geq \pm .187$, $p \leq .05$

Units Earned and Absence-Duration (-.25). The negative correlations between the various categories of teacher absenteeism and Units Earned appear to be important particularly as Units Earned and total high school teacher LCU scores are also negatively correlated. Finally, the association between student grades and Student Drop-Outs indicates that higher grades are negatively correlated with Student Drop-Outs (-.19); lower grades are positively correlated with Student Drop-Outs (.23).

Multiple Correlations

Multiple correlation analysis is often called multiple regression, according to Cooley and Lohnes.[1] It provides an analysis of the relations among a single criterion measure and two or more predictor variables. The research hypothesis of this study examines the relations between life changes and teacher performance defined in terms of certain selected teacher related variables. Two of the statistical hypotheses (Hypotheses IX and X) were tested using multiple regression and two test procedures:

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[1]William W. Cooley and Paul R. Lohnes, Multivariate Procedures for the Behavioral Sciences (New York: John Wiley & Sons, Inc., 1962), p. 31.

(1) Each multiple correlation coefficient was tested to determine whether the magnitude was significantly greater than zero, and

(2) Variables were deleted, step-wise, from the multiple regression equation (a) to determine whether some subset in the original equation could be used with no resulting decrease in the multiple correlation coefficient, and (b) to determine the most parsimonious, yet precise, solutions.

The test procedures were followed first using each of the five LCU scores as a criterion with teacher performance variables as predictors, then using each of the teacher performance variables as criterion with only four of the five LCU scores as predictors.[2] The step-wise deletion of variables procedure produced the desired solutions for (1) the joint relationships of single LCU scores (criterion variables) and teacher performance variables (predictor variables), and (2) the joint relationships of single teacher performance variables (criterion variables) and LCU scores (predictor variables).

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[2] If one variable is automatically implied by the remainder of the variables, a condition known as singularity arises. This means that there are an infinite number of alternative sets of coefficients which would give the same minimum error sum of squares. The multiple regression deletion of variables procedure is sensitive to the condition of singularity.

The data pertinent to the subsets in the original equations that can be used with no resulting decrease in the multiple correlation coefficients are presented in Tables 4.3 and 4.5. Regression equations representing the most parsimonious solutions are shown in the last part of this chapter.

Table 4.3 presents the multiple correlation coefficients, F-ratios, degrees of freedom, and levels of significance for the joint relationship between single LCU scores used as criterion variables (dependent variables) and the significant, remaining (after deletion) teacher performance variables used as predictors (independent variables).

Table 4.3

Relationships Between LCU Scores and Teacher Performance Variables (TPV)

LCU Scores	Number of TPV Deleted	R	F	DF	Levels of Significance
0-6 mos.	None	.41	2.29	9/100	.02
6 mos. - 1 yr.	2	.37	2.26	7/102	.04
1-2 yrs.	None	.46	3.07	9/100	.003
2-3 yrs.	6	.27	2.84	3/106	.04
Total	None	.42	2.42	9/100	.02

Although these data meet or exceed the alpha = .05 level of significance selected to test the hypotheses under investigation, the data do not represent the most parsimonious solutions possible. Table 4.4 depicts the matrix of LCU scores and teacher performance variables in the order in which each was deleted. Thus, for example, with a 0-6 months LCU score as criterion, TPV in the order in which each was deleted is depicted in the first column. Similarly, for each of the remaining LCU scores, each column depicts the order in which the predictor TPV were deleted for each of the criterion LCU scores. Dashes in some of the cells of the TPV-LCU score matrix indicate the TPV that were retained in multiple regression equations. Variables were deleted according to the statistical significance of their contribution to the prediction of the criterion. Significance criterion (.05 alpha level) was met or exceeded in all cases except those indicated by an asterisk. The remaining variables constitute the subset of TPV in the original equation that can be used with no resulting significant decrease in the multiple correlation coefficients.

Null Hypothesis IX states that neither absenteeism due to illness, frequency or duration of teacher absenteeism, teacher requests for transfer, teacher times moved, teacher units earned, student drop-outs, distribution of high and low grades, nor any

Table 4.4

LCU Scores and Teacher Performance Variables (TPV)
Matrix Showing Order of TPV Deletions

TPV	LCU Scores				
	0-6 mos.	6 mos. - 1 yr.	1-2 yrs.	2-3 yrs.	Total
Absence - Illness	1	1*	5	--	2
Absence - Frequency	5	7	1	2*	3
Absence - Duration	6	8	4	3*	7
Transfer Requests	2	5	2	6	6
Times Moved	--	--	--	8	--
Units Earned	8	6	6	4*	8
Student Drop-outs	4	2	3	1*	1
Percent A's & B's	7	4	8	5*	4
Percent D's & F's	3	3	7	7	5

*Significance Criterion $p \leq .05$ not met.

subset of these, when simultaneously included in a multiple regression equation, will correlate significantly with LCU scores.

Since the multiple correlation coefficients of R = .41 (0 to 6 months LCU score and TPV), R = .37 (6 months to 1 year LCU score and TPV), R = .46 (1 to 2 years LCU score and TPV), R = .27 (2 to 3 years LCU score and TPV), and R = .42 (Total LCU score and TPV) were significant at less than .05 alpha level, the null hypothesis of no correlation was rejected. The deletion of variables from the computed multiple regression equations resulted in greater significance in all cases. The regression equation with 6 months to 1 year LCU scores as a criterion deleted TPV of (1) absence-illness, and (2) student drop-outs producing a subset of TPV which increased the level of significance from .081 (R = .372) to .036 (R = .366). The regression equation with 2 to 3 years LCU scores as a criterion deleted TPV of (1) student drop-outs, (2) absence-frequency, (3) absence-duration, (4) units earned, (5) percent A's and B's, and (6) transfer requests yielding a subset of TPV significant at .041 (R = .273) level from a .270 (R = .319) level of the original equation prior to deletion.

In sum, the multiple regression step-wise deletion of variables procedure dropped various orders of TPV in different equations (as shown in Table 4.4) according to the statistical

significance of their contribution to the prediction of the criterion.[3] In all but one instance, however, the Times Moved variable was retained. Nevertheless, in that instance, it was part of a significant subset and the last variable deleted in the 2-3 year/TPV equation.

Table 4.5 presents the multiple correlation coefficients (R), F-ratios, degrees of freedom, and levels of significance for the joint relationships between single TPV used as criterion variables (dependent variables) and the significant remaining (after deletion) LCU scores used as predictors (independent variables).

Table 4.6 depicts the matrix of TPV (criterion) and LCU scores (predictors) in the order in which the latter were deleted. In other words, each row of this table depicts the order in which the predictor LCU scores were deleted in regression equations for

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[3] It is important to keep in mind that this study seeks to determine the strength of the relationship between teacher performance and life changes. Cause-effect determinations of life changes and teacher performance fall outside the purpose of this study. Also, the step-wise deletion of variables procedure uses the partial-regression coefficient as a standard in selecting the variables to be dropped. Partial-regression coefficients ought to be interpreted only in terms of sets of samples in which the specific values of the predictor variables occur. Otherwise, there is a possibility of securing untrustworthy and invalid results.

Table 4.5

Relationships Between Teacher Performance Variables (TPV) and LCU Scores (4)*

Dependent TPV	Number of LCU Scores Deleted	R	F	DF	Levels of Significance
Absence-Illness	1	.27	2.87	3/106	.040
Absence-Frequency	3	.15	2.31	1/108	.132
Absence-Duration	3	.15	2.59	1/108	.111
Transfer Requests	3	.13	1.95	1/108	.166
Times Moved	None	.39	4.81	4/105	.001
Units Earned	3	.20	4.43	1/108	.038
Student Drop-outs	3	.18	3.41	1/108	.068
Percent A's & B's	1	.28	3.11	3/106	.030
Percent D's & F's	3	.07	0.51	1/108	.477

*Total LCU Score not used to avoid problem of singularity.

Table 4.6

Teacher Performance Variables (TPV) and LCU Scores Matrix Showing Order of LCU Score Deletion

TPV	LCU Scores			
	0-6 mos.	6 mos. - 1 yr.	1-2 yrs.	2-3 yrs.
Absence - Illness	1*	--*	2*	3*
Absence - Frequency	1	2	3	4
Absence - Duration	2	4	1	3
Transfer Requests	4	1	2	3
Times Moved**	3*	2*	--*	1*
Units Earned	--*	1	3*	2
Student Drop-outs	4	3	2	1
Percent A's & B's	--*	2*	--*	1*
Percent D's & F's	4	2	3	1

*Significance Criterion $p \leq .05$ met.

**Significance Criterion $p < .05$ met prior to deletion of variables.

each criterion teacher performance variable. Dashes in some of the cells of the matrix indicate the LCU scores that were retained in multiple regression equations. Variables were deleted, as previously noted, according to the statistical significance of their contribution to the prediction of the criterion. The significance criterion (.05 alpha level) was met or exceeded in those cases indicated by an asterisk. The remaining variables constitute the subsets of LCU scores in the original equation that can be used with no significant decrease in the multiple correlation coefficients. As such, these subsets of variables contributed significantly to the overall prediction of the equations.

Null Hypothesis X states that neither 0 to 6 months LCU score, 6 months to 1 year LCU score, 1 to 2 years LCU score, 2 to 3 years LCU score, nor any subset of these, when simultaneously included in a multiple regression equation, will correlate significantly with teacher performance variables.

Since the multiple correlation coefficients of R = .27 (Absence-Illness and LCU scores), R = .39 (Times Moved and LCU scores), R = .20 (Units Earned and LCU scores), and R = .28 (Percent A's and B's and LCU scores) were significant at less than .05 alpha level, the null hypothesis of no correlation was rejected. With Absence-Illness as a criterion variable, the 0 to 6 months

LCU score was deleted prior to obtaining the alpha .05 level of significance. With Units Earned as a criterion variable all but 0 to 6 months LCU score were dropped prior to achieving the desired level of significance. The regression equation with Times Moved as a criterion variable was significant at less than .05 alpha level prior to the deletion of any LCU scores. The deletion of 2 to 3 year LCU score in the regression equation with Percent A's and B's as a criterion resulted in an increase of significance from .059 (R = .287) for the original equation to .030 (R = .284) for the resulting equation. The most parsimonious solutions for these equations are presented in the Multiple Regression Equations section.

Finally, the coefficient R^2 provides an estimate of the proportion of the total variance in the criterion that can be predicted from the known variance in the predictors.[4] R^2 is also a measure of the overall effectiveness of the multiple regression. Tables 4.7 and 4.8 depict the R^2_s for the regression equations calculated to test the rejected nulls where (1) LCU scores were used as criterion variables; TPV as predictors, and (2) TPV were

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[4] R^2 may be defined as the proportion of the sum of the squared deviations from the mean of dependent (criterion) variable accounted for by the independent (predictor) variables.

Table 4.7

R^2 Coefficients for Measures of Life Changes (Criterion) and Teacher Performance (Predictors)

LCU Scores as Criterion	R^2	% Variance in Criterion Accounted for by Predictors (TPV)	Number of TPV (Predictors) Deleted	Levels of Significance
0-6 mos.	.171	17.1	0	.02
6 mos. - 1 yr.	.134	13.4	2	.04
1-2 yrs.	.216	21.6	0	.003
2-3 yrs.	.076	7.6	6	.04
Total	.179	17.9	0	.02

Table 4.8

R^2 Coefficients for Measures of Teacher Performance (Criterion) and Life Changes (Predictors)

TPV as Criterion	R^2	% Variance in Criterion Accounted for by Predictors (LCU Scores)	Number of LCU Scores (Predictors) Deleted	Levels of Significance
Absence - Illness	.075	7.5	1	.04
Times Moved	.155	15.5	0	.001
Units Earned	.039	3.9	3	.04
Percent A's and B's	.081	8.1	1	.03

used as criterion variables; LCU scores as predictors, respectively. These tables also indicate the number of predictor variables deleted and the level of significance.

The regression equation which accounted for the highest percent of the variance (21.6%) had 1-2 years LCU scores as the criterion variable retaining all TPV in the equation as predictors. The regression equation with Total LCU scores as criterion was the next highest accounting for 17.9% of the variance in the criterion variable, also retaining all of the TPV as predictors. With Times Moved as a criterion in the regression equation, 15.5% of the variance in the criterion was accounted for by all of the LCU predictors. The regression equation which accounted for the lowest percent of variance in the criterion (3.9%) had Units Earned as a criterion variable retaining only 0-6 months LCU score in the equation.

Generally, more of the variance in criterion variables was accounted for when TPV variables were used as predictor variables than when LCU scores were used as predictors. Thus, it would appear that multiple regression procedures were more effective where regression equations had LCU scores as criterion variables rather than TPV as criterion.

Canonical Correlations

As previously noted, canonical correlation is the maximum correlation between linear functions of two sets of variables. The number of canonical correlations is equal to the number of variables in the smaller set, i.e., five LCU scores. It is, in effect, the correlation between two multiple regression equations. Thus, canonical correlation is a special case of multiple regression where the number of criteria is greater than one. Computationally, it is irrelevant whether the variables on the left or on the right are considered criterion variables.

The significance of the canonical correlation for Null Hypothesis XI is presented in Table 4.9.

Table. 4.9

X^2 Test of Significance of Canonical Correlations of Measures of Teacher Performance and Life Changes

Number of Roots Removed	Canonical R	X^2	DF	P
0	.47	63.17	45	< .05
1	.40	37.15	32	> .05
2	.32	18.85	21	> .05
3	.23	7.45	12	> .05
4	.13	1.71	5	> .05

Null Hypothesis XI states that there is no significant correlation between the set of teacher performance variables and the set of LCU scores. The highest canonical R was .474 which was significant at less than the .05 level. Therefore, the null hypothesis was rejected.

The standardized canonical coefficients which correspond to the beta weights in a multiple regression equation are presented in Table 4.10. By inspecting the weights assigned to each variable, the relative contribution of each to the canonical correlation obtained can be ascertained.

Table 4.10

Canonical Coefficients for Measures of Life Changes and Teacher Performance

Criterion Variables	Standardized Coefficient	Predictor Variables	Standardized Coefficient
Times Moved	-.794	0-6 months	-1.197
Absence-Illness	.646	6 months-1 year	-1.496
Absence-Frequency	.279	1-2 years	-2.057
Absence-Duration	-.720	2-3 years	-1.263
Transfer Request	.159	Total LCU	3.929
Units Earned	.346		
Student Drop-Outs	.289		
% A's & B's	-.864		
% D's & F's	-.625		

The measures of teacher performance were loaded highest on Percent A's and B's and Times Moved. The loadings ranged from .159 for Transfer Request to .864 for Percent A's and B's.

The variables with the highest coefficients for life change data were 1-2 years and Total LCU scores. Life changes measured by these scores appear to contribute the most to the canonical correlation obtained. Similarly, by inspecting the standardized coefficients of the teacher performance variables, the following contributed the most to the canonical correlations obtained: Percent A's and B's, Times Moved, Absence-Duration, Absence-Illness, and Percent D's and F's, in that order.

Multiple Regression Equations

This section comprises the calculated multiple regression equations representing some of the most parsimonious solutions in terms of a number of independent or predictor variables deleted and the most significant alpha levels obtained.

For prediction equations having LCU scores as criterion variables, the equations formed from the regression coefficients are:

(1) LCU 0-6 mos. score = 184.43 + 20.53 (Times Moved)
- 17.92 (Units Earned) - .83 (Percent A's and B's),

Alpha Level Obtained = .002;

(2) LCU 6 mos. - 1 yr. score = 87.24 + 19.51 (Times Moved),

Alpha Level Obtained = .006;

(3) LCU 1-2 years score = 47.70 + 21.37 (Times Moved)
+ .67 (Percent A's and B's),

Alpha Level Obtained = < .0005;

(4) LCU 2-3 years score = 114.87 + 12.81 (Times Moved)
+ 5.63 (Absence-Illness),

Alpha Level Obtained = .029; and

(5) LCU Total score = 403.85 + 78.08 (Times Moved),

Alpha Level Obtained = < .0005.

For prediction equations having TPV as criterion variables, the equations formed from the regression coefficients are:

(6) Absence-Illness = 4.00 + .008 (6 months-1 year LCU score),

Alpha Level Obtained = .025;

(7) Times Moved = 1.39 + .006 (1-2 year LCU score),
Alpha Level Obtained = < .0005;

(8) Units Earned = 2.69 - .002 (0-6 months LCU score),
Alpha Level Obtained = .038; and

(9) Percent A's and B's = 46.98 - .039 (0-6 months LCU score)
+ .049 (1-2 year LCU score),
Alpha Level Obtained = .022.

Since the canonical correlation technique measures the strength of the relation between the set of TPV and the set of LCU scores, an equation representing the relationship between the two sets of variables indicates the largest possible correlation between predictor and criterion variables. In addition, the equation depicts which variables maximized the canonical correlation obtained. Both criterion and predictor variables are arranged in the equation in decreasing orders of relative contributions to the obtained canonical R.

(10) -.86 (% A's & B's) - .79 (Times Moved) - .72 (Absence-Duration) + .65 (Absence-Illness) - .63 (% D's & F's) + .35 (Units Earned) + .29 (Student Drop-Outs) + .28 (Absence-Frequency) + .16 (Transfer Requests) = 3.93 (Total LCU)

- 2.06 (1-2 years LCU) - 1.50 (6 months-1 year LCU)

- 1.26 (2-3 years LCU) - 1.20 (0-6 months LCU).

Alpha Level Obtained: $< .05$.

Summary

Chapter IV presented the results, findings, and interpretations of the hypotheses under investigation. These hypotheses describe relations of no significant correlations between teacher performance variables and LCU scores tested in terms of pairwise correlations, multiple regression procedures, and the canonical correlation technique. The latter is best understood as an extension of multiple correlation. Thus, the relationship of pairwise correlation was explored with Hypotheses I through VIII; the relationship of multiple correlation or regression with Hypotheses IX and X; and the relationship of canonical correlation with Hypothesis XI. The no significant correlation Hypotheses I (Absence-Illness and LCU scores), V (Times Moved and LCU scores), and VI (Units Earned and LCU scores) were rejected, the correlation coefficients of each exceeding a R of $\pm .187$, $p < .05$. Similarly, Hypotheses IX and X were rejected. These hypotheses tested (1) whether the multiple correlation coefficients were significantly greater than zero, and (2) whether the deletion of some of the TPV

or LCU scores led to a significant increase in the accuracy of prediction. With Hypothesis IX, which used each of the LCU scores as a criterion variable and TPV as predictors, all of the TPV or a subset of these significantly predicted LCU scores. With the criterion variable of LCU 6 months to 1 year score, the deletion of two TPV achieved an increase in the level of significance from .081 (R = .372) to .036 (R = .366). Similarly, the deletion of six TPV as predictors in the regression equation with 2 to 3 years LCU score as criterion produced an increase in the level of significance from .270 (R = .319) to .041 (R = .273). With Hypothesis X which used each of the TPV as a criterion variable and the LCU scores as predictors, a subset of the predictors significantly predicted TPV of (1) Absence-Illness, (2) Times Moved, (3) Units Earned, and (4) Percent A's and B's. With Hypothesis XI, the maximum correlation between the two sets of measures (LCU scores and TPV) was a canonical R = .474 which was significant at less than the .05 alpha level. Finally, multiple regression equations parsimoniously depicting the relationships between LCU scores and TPV together with the alpha levels of significance obtained were formed with the appropriate regression coefficients and were listed together with the equation showing the relative contributions of each of the

variables in the two sets of criterion TPV and predictor LCU scores.

CHAPTER V

SUMMARY AND CONCLUSIONS

Purpose of the Study

The purpose of this study is to assess the impact of life changes as measured by the Holmes and Rahe Schedule of Recent Experience (SRE) on high school teacher performance defined in terms of selected teacher related variables. An analysis of the relationships between teacher performance variables (TPV) and life changes (LCU scores) was undertaken by means of simple, multiple, and canonical correlation techniques. Eleven hypotheses were formulated:

Hypotheses I-VIII: There is no significant correlation between high school teacher's LCU scores and

I--days teacher was absent due to reported illness or injury;

II--frequency of teacher absenteeism;

III--duration of teacher absenteeism;

IV--requests for teacher transfer;

V--times the teacher has moved;

VI--units earned beyond Bachelor of Arts degree;

VII--student drop-outs; and

VIII--distribution of student high and low grades.

Hypothesis IX: There is no significant correlation between teacher performance variables or any subset of these, when simultaneously included in a multiple regression equation, and LCU scores.

Hypothesis X: There is no significant correlation between LCU scores or any subset of these, when simultaneously included in a multiple regression equation, and teacher performance variables.

Hypothesis XI: There is no significant correlation between the set of teacher performance variables and the set of LCU scores.

It was theorized that man is a biosystem with a limited capacity for change. When such limits are approached or overloaded the consequences affect an individual's perceptions, cope-ability, and health. It would appear that changes which affect the high school teacher's perceptions of the world, cope-ability, or physical and mental well-being would also tend to vitiate performance.

A review of the literature revealed no studies directly related to the problem under investigation: magnitude of life changes and certain teacher related variables are closely associated.

Some research has been done on the relationship between life changes and disease, broadly interpreted. However, no empirical investigations specifically concerned with the relationship between life changes and high school teacher performance, as defined in this study, have been conducted.

Methodology

The population under investigation consisted of employed high school teachers from three senior high schools in the Lansing School District, Lansing, Michigan, with teacher contracts for the years 1970-71 and 1971-72. A sample of N = 110 teachers out of 152 who responded to a letter soliciting teacher participation provided the basis for this study.

In order to test the hypotheses, it was necessary to collect data on life changes as well as teacher absenteeism due to illness; frequency and duration of teacher absenteeism; requests for teacher transfer; teacher times moved; units earned beyond the Bachelor of Arts degree; student drop-outs; and distribution of student high and low grades. Life changes were measured by the SRE which comprises forty-two unique life event items divided into two categories: (1) those indicative of the life style of the individual (Part A), and (2) those indicative of occurrences involving the

individual (Part B). These life change events covered a broad spectrum of ordinary social and interpersonal transactions ranging from matters of occupation, community, family and marriage to matters of religion, personal habits, and health. Data for the selected variables on teacher performance were collected from various sources through the Office of Research of the Lansing School District.

Hypotheses I-VIII were statistically analyzed by Pearson's coefficient of correlation. Hypotheses IX and X were analyzed using a modification of multiple regression techniques whereby a step-wise deletion of variables in the regression equation is undertaken (a) to determine whether the deletion of variables produced a subset which contributed significantly to the overall prediction, and (b) to achieve the most parsimonious, yet precise, solution possible. Hypothesis XI was statistically analyzed by means of the canonical correlation technique which measures the strength of the relation between the set of TPV and the set of LCU scores. The .05 level of significance was selected as the critical region of rejection.

Conclusions of the Study

The tests of significance revealed the following findings and conclusions:

1. Significant correlation coefficients between life changes (LCU scores) and teacher absenteeism due to reported illness or injury--the more life changes experienced by the high school teacher, the more days absent due to illness or injury. Such confirms the work of Holmes and others regarding the life changes subsequent illness thesis.
2. Significant correlation coefficients between life changes (LCU scores) and the number of times the high school teacher changed residence--the correlation coefficient was positive and the level of significance between Total LCU scores and Times Moved ($p < .0005$) constitutes a strong association between these variables, indicating that the magnitude of life changes is a crucial factor in the mobility versus stability orientation of the high school teacher.
3. Significant correlation coefficients between life changes (LCU scores) and the units or credits earned by the high school teacher beyond the Bachelor of Arts degree--the correlation coefficients were consistently negative for all cases although significant for only two cases, one of which was the Total LCU score. Thus, the more life changes

experienced by the high school teacher, the less units or credits earned beyond the Bachelor of Arts degree.

4. Significant multiple correlation coefficients between teacher performance variables (as predictors) when simultaneously included in a regression equation, and life changes (LCU scores as criterion variables)--the set of nine teacher performance variables or a subset of these significantly contributed to the overall prediction of life changes experienced by the high school teacher. Thus, teacher performance and life changes of the high school teacher are intimately associated.

5. Significant multiple correlation coefficients between life changes (LCU scores as predictor variables) when simultaneously included in a regression equation, and teacher performance variables (as criterion variables) --the set or a subset of life change unit scores significantly contributed to the overall prediction of teacher performance variables of (1) Absence-Illness, (2) Times Moved, (3) Units Earned, and (4) Percent A's and B's distributed to students. Thus, the magnitude of life changes experienced by the high school teacher and teacher performance are significantly related.

6. Both teacher performance variables, Units Earned beyond Bachelor of Arts degree and Transfer Requests, were consistently negatively correlated with the LCU scores of the high school teacher. Thus, it appears that the greater the magnitude of life changes experienced by the high school teacher, the less units earned and possibly the less requests for transfer. The latter inference may or may not be warranted since the required alpha level of significance was not obtained.
7. Significant correlation coefficients between the teacher performance variable Units Earned and (1) Absence-Illness, (2) Absence-Frequency, and (3) Absence-Duration --these correlation coefficients were negative, indicating that increases in teacher absenteeism from the classroom whether for illness or injury, and including frequency and duration, is significantly associated with less participation in postgraduate efforts as measured by units earned beyond the Bachelor of Arts degree. Thus, life changes as experienced by the high school teacher leading to absenteeism are closely associated with teacher performance.
8. Significant correlation coefficients between Student Drop-Outs and (1) Percent A's and B's and, (2) Percent D's and

F's distributed to the students of the high school teacher --the former was negative; the latter positive. Thus, the higher grades are associated with less student drop-outs; lower grades are associated with higher number of student drop-outs. If, as this study indicates, life changes experienced by the teacher are closely related to distribution of higher grades to students, and the latter are negatively correlated with student drop-outs, then it follows that life changes and teacher performance, as defined, are intimately associated. Thus, the magnitude of life changes experienced by the high school teacher may affect the number of student drop-outs.

9. Significant correlation coefficient between Student Drop-Outs and Transfer Requests by the high school teacher --the magnitude of Student Drop-Outs was negatively correlated with the number of transfer requests by the teacher. Thus, if life changes and teacher performance are closely associated, as the findings of this study indicate, an awareness of such by the high school teacher could lead to efforts to ameliorate the impact of life changes on teacher performance by making less requests for transfer or reassignment. Such is supported by the

consistent negative, although non-significant, correlation coefficients between life changes (LCU scores) and Transfer Requests.

10. Non-significant simple coefficient correlations were obtained for relationships between life changes (LCU scores) and (1) Absence-Frequency, (2) Absence-Duration, (3) Transfer Requests, (4) Student Drop-Outs, (5) Percent A's and B's, and (6) Percent D's and F's.

11. Significant canonical correlation coefficient between the set of criterion teacher performance variables and the set of predictor LCU scores-- the variables contributing the most to the significant canonical R obtained were the predictor 1-2 years and Total LCU scores and the criterion variables: Percent A's and B's, Times Moved, Absence-Duration, Absence-Illness, and Percent D's and F's. Thus the impact of life changes on teacher performance as measured by the SRE has been statistically confirmed.

12. In regression equations with life changes (LCU scores) as criterion variables, the common teacher performance variable for all five equations was the teacher performance variable Times Moved. Times Moved was predicted by all measures of LCU scores, the highest levels of significance

obtained being < .0005 by both recent (0-6 months) and less recent (1-2 years) life changes experienced by the high school teacher. Such confirms that the life changes/ teacher performance association is not only significant but crucial.

Inferences and Implications of the Study

The research hypothesis for this study postulated no significant correlations between high school teachers' Life Change Unit (LCU) scores as measured by the Schedule of Recent Experience (SRE) and selected variables of high school teacher performance (TPV). The analyses of the data in Chapter IV revealed significant simple, multiple, and canonical correlation coefficients between LCU scores and TPV. Thus, the answer to the research question posed in Chapter I,

Is the relationship between the magnitude of life changes significantly correlated with high school teacher performance?

is in the affirmative.

Generally, the significant association between life changes experienced by the high school teacher and teacher performance is one in which the life changes are related to the negative aspects of the TPV. Thus, for example, if more absenteeism, more

residence moves, and less units earned are considered negative or less desirable than their opposites, then the findings of this study associate high life changes (LCU scores) with the negative dimensions of the variables indicated. Moreover, significant and consistently negative correlation coefficients between the TPV of Absenteeism and Units Earned indicate that teachers who experience higher magnitudes of life changes will probably tend to perform poorly in their graduate work due to absenteeism. Such is supported also by the negative correlation between high school teacher Total LCU scores and Units Earned. What makes such an inference particularly pertinent is the fact that Units Earned is a criterion for obtaining permanent teaching credentials and automatic pay increases in many localities. The non-significant but consistently negative correlations between Requests for Transfer and magnitude of life changes experienced by the teacher also tend to support the inference that high life changes are associated with the negative aspects of TPV, if one couples low Requests for Transfer with high Student Drop-Out rates--a significant finding of this study. The significant, negative correlation between the Percent of A's and B's distributed to students of high school teachers and Student Drop-Outs is another finding which supports the claim that the impact of life changes on high school teacher performance is probably negative. (Percent

A's and B's are predicted by magnitude of life changes.) In sum, no findings of this study indicate that high life changes enhance teacher performance; on the contrary, high life changes tend to vitiate teacher performance.

One way to have achieved additional confirmation of the negative impact of life changes on high school teacher performance was by means of selected interviews with those teachers who scored high on the SRE and those who scored low. A comparison of these groups in terms of their perceptions and coping strategies regarding life changes and performance, however, was not possible. This unfortunate turn of events indicates the need for systematic life change assessment of teacher performance. Life change assessment can be defined as a reasoned response to the stress that a rapidly changing environment puts on our complex, increasingly industrialized, urbanized and densely populated society. The turn of events which precluded the interviews was associated with the conditions described. Nevertheless, studies which seek a better understanding of the complex relations between changes and reactions to changes as crystallized in teacher performance will achieve an increase in significance and credibility only when teachers themselves are willing and available to allow researchers to document their experiences.

An additional difficulty encountered in this study concerns a methodological limitation relevant to further research. If correlation techniques are to produce valid findings regarding the impact of life changes on teacher performance, it will be necessary for researchers to consider carefully what the SRE measures. The SRE measures life changes, as previously noted, along two dimensions: (a) those changes indicative of life style alteration, and (b) those changes indicative of individual changes to alterations in his environment. Such measures indicate a retrospective orientation for the researcher which if violated may yield invalid results. Thus, the knowledge of the occurrence of at least seven deaths of friends or relatives of the subjects of this study tempted the researcher to change the appropriate life change unit scores, this after all data relevant to teacher performance had been collected. The effect of such a procedure would have been to confound the results since the effects of such life changes could in no way be associated with past teacher performance measures. The SRE, although an accurate and highly validated instrument, has not yet achieved the status of a standardized test. Therefore, the possibility of accurate predictions regarding teacher performance remains an open question for exploration and study.

The implications for researchers concerning the application of SRE measures are of some importance to teacher education programs and community education as well.

Toffler has indicated that the role of the new educational revolution will be to capture control of the accelerative thrust of rapid change. The prime objective of education must be to increase the speed and economy with which persons can adapt to continual change.[1] Lippitt, for example, notes that rapid change in communications, urbanization, economic-occupational systems, as well as changes in human interaction and inter-dependency ". . . have created great changes in what must be learned, how much must be learned, and how fast it must be learned."[2] And, one could add how fast it must be forgotten and cast away without seriously affecting an individual's well-being. Drastic changes occur and occur rapidly, according to Drucker, wherever there is a conjunction of needs and knowledge.[3] As a result, teaching

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[1]Alvin Toffler, Future Shock (New York: Random House, 1970), p. 357.

[2]Ronald Lippitt and Colleagues, "The Teacher as Innovator, Seeker, and Sharer of New Practices," Perspectives on Educational Change, ed. Richard I. Miller (New York: Appleton-Century-Crofts, 1967), p. 307.

[3]Peter F. Drucker, The Age of Discontinuity, Guidelines to Our Changing Society (New York: Harper & Row, 1968), p. 347.

and learning will be transformed in the next few decades. "Economic necessity forces us to tackle the job, no matter how great the resistance of citizens and educators."[4]

The remarks of Bennis, Platt, and Keniston added to those of Drucker, Lippitt, and Toffler reinforce the conviction that our time is a time of momentous changes both in politics and science, in world perspectives, mores, arts and warfare.[5] According to Drucker we need to make change easy and as painless as it can be, for rapid changes are neither easy nor comfortable.[6] In short, the technology of tomorrow requires men who have the future in their bones.

> It is no longer sufficient for Johnny to understand the past. It is not even enough for him to understand the present, for the here-and-now environment will soon vanish. Johnny must learn to anticipate the directions and rate of change. He must, to put it technically, learn to make repeated, probabilistic, increasingly long-range assumptions about the future. And so must Johnny's teachers.[7]

If such is the case, the implications for teacher education programs and community education are obvious, namely to increase the individual's cope-ability, the speed and economy with which he

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[4] Ibid.

[5] Ibid., p. 3.

[6] Ibid., pp. 64 and 300.

[7] Toffler, op. cit., p. 357.

can adapt to continual change. The goals of teaching must change if the institutions charged with the education and training of teachers are to remain viable. Both teacher education and community education programs must prepare people to meet and cope creatively and effectively with change, rapid change, and life changes.

Ultimately, according to Toffler, to manage change the individual must anticipate it. The following suggested strategies and tactics may assist both teacher and community education to implement, test, and evaluate change-regulating measures aimed at capturing the accelerative thrust of change.

1. In the struggle to prevent future shock, students and teachers ought to be taught a variety of tactics that will tend to lower the levels of stimulation. Such tactics are well known. They involve "turning off" sensory stimuli when such approach the adaptive limits of the individual. This will most likely require a systematic process of self-examination in which the individual will consciously engage in self-observation and self-evaluation to determine his pace of life and the reactions to changes in his recent past.
2. The threat of overstimulation can also be influenced by learning how to develop and maintain longer-term

relationships with such elements of the environment as persons, organizations, or groups. Such would involve the establishing of "stability zones" in the lives of students and teachers. These stability zones are essentially patterns of relative permanence or constancy in an environment permeated with rapid change. Identifying areas of rapid change would, it appears, assist the student and teacher in developing those patterns of relative constancy which will maintain the individual within his adaptive range. Such will also enable the student and teacher to realize an optimum level of change required for physical and mental well-being.

3. The personal tactics described above must be reinforced by social strategies built into teacher and community education. The following are two social strategies which are suggestive of new approaches to cope with rapid change but especially life changes.

   (a) Situational groups, for example, are temporary organizations for persons who happen to be undergoing similar life changes of relocation, divorce, death of spouse, new occupation, etc. Situational groups should be devoted to discussing, sharing, and developing practical

strategies for coping with the present impact of change and anticipating the future.

(b) Crises counseling, to enable an individual to cope effectively with a major life change, is another social strategy which teacher and community education could implement for students and teachers. Such counseling would draw on the experience and voluntary services of lay experts who are recognized as such in virtue of having undergone similar crises and successfully learned to adapt to a major life crisis.

4. Other strategies would involve the manipulation of crucial elements in the environment to enable persons to adjust gradually or rapidly to changes. Such could involve a hypothetical assessment of the probable life changes an individual would have to undergo given a certain situation. These hypothetical changes could be measured in terms of the Schedule of Recent Experience (SRE). Thus, the SRE itself would serve as an anticipatory measure of the changes an individual would most likely undergo to adapt to a new situation. This could enable the individual to avoid certain stressful patterns as well as assess his personal stability zones against the demands of a new

hypothetical situation. It seems obvious that these preadaptive strategies which would allow the individual to vicariously experience a new environment and thus anticipate the future will thereby prepare students and teachers alike to cope more effectively with change and rapid change.

The above are not presented as panaceas for the prevention of future shock. Rather they constitute a partial list of what teacher and community education components can do if they are to increase the cope-ability of both students and teachers at a time when rapid change together with life changes threaten to overwhelm man's capacity to adapt to change.

However, more than tactics and strategies to cope with rapid change and life changes are required. What is needed, as Keniston and others have suggested, is a rediscovery of vital ideals together with a willingness to create new ideals, new values, new myths, and possibly new utopias that will help students and teachers to creatively adapt to as well as capture, and thus control, the accelerative thrust of rapid change.

Suggestions for Further Research

1. The most apparent problem revealed by this study is the need for further investigation into the analysis of the

impact of life changes on teacher performance as it affects student achievement or failure in the classroom. Drucker has said that the student drop-out is the quality control of education.[8] What effect do life changes as experienced by the high school teacher have on, not only teacher performance, but student performance as well? Are student drop-out rates significantly related to teacher performance variables?

2. A similar analysis of the relation between teacher absenteeism and life changes experienced by the teacher would provide strategies for coping with high rates of absenteeism among teachers. What are the financial implications of teacher absenteeism due to life changes experienced by the teacher?
3. Another related problem concerns the impact of life changes on student performance in the classroom. Are drop-out rates significantly correlated with the magnitude of life changes experienced by the student?
4. Absenteeism among students is probably an important factor in whether or not a student drops out, and the expectations the teacher holds for that student's success

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[8]Drucker, op. cit., p. 330.

or failure. Are high life changes correlated significantly with student absenteeism? Does a cause-effect relationship exist between these two variables?

5. What influences, if any, have colleges of education had on the preparation of teachers to cope or to teach students to cope with life changes and the forces of and for change aimed squarely at teachers in school systems?
6. Studies need to be undertaken at universities to compare the effects of high and low life changes on performance at all levels of education, including administration. What are the effects of high life changes on decision making? Does the magnitude of life changes experienced by administrators determine their orientation in the solution of educational problems? What is the relation between magnitude of life changes and conflict resolution, or receptivity to innovative programs?
7. Is Community Education the logical vehicle for capturing the accelerative thrust of rapid change? How can Community Education make rapid change as painless as possible as Drucker suggests?
8. How can education at whatever level develop and design systems that will increase the individual's cope-ability?

9. Holmes hypothesized that life change events, by evoking adaptive efforts by the human organism that are faulty in kind and duration, lower "bodily resistance" and enhance the probability of disease occurrence. The implication is that there are adaptive behaviors which are not faulty in kind and duration which may have the opposite effect cited by Holmes. Moreover, Toffler suggests that some people appear to thrive on rapid change. They want desperately to be where the action is and do not seem to care what the action is--so long as it occurs at a rapid pace. If such be the case, the study of persons who thrive on rapid change and the behavior associated with such change may assist educators to develop strategies to increase cope-ability for students, teachers, and administrators.

10. According to Toffler, one of the most important forms of knowledge imparted to a child is knowledge of "durational expectancies," i.e., knowledge of how long things last. What happens when these durational expectancies are disturbed by an altered pace of life? What are the effects on learning, retention, and perceptions? How do some persons successfully anticipate that situations will endure less long and thus are less frequently caught off guard?

11. For many, relocation of one's home, according to Toffler, even under the most favorable circumstances entails a series of psychological readjustments which are manifested as feelings of painful loss, continued longing, a general depressive tone, frequent symptoms of psychological or social or somatic distress, the sense of helplessness, expressions of both direct and displaced anger, and tendencies to idealize the lost place. The responses are strikingly similar to mourning for a lost person. What are the effects of such moves on students, teachers, and administrators? Some persons, according to Toffler, never do adjust adequately. Why? Commitment appears to correlate with duration of relationship. What are the effects of such moves on commitment to a community, its problems, politics, or quality?

12. School children and teachers are exposed to extremely high rates of turnover. It is not unusual for some city schools to replace half of their student body in one school year. Teachers thereby are robbed of the feeling of achievement they get from watching children develop. Moreover, a high proportion of teachers prepare to move to better jobs, better districts, or better opportunities.

What are the effects of such moves on the quality of education and the performance of both students and teachers?

In sum, educators need to develop and implement in-service training to explain, discuss, and share knowledge concerning life change assessment and the impact of life changes on the performance of teachers, students, administrators, parents, and others who in a rapidly changing world seek to capture the accelerative thrust of change.

Summary

This study adduces evidence to support the thesis that life changes as measured by the Schedule of Recent Experience (SRE) and selected teacher performance variables are significantly correlated. Moreover, the evidence indicates that high life changes experienced by the high school teacher are associated with the less desirable aspects of the teacher performance variables: teacher absenteeism, teacher times moved, and teacher units earned beyond the Bachelor of Arts degree. All of these and the percent A's and B's awarded to students were significantly predicted by regression equations with LCU scores as predictors. Thus, magnitude of life changes significantly predict or are otherwise

significantly related to these variables and others which indicate that teacher performance, as defined, and life changes are closely associated. As such, these findings merit further research.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Asch, S. E. Social Psychology. New York: Prentice-Hall, 1952.

Basowitz, Harold, and others. Anxiety and Stress. New York: McGraw-Hill Book Company, Inc., 1955.

Bennis, Warren G., Kenneth D. Benne, and Robert Chin (eds.). The Planning of Change. 2d ed. New York: Holt, Rinehart and Winston, Inc., 1969.

Biddle, Bruce J., and William J. Ellena (eds.). Contemporary Research on Teacher Effectiveness. New York: Holt, Rinehart and Winston, Inc., 1964.

Bower, Eli M., and William G. Hollister. Behavioral Science Frontiers in Education. New York: John Wiley and Sons, Inc., 1967.

Brown, R. G., R. A. Newell, and H. S. Vonk (eds.). Behavioral Implications for Curriculum and Teacher. Dubuque, Iowa: W. C. Brown Company, 1969.

Caudill, William. Effects of Social Cultural Systems in Reactions to Stress, (Pamphlet 14). New York: Social Science Research Council, June, 1958.

The Center for the Study of Democratic Institutions. The Establishment and All That. Santa Barbara, California: The Center for the Study of Democratic Institutions, 1970.

Cooley, William W., and Paul R. Lohnes. Multivariate Procedures for the Behavioral Sciences. New York: John Wiley & Sons, 1962.

Combs, Arthur W. (ed.). Perceiving, Behaving, Becoming: A New Focus for Education. Washington, D.C.: Association for Supervision and Curriculum Development, National Education Association, 1962.

Combs, Arthur W. The Professional Education of Teachers, A Perceptual View of Teacher Preparation. Boston: Allyn and Bacon, Inc., 1965.

Creelman, Marjorie B. The Experimental Investigation of Meaning. New York: Springer Publishing Company, Inc., 1966.

Downie, N. M., and R. W. Heath. Basic Statistical Methods. 3d ed. New York: Harper and Row Publishers, 1970.

Drucker, Peter F. The Age of Discontinuity, Guidelines to Our Changing Society. New York: Harper and Row Publishers, 1968.

Erikson, Erik H. (ed.). Youth: Change and Challenge. New York: Basic Books, Inc., 1963.

Fabun, Don. Dimensions of Change. Beverly Hills: Glencoe Press, 1971.

Fabun, Don. The Dynamics of Change. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967.

Freeman, Kathleen. The Pre-Socratic Philosophers, A Companion to Diels, Fragmente der Vorsokratiker. Cambridge: Harvard University Press, 1966.

Fromm, Erich. Man For Himself, An Inquiry Into the Psychology of Ethics. Greenwich, Connecticut: Fawcett Publications, Inc., 1947.

Fromm, Erich. The Revolution of Hope, Toward a Humanized Technology. New York: Bantam Books, Inc., 1968.

Gendlin, Eugene T. Experiencing and the Creation of Meaning. New York: The Free Press of Glencoe, 1962.

Goble, Frank G. The Third Force, the Psychology of Abraham Maslow. New York: Pocket Books, 1970.

Goodman, Paul. Compulsory Mis-Education. New York: Horizon Press, 1964.

Hays, William L. Statistics for Psychologists. New York: Holt, Rinehart and Winston, Inc., 1963.

Hoffer, Eric. The Ordeal of Change. New York: Perennial Library, 1963.

Koch, Sigmund (ed.). Psychology: A Study of a Science. Vol. 5. New York: McGraw-Hill Book Company, Inc., 1963.

Lief, Alfred (ed.). The Commonsense Psychiatry of Dr. Adolf Meyer. New York: McGraw-Hill Book Company, Inc., 1948.

Maslow, Abraham H. Toward a Psychology of Being. 2d ed. Princeton: D. Van Nostrand Company, Inc., 1968.

McNemar, Quinn. Psychological Statistics. New York: John Wiley and Sons, Inc., 1962.

Miller, Richard I. (ed.). A Directory of Individuals, Programs, and Agencies Engaged in the Study of Change. Bloomington, Indiana: The National Institute for the Study of Educational Change, 1967.

Miller, Richard I. (ed.). Perspectives on Educational Change. New York: Appleton-Century-Crofts, 1967.

Phi Delta Kappa, Inc. Educational Evaluation and Decision Making. Bloomington, Indiana: Phi Delta Kappa, Inc., 1971.

Platt, John. Perception and Change, Projections for Survival. Ann Arbor: The University of Michigan Press, 1970.

Sarason, Seymour B. The Culture of the School and the Problem of Change. Boston: Allyn and Bacon, Inc., 1971

Stevens, S. S. (ed.). Handbook of Experimental Psychology. New York: John Wiley and Sons, Inc., 1951.

Thomson, Sir George Paget. The Foreseeable Future. New York: The Viking Press, 1960.

Toffler, Alvin. Future Shock. New York: Random House, 1970.

Totten, W. Fred, and Frank J. Manley. The Community School, Basic Concepts, Functions, and Organization. Galien, Michigan: Allied Education Council, 1969.

Watson, Goodwin (ed.). Change in School Systems. Washington, D.C.: National Training Laboratories, National Education Association, 1967.

Watson, Goodwin (ed.). Concepts for Social Change. Washington, D.C.: National Training Laboratories, Institute for Applied Behavioral Science, National Education Association, 1969.

Journals

Brown, George W., and J. L. T. Birley. "Crises and Life Changes and the Onset of Schizophrenia." Journal of Health and Social Behavior, Vol. 9 (September, 1968), 203-214.

Campbell, Clyde M. "Community Education at a Cross Road." The Community School and Its Administration, Vol. 10 (January, 1972), 3.

Campbell, Clyde M. "Educators in the Center of Conflict." The Community School and Its Administration, Vol. 7 (February, 1969), 3.

Campbell, Clyde M. "Organizational and Administrative Climate for Community Education." The Community School and Its Administration, Vol. 10 (October, 1971), 2-3.

Casey, Robert L., Minoru Masuda, and Thomas H. Holmes. "Quantitative Study of Recall of Life Events." Journal of Psychosomatic Research, Vol. 11 (August, 1967), 239-247.

Cassel, John. "Social Science Theory as a Source of Hypotheses in Epidemiological Research." American Journal of Public Health, Vol. 54 (September, 1964), 1482-1488.

Cassel, John, and Herman A. Tyroler. "Epidemiological Studies of Culture Change." Archives of Environment and Health, Vol. 3 (July, 1961), 25-33.

Cobb, Sidney, and Stanislav V. Kasl. "Some Medical Aspects of Unemployment, Report to Respondents." Institute for Social Research, The University of Michigan (May, 1971), 1-9.

Hinkle, Lawrence E., and others. "II An Examination of the Relation Between Symptoms, Disability, and Serious Illness, in Two Homogeneous Groups of Men and Women." American Journal of Public Health, Vol. 50 (September, 1960), 1327-1336.

Holmes, Thomas H., and Richard H. Rahe. "The Social Readjustment Rating Scale." Journal of Psychosomatic Research, Vol. 11 (August, 1967), 213-218.

Holmes, T. Stephenson, and Thomas H. Holmes. "Short-Term Intrusions into the Life Style Routine." Journal of Psychosomatic Research, Vol. 14 (June, 1970), 121-132.

Lazarus, Richard S., and Charles W. Eriksen. "Effects of Failure Stress Upon Skilled Performance." Journal of Experimental Psychology, Vol. 43 (February, 1952), 100-105.

Lazarus, Richard S., James Deese, and Sonia F. Osler. "The Effects of Psychological Stress Upon Performance." Psychological Bulletin, Vol. 49 (July, 1952), 293-317.

Masuda, Minoru, and Thomas H. Holmes. "Magnitude Estimations of Social Readjustments." Journal of Psychosomatic Research, Vol. 11 (August, 1967), 219-225.

Masuda, Minoru, and Thomas H. Holmes. "The Social Readjustment Rating Scale: A Cross-Cultural Study of Japanese and Americans." Journal of Psychosomatic Research, Vol. 11 (August, 1967), 227-237.

McLaughlin, F. "Conversation, Two Humanists." Media and Methods, Vol. 8 (December, 1971), 24-29.

Nyquist, Ewald B. "Community Education in Times Like These." The Community School and Its Administration, Vol. 9 (November, 1970), 3.

Oppenheimer, J. Robert. "Prospects in the Arts and Sciences." Perspectives USA, No. 11 (Spring, 1955), 5-14.

Pedersen, Frank A., and Eugene J. Sullivan. "Relationships Among Geographical Mobility, Parental Attitudes and Emotional Disturbances in Children." American Journal of Orthopsychiatry, Vol. 34 (April, 1964), 575-580.

Rahe, Richard H. "Life-Change Measurement as a Predictor of Illness." Proceedings of the Royal Society of Medicine, Vol. 61 (November, 1968), 1124-1126.

Rahe, Richard H., Jack L. Mahan, Jr., and Ransom J. Arthur. "Prediction of Near-Future Health Change from Subjects' Preceding Life Changes." Journal of Psychosomatic Research, Vol. 14 (December, 1970), 401-406.

Rahe, Richard H., Joseph D. McKean, Jr., and Ransom J. Arthur. "A Longitudinal Study of Life-Change and Illness Patterns." Journal of Psychosomatic Research, Vol. 10 (May, 1967), 355-366.

Rahe, Richard H., and others. "Social Stress and Illness Onset." Journal of Psychosomatic Research, Vol. 8 (1964), 35-44.

Rosenthal, Robert. "Covert Communication in the Psychological Experiment." Psychological Bulletin, Vol. 67 (May, 1967), 356-367.

Ruch, Libby O., and Thomas H. Holmes. "Scaling of Life Change: Comparison of Direct and Indirect Methods." Journal of Psychosomatic Research, Vol. 15 (June, 1971), 221-227.

Stevens, S. S. "A Metric for the Social Consensus." Science, Vol. 151 (February 4, 1966), 530-541.

Weaver, Richard M. "Ultimate Terms in Contemporary Rhetoric." Perspectives USA, No. 11 (Spring, 1955), 122-141.

Wyler, Allen R., Minoru Masuda, and Thomas H. Holmes. "Seriousness of Illness Rating Scale." Journal of Psychosomatic Research, Vol. 11 (March, 1968), 363-374.

Newspapers

Bombeck, Erma. "Decisions, Decisions, Drive Shopper Batty." Detroit Free Press. April 5, 1972, p. 11.

Brothers, Dr. Joyce. "Snubbing a Funeral Causes Depression." Detroit Free Press. April 4, 1972, p. 15.

Gershen, Martin. "It' s the Same the Whole World Over." Detroit Free Press. February 27, 1972, "Parade Magazine," pp. 18-19.

Harris, Sydney J. "Resisting Change Deadens Society." Detroit Free Press. April 12, 1972, p. 15.

Harris, Sydney J. "Stress Chief Cause of Early Mortality." Detroit Free Press. June 7, 1972, p. 15.

Lerner, Max. "Daring to Dispute the Gnomes of Rome." The Flint Journal. March 10, 1972, p. 18.

Lewis, Anthony. "When Will We Realize That Growth Has Limits?" Detroit Free Press. March 7, 1972, p. 6.

Maidenberg, Michael. "Plant Closings Cause Illness, Expert Finds." Detroit Free Press. February 21, 1972, pp. 3A and 4A.

Montalbano, William. "All Systems--Stop! Less Than a Century Left? Yes, Says an MIT Computer, UNLESS . . . ." Detroit Free Press. March 5, 1972, Sec. B, p. 1.

"Study Warns World to Curb Growth Rate." Detroit Free Press. February 27, 1972, p. 16-A.

Periodicals

Asimov, Isaac. "When Aristotle Fails, Try Science Fiction." Intellectual Digest, Vol. 2 (December, 1971), 75-77.

Branscomb, Lewis M. "Why People Fear Technology." The Futurist, Vol. 5 (December, 1971), 232-233.

Brzezinski, Zbigniew. "The Politics of Zero Growth." Newsweek, Vol. LXXIX (March 27, 1972), 54.

Coates, Joseph F. "Technology Assessment: The Benefits . . . the Costs . . . the Consequences." The Futurist, Vol. 5 (December, 1971), 225-227.

"Grow Slow!" Newsweek, Vol. LXXIX (March 27, 1972), 75.

Huddle, Franklin P. "The Social Management of Technological Consequences." The Futurist, Vol. 6 (February, 1972), 17.

Kiefer, David M. "Assessing Technology Assessment." The Futurist, Vol. 5 (December, 1971), 234-239.

Luce, Gay Gaer. "Look What They're Doing for Jet Fatigue!" Travel and Leisure, Vol. 2 (April-May, 1972), 42-43 and 90.

Rosenthal, Robert, and Lenore F. Jacobson. "Teacher Expectations for the Disadvantaged." Scientific American, Vol. 218 (April, 1968), 19-23.

"The Stevenson Touch." Intellectual Digest, Vol. 2 (January, 1972), 29-36.

"Technology, Man and Nature." The Futurist, Vol. 6 (February, 1972).

"Technology's Seers." Newsweek, Vol. LXXIX (March 6, 1972), 69-70.

"To Grow or Not to Grow." Newsweek, Vol. LXXIX (March 13, 1972), 102-103.

Toffler, Alvin. "New York Faces Future Shock." New York (1970), 20-29.

Unpublished Materials

Grant, Harold W. "Motivation and Concerns of College Students." A speech given at the National Catholic Educational Association Convention, Detroit, Michigan (April, 1969). (Mimeographed.)

Holmes, Thomas H., and Minoru Masuda. "Life Change and Illness Susceptibility." Presented as part of a "Symposium on Separation and Depression: Clinical and Research Aspects" at the Annual Meeting of the American Association for the Advancement of Science, Chicago, Illinois (December 26-30, 1970). (Preprint.)

Holmes, T. S. "Adaptive Behavior and Health Change." Unpublished medical thesis, University of Washington, 1970.

Hoskins, Alice L. "An Assessment of the Correlation Between the Magnitude of Life Change and the Teacher Behavior of the Elementary Intern Teacher." Unpublished doctoral thesis, Michigan State University, 1972.

Munoz, Arnold N. "Planned Change: Factors That Inhibit Change and Strategies for Change," November, 1971. (Mimeographed.)

APPENDICES

APPENDIX A

Booklet for

SCHEDULE OF RECENT EXPERIENCE (SRE)

Thomas H. Holmes, M.D.

Richard H. Rahe, M.D.

This questionnaire consists of two sections, a personal history section (answer sheet 1) and a recent experience section (answer sheets 2 & 3). Each item of the questionnaire is numbered and is to be answered on the answer sheets according to the instructions. Read each item and the choice of answers carefully, judge the answer as it applies to you and mark it on the answer sheet. The mark is made by blacking out with a pencil the proper space between the 2 short parallel bars on the answer sheet. Make the marks black and heavy. Do not be afraid to make corrections, but erase cleanly. *Do not mark in the booklet.*

University of Washington

School of Medicine

Department of Psychiatry

Section 1, Answer Sheet 1, Social History
(Items 1 through 27)

The first 4 items of this section, the *name*, *date*, *birthdate* and *occupation*, are to be *written* in. All other questions are answered by blackening the bars. The questions to be answered are written out on the left hand side of the answer sheet. The answers are to be marked on the right side. Each question in this section has one answer that is appropriate so *do not leave any question without an answer mark.*

Example:

Item No. (Religious preference)					
8	Protestant	Catholic	Jewish	Other	None
	----	■	----	----	----

This means that your religious preference is Catholic.

Section 2, Recent Experience, Answer Sheets 2 & 3

Part A (Items 28 through 39)

This section of the questionnaire is different from the first section in 3 ways: first, the questions have to do with whether an event did or did not happen and when; second, the questions to be answered are written only in this instruction booklet; third, the answer sheets(2 & 3) have been separated into 4 time period columns.

For each numbered question in the booklet:

1. Think back on the item event and decide if it happened to you and when it happened.
2. If the event in question did happen in any of the time periods, mark the answer sheet by blackening the "Yes" bar in the appropriate time period columns which are headed:

0 to 6 mos ago *6 mos to 1 year ago* *1 to 2 years ago* *2 to 3 years ago*

3. If the event in question did not happen to you in any of the time periods, make a mark under "No."

When in doubt of the event happening, then mark "Yes." If you are not certain of the time period, do not worry; just try to be as close as possible. There must be a mark in each time period.

Example:

Item No. (Trouble with boss)								
28	*0 to 6 mos ago*		*6 mos to 1 yr ago*		*1 to 2 yrs ago*		*2 to 3 yrs ago*	
	Yes	No	Yes	No	Yes	No	Yes	No
	■	----	----	■	----	■	■	----

This means that you have had trouble with the boss in the last 6 months and between 2 and 3 years ago.

Item Number

28. Mark under the appropriate time periods when there has been either a lot more or a lot less trouble with the boss.
29. Mark under the appropriate time periods when there was a major change in sleeping habits (sleeping a lot more or a lot less, or change in part of day when asleep).
30. Mark under the appropriate time periods when there was a major change in eating habits (a lot more or a lot less food intake, or very different meal hours or surroundings).
31. Mark under the appropriate time periods when there was a revision in your personal habits (dress, manner, associations, etc.).
32. Mark under the appropriate time periods when there was a major change in your usual type and/or amount of recreation.
33. Mark under the appropriate time periods when there was a major change in your social activities (e.g., clubs, dancing, movies, visiting, etc.).
34. Mark under the appropriate time periods when there was a major change in church activities (e.g., a lot more or a lot less than usual).
35. Mark under the appropriate time periods when there was a major change in number of family-get-togethers (e.g., a lot more or a lot less than usual).
36. Mark under the appropriate time periods when you had a major change in financial state (e.g., a lot worse off or a lot better off than usual).
37. Mark under the appropriate time periods when you had in-law troubles.
38. Mark under the appropriate time periods when you had a major change in the number of arguments with spouse (e.g., either a lot more or a lot less than usual regarding child-rearing, personal habits, etc.).
39. Mark under the appropriate time periods when you had sexual difficulties.

Part B (Items 40 through 69)

This part of Section 2 is similar to Part A, except that the question now asks you to indicate the *number of times* that an item event happened in each of the appropriate time periods.

Each of the time period columns has bars numbered from 0 to 4+. "+" means more than. These numbers represent the number of times the event happened. If the event did not happen, mark the "0" bar. There must be a mark in each time period.

Example:

Item No. (Change in residence)

	0 to 6 mos ago					*6 mos to 1 yr ago*					*1 to 2 yrs ago*					*2 to 3 yrs ago*				
46	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+
	--	■	--	--	--	--	--	■	--	--	■	--	--	--	--	--	--	--	■	--

This means you changed residence once in the last 6 months, twice 6 months to 1 year ago, and three times between 2 and 3 years ago.

Item Number

40. Mark the number of times in each appropriate time period that you experienced major personal injury or illness.
41. Mark the number of times in each appropriate time period that you have lost a close family member (other than spouse) by death.
42. Mark the number of times in each appropriate time period that you have experienced the death of spouse.
43. Mark the number of times in each appropriate time period that you have experienced the death of a close friend.
44. Mark the number of times in each appropriate time period that you have gained a new family member (e.g., through birth, adoption, oldster moving in, etc.).
45. Mark the number of times in each appropriate time period that there has been a major change in the health or behavior of a family member.
46. Mark the number of times in each appropriate time period that you have had a change in residence.
47. Mark the number of times in each appropriate time period that you have experienced detention in jail or other institution.
48. Mark the number of times in each appropriate time period that you have been found guilty of minor violations of the law (e.g., traffic tickets, jay walking, disturbing the peace, etc.).
49. Mark the number of times in each appropriate time period that you have undergone a major business readjustment (e.g., merger, reorganization, bankruptcy, etc.).
50. Mark the number of times in each appropriate time period that you married.
51. Mark the number of times in each appropriate time period that you were divorced.
52. Mark the number of times in each appropriate time period that you had marital separation from your mate.
53. Mark the number of times in each appropriate time period that you had an outstanding personal achievement.
54. Mark the number of times in each appropriate time period that you had a son or daughter leaving home (e.g., marriage, attending college, etc.).
55. Mark the number of times in each appropriate time period that you have experienced retirement from work.
56. Mark the number of times in each appropriate time period that there was a major change in working hours or conditions.
57. Mark the number of times in each appropriate time period that you had a major change in responsibilities at work (e.g., promotion, demotion, lateral transfer).
58. Mark the number of times in each appropriate time period that you have been fired from work.
59. Mark the number of times in each appropriate time period that there was a major change in living conditions (building a new home, remodeling, deterioration of home or neighborhood).
60. Mark the number of times in each appropriate time period that your wife began or ceased working outside the home.
61. Mark the number of times in each appropriate time period that you took on a mortgage greater than $10,000 (e.g., purchasing a home, business, etc.).
62. Mark the number of times in each appropriate time period that you took on a mortgage or loan less than $10,000 (e.g., purchasing a car, T.V., freezer, etc.).
63. Mark the number of times in each appropriate time period that you experienced a foreclosure on a mortgage or loan.
64. Mark the number of times in each appropriate time period that you have taken a vacation.
65. Mark the number of times in each appropriate time period that you have changed to a new school.

66. Mark the number of times in each appropriate time period that you have changed to a different line of work.
67. Mark the number of times in each appropriate time period that you have begun or ceased formal schooling.
68. Mark the number of times in each appropriate time period that you had a marital reconciliation with your mate.
69. Mark the number of times in each appropriate time period that you had a pregnancy.

ANSWER SHEET ONE
SECTION 1

DO NOT WRITE IN THIS SPACE

DO NOT MARK THESE SPACES

1. NAME _____ (LAST / FIRST / MIDDLE)

2. DATE TODAY _____ (MO / DAY / YEAR)

3. BIRTH DATE _____ (MO / DAY / YEAR)

4. OCCUPATION _____

5. SEX	5.	MALE	FEMALE							
6. RACE	6.	WHITE	NEGRO	ORIENTAL	AM INDIAN	OTHER				
7. AGE GROUP	7.	LESS THAN 21	21-30	31-45	46-65	OVER 65				
8. RELIGIOUS PREFERENCE	8.	PROTESTANT	CATHOLIC	JEWISH	OTHER	NONE				
9. PRESENT MARITAL STATUS	9.	MARRIED	DIVORCED	SEPARATED	WIDOWED (R)	NEVER MARRIED				
10. NUMBER OF MARRIAGES	10.	0	1	2	3	4+				
11. NUMBER OF DIVORCES	11.	0	1	2	3	4+				
12. NUMBER OF TIMES LOST SPOUSE BY DEATH	12.	0	1	2	3	4+				
13. EDUCATION ATTAINED	13.	GRADE SCHOOL	HIGH SCHOOL	TECH SCHOOL	COLLEGE	ADVANCED GRAD DEGREE				
14. TIME AT PRESENT RESIDENCE	14.	1 YEAR	2 YEARS	5 YEARS	10 YEARS	10+ YEARS				
15. TIMES MOVED IN LAST 5 YEARS	15.	0	1	2	3	4	5	6	7	8	9+
16. COUNTRY OF BIRTH	16.	USA	WEST EUROPE	EAST EUROPE	ASIA	AFRICA	AUSTRALIA	NEW ZEALAND	CANADA	SOUTH AMERICA	CENTRAL AMERICA	DON'T KNOW
17. GEOGRAPHICAL AREA OF U.S. WHERE MOST OF LIFE HAS BEEN SPENT	17.	EAST	SOUTH	SOUTHWEST	MIDWEST	ROCKY MOUNTAIN	ALASKA	PACIFIC COAST	HAWAII	OTHER		
18. POPULATION OF BIRTHPLACE	18.	RURAL	5000-	5000+	50,000+	500,000+						
19. MOST OF LIFE SPENT IN	19.	RURAL AREA	5000-	5000+	50,000+	500,000+						
20. FATHER'S COUNTRY OF BIRTH	20.	USA	WEST EUROPE	EAST EUROPE	ASIA	AFRICA	AUSTRALIA	NEW ZEALAND	CANADA	SOUTH AMERICA	CENTRAL AMERICA	DON'T KNOW
21. MOTHER'S COUNTRY OF BIRTH	21.	USA	WEST EUROPE	EAST EUROPE	ASIA	AFRICA	AUSTRALIA	NEW ZEALAND	CANADA	SOUTH AMERICA	CENTRAL AMERICA	DON'T KNOW
22. NUMBER OF BROTHERS YOU HAVE	22.	0	1	2	3	4+						
23. NUMBER OF SISTERS YOU HAVE	23.	0	1	2	3	4+						
24. YOUR BIRTH ORDER IN FAMILY	24.	OLDEST	YOUNGEST	AROUND MIDDLE	ONLY CHILD							
25. YOUR AGE WHEN MOTHER DIED	25.	MOTHER LIVING	0-5 YEARS	6-10 YEARS	10-15 YEARS	16-20 YEARS	OVER 20 YEARS					
26. YOUR AGE WHEN FATHER DIED	26.	FATHER LIVING	0-5 YEARS	6-10 YEARS	10-15 YEARS	16-20 YEARS	OVER 20 YEARS					
27. OCCUPATIONAL GROUP	27.	ARMED FORCES	CLERICAL	MANAGERIAL	NONE	PROFESSIONAL	SALES	SERVICE	SKILLED	STUDENT	UNSKILLED	

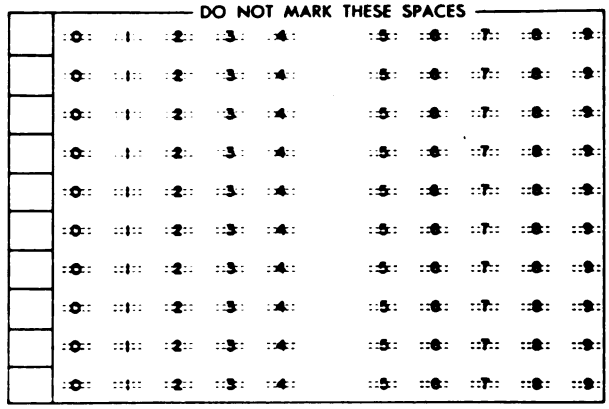
IBM H66343

ANSWER SHEET TWO

NAME _____
LAST FIRST MIDDLE

NOTE:
MARK EACH ANSWER CLEARLY; IF YOU MAKE CORRECTIONS, BE SURE TO ERASE CLEANLY.
DO NOT LEAVE ANY QUESTIONS WITHOUT A MARK IN EACH TIME PERIOD.

DO NOT MARK THESE SPACES



SECTION 2 PART A

	0 TO 6 MO AGO		6 MO TO 1 YEAR AGO		1 TO 2 YEARS AGO		2 TO 3 YEARS AGO	
	YES	NO	YES	NO	YES	NO	YES	NO
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								

SECTION 2 PART B

	0 TO 6 MO AGO					6 MO TO 1 YEAR AGO					1 TO 2 YEARS AGO					2 TO 3 YEARS AGO				
	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+
40																				
41																				
42																				
43																				
44																				
45																				
46																				

	0 TO 6 MO AGO					6 MO TO 1 YEAR AGO					1 TO 2 YEARS AGO					2 TO 3 YEARS AGO				
	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+	0	1	2	3	4+
47																				
48																				
49																				
50																				
51																				
52																				
53																				

ANSWER SHEET THREE

DO NOT MARK THESE SPACES

NOTE:
MARK EACH ANSWER CLEARLY; IF YOU MAKE CORRECTIONS, BE SURE TO ERASE CLEANLY.
DO NOT LEAVE ANY QUESTIONS WITHOUT A MARK IN EACH TIME PERIOD.

SECTION 2 PART B CON'T.

	0 TO 6 MO AGO	6 MO TO 1 YEAR AGO	1 TO 2 YEARS AGO	2 TO 3 YEARS AGO
54	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
55	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
56	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
57	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
58	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
59	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+

	0 TO 6 MO AGO	6 MO TO 1 YEAR AGO	1 TO 2 YEARS AGO	2 TO 3 YEARS AGO
60	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
61	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
62	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
63	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
64	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
65	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+

	0 TO 6 MO AGO	6 MO TO 1 YEAR AGO	1 TO 2 YEARS AGO	2 TO 3 YEARS AGO
66	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
67	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
68	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+
69	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+	0 1 2 3 4+

APPENDIX B

VALUES OF QUESTIONS ON SCHEDULE OF RECENT EXPERIENCE (SRE)

No.	SRE Question	Mean Value
28.	Trouble with boss	23
29.	Change in sleeping habits	16
30.	Change in eating habits	15
31.	Revision of personal habits	24
32.	Change in recreation	19
33.	Change in social activities	18
34.	Change in church activities	19
35.	Change in number of family get-togethers	15
36.	Change in financial state	38
37.	Trouble with in-laws	29
38.	Change in number of arguments with spouse	35
39.	Sex difficulties	39
40.	Personal injury or illness	53
41.	Death of close family member	63
42.	Death of spouse	100
43.	Death of close friend	37
44.	Gain of new family member	39
45.	Change in health of family member	44
46.	Change in residence	20
47.	Jail term	63
48.	Minor violations of the law	11
49.	Business readjustment	39
50.	Marriage	50
51.	Divorce	73
52.	Marital separation	65
53.	Outstanding personal achievement	28
54.	Son or daughter leaving home	29
55.	Retirement	45
56.	Change in work hours or conditions	20
57.	Change in responsibilities at work	29
58.	Fired at work	47
59.	Change in living conditions	25
60.	Wife begin or stop work	26
61.	Mortgage over $10,000	31
62.	Mortgage or loan less than $10,000	17
63.	Foreclosure of mortgage or loan	30
64.	Vacation	13
65.	Change in schools	20
66.	Change to different line of work	36
67.	Begin or end school	26
68.	Marital reconciliation	45
69.	Pregnancy	40

APPENDIX C

A REQUEST FOR ASSISTANCE LETTER

TO: High School Teachers

FROM: Elihu Carranza

SUBJECT: A Request for Your Assistance

Dear Colleagues,

This is a special request from one professional colleague to another for your cooperation.

According to some recent research studies by Dr. Thomas Holmes of the University of Washington (Seattle) and others, the occurrence and frequency of life-style change events are highly correlated with the onset of illness. The present study proposes a more modest research. It merely seeks to compare the occurrence and frequency of life-style change events of High School Teachers with another group.

A teacher survey dealing with the occurrence and frequency of recent life changes will be administered at the end of the next regular staff meeting. The survey will require 15-20 minutes of your time. It is anonymous and therefore confidential. We shall be at _____ High School on _____, December ____, 1971, at the regular faculty meeting to administer the survey. It has been discussed and cleared with the following persons:

1. Superintendent of Lansing Schools,
   Dr. Carl Candoli;
2. Director of Research,
   Dr. Edward Remick;
3. Director of Secondary Education,
   Mr. Robert Lott;
4. Officers of the MEA,
   Mr. Darrell DaFoe and Mr. Roger Stephon;

5. Principal of Everett High School,
   Mr. Calvin Anderson;
6. Principal of Eastern High School,
   Mr. Donald Johnson; and
7. Principal of J. W. Sexton High School,
   Mr. Dale Metts.

For those who desire additional information concerning the project, I shall be available immediately after the completion of the survey by the teachers.

My sincere thanks.

APPENDIX D

INSTRUCTIONS FOR SRE

1. Read: "This Survey is for high school teachers only! In order to protect your anonymity, the following procedures have been developed. We shall ask that you think of a five-digit number. You will be supplied with a blank card and pencil. You will then proceed to write your five-digit number and print your name on the card. Your five-digit number but not your name will also be entered on two answer sheets. The cards with your numbers and printed names will be picked up by a representative of the Office of Research. Thus the Office of Research will have a card with your name and your number. Your answer sheet with a number only on it will be in our possession. The Office of Research will not see your answer sheet. The reason for this rather detailed procedure, beyond protecting your anonymity, is to enable the Office of Research to gather some general informational background data. Such information is requested by number; the Office of Research matches the number with a name and returns the data requested under a number. In this way your anonymity is assured." (Time: 1 minute and 30 seconds)

2. Pass out packets. (Time: 10 minutes)

3. Read: "Each packet contains the following: (1) a blank card, (2) a pencil, (3) two answer sheets, and (4) a SRE Booklet. If any of these items are missing, raise your hand; we shall supply the missing items." (Time: 30 seconds)

4. Read: "Think of a five-digit number. Write the five-digit number on both answer sheets where it reads 'name.' Also, write the five-digit number and print your name on the card provided." (Time: 30 seconds)

5. Collect the cards. (Time: 5 minutes)

6. Read: "This questionnaire consists of two sections, a personal history section (answer sheet 1) and a recent experience section (answer sheets 2 and 3). Each item of the questionnaire is numbered and is to be answered on the number sheets according to the instructions. Read each item and the choice of answers carefully, judge the

answer as it applies to you and mark it on the answer sheet. The mark is made by blacking out with a pencil the proper space between the two short parallel bars on the answer sheet. Make the marks black and heavy. Do not be afraid to make corrections, but erase cleanly. Do not mark the booklet." (Time: 1 minute)

7. Read: "Begin!" (Total Time: 18.5 minutes)

APPENDIX E

SRE FIXER CDC 6500 PROGRAM

```
      PROGRAM SRE(INPUT,OUTPUT,PUNCH,TAPE5=INPUT,TAPE6=OUTPUT,TAPE7=PUNC
     2H)
      DIMENSION MCORE(52),MCORE1(52),MSTORE(32)
      DIMENSION ICORE(52),JCORE(52)
      DIMENSION IDATA(210),MULT(42),ISTORE(52),JSTORE(52)
      DATA MCORE/24*99,3,99,1,3*99,6,4,99,5,2,9*99,0,7*99/
      DATA MCORE1/16*99,3,7*99,4,99,0,2*99,8,9,5,6,7,2,2*99,1,6*99,0,
     27*99/
      DATA ICORE/11*99,10,2*99,11,99,0,99,1,10*99,0,2*99,1,3*99,0,10,
     24*99,0,99,0,7*99/
      DATA JCORE/9*99,20,21,13,14,10,11,12,30,22,31,3,4,0,1,2,40,32,0,40,4
     2,41,3,4,0,1,2,20,42,0,10,34,30,44,99,33,23,0,43,5*99,24/
      DATA MULT/23,16,15,24,19,18,19,15,38,29,35,39,53,63,100,37,
     239,44,20,63,11,39,50,73,65,28,29,45,20,29,47,25,26,31,17,30,
     313,20,36,26,45,40/
1     READ(5,901)(IDATA(I),I=1,4),(MSTORE(J),J=5,32)
      IF(EOF(5))50,2
2     READ(5,902)IA,(ISTORE(I),I=1,52)
      IF(IA-IDATA(4))49,3,49
3     READ(5,902)IA,(JSTORE(I),I=1,52)
      IF(IA-IDATA(4))49,4,49
4     DO 8 I=5,14
      IT=MSTORE(I)
      IA=MCORE(IT)
8     IDATA(I)=IA
      IT=MSTORE(15)
      IA=MCORE1(IT)
      IDATA(15)=IA
      DO 10 I=16,32
      IT=MSTORE(I)
      IA=MCORE(IT)
10    IDATA(I)=IA
      I1=33
      DO 20 I=1,24
      IT=ISTORE(I)
      IA=ICORE(IT)
      IDATA(I1)=IA/10
      I1=I1+1
      IDATA(I1)=MOD(IA,10)
```

```
20      I1=I1+1
        DO 24 I=25,52
        IT=ISTORE(I)
22      IA=JCORE(IT)
        IDATA(I1)=IA/10
        I1=I1+1
        IDATA(I1)=MOD(IA,10)
24      I1=I1+1
        DO 30 I=1,32
        IT=JSTORE(I)
26      IA=JCORE(IT)
        IDATA(I1)=IA/10
        I1=I1+1
        IDATA(I1)=MOD(IA,10)
30      I1=I1+1
        DO 40 I=1,4
        ISUM=0
        IA=32+I
        DO 39 J=1,42
        ISUM=ISUM+IDATA(IA)*MULT(J)
39      IA=IA+4
        IDATA(I1)=ISUM
40      I1=I1+1
        WRITE(6,950)(IDATA(I),I=1,100)
        WRITE(6,951)(IDATA(I),I=101,204)
        WRITE(7,960)(IDATA(I),I=1,76)
        WRITE(7,961)(IDATA(I),I=2,4),(IDATA(J),J=77,148)
        WRITE(7,962)(IDATA(I),I=2,4),(IDATA(J),J=149,204)
        GO TO 1
49      WRITE(6,910)(IDATA(I),I=1,4)
910     FORMAT(1H1,4I8)
        X=SQRT(-1.)
50        CONTINUE
901     FORMAT(I1,2I2,I3,1X,28R1)
902     FORMAT(5X,I3,1X,52R1)
950     FORMAT(1H ,I1,2I2,I4,96I1)
951     FORMAT(1H ,5X,100I1,4I5)
960     FORMAT(I1,2I2,I3,72I1)
961     FORMAT(1H2,2I2,I3,72I1)
962     FORMAT(1H3,2I2,I3,52I1,4I5)
        STOP
        END
```

APPENDIX F

PLAN TO CONVERT SCHEDULE OF RECENT EXPERIENCE (SRE) ANSWER SHEETS TO USABLE CARDS

Step 1

Complete identification boxes in upper right-hand corner of answer sheets 1, 2, and 3 as follows:

Line 1	Page number of answer sheets: e.g., 1, 2, or 3.
Lines 2 and 3	Identification code for particular group: 01 through 99.
Lines 4 and 5	Calendar year of group: '68 through '99.
Lines 6, 7, and 8	Subject's number: 001 through 999.

This identification system is utilized by the University of Washington Department of Psychiatry for its own purposes. This can be changed by the user to whatever coding system he desires. However, do not go beyond line 8. Also, be sure all markings on answer sheets are made with soft lead pencil.

Step 2

Take sheets to an IBM 1230 and 534 keypunch. To use this machine, take all page 1 answer sheets and place them face up, top towards machine, into the input bin. Put page 1 control on top of the stack. Put page 1 card on the drum of the 534. Put all switches of the 534 up and switch the drum control switch to the left. Now push the master and control switches up. See the switch diagram to set the rest of the switches. Click the clear switch. Push reset then the green (start) button. The control should be fed in. Then push the master and control switches down and push the green button again. The cards should be punched.

The same protocol as for page 1 applies for pages 2 and 3. You must change the drum card on the 534, put in the appropriate control page along with the answer sheets, and proceed as above.

Step 3

The cards generated are in alphanumeric form, thus still unusable. There is a program for the CDC 6400 that will generate punched cards, with the coding according to the coding sheet. The cards must be rearranged according to individuals, card 1, then 2, then 3. Place these cards between the end of record and end of program cards of the SRE fixer program. Punched output and printed output will be in the job number.

APPENDIX G

IBM CODING FOR SCHEDULE OF RECENT EXPERIENCE (SRE)

IBM Card 1 -- Columns 1-36. Section 1, Identification and personal history.

	Column No.	
IDENTIFICATION	1	IBM card number for each individual: 1.
	2, 3	Identification code for particular group: 01 through 99.
	4, 5	Year of group: '68 through '99.
	6, 7, 8	Subject's number: 001 through 999.

Item No.	Column No.		
5	9	Sex	1 = Male 2 = Female
6	10	Race	1 = White 2 = Negro 3 = Oriental 4 = American Indian 5 = Other
7	11	Age Group	1 = < 21 2 = 21-30 3 = 31-45 4 = 46-65 5 = > 65
8	12	Religion	1 = Protestant 2 = Catholic 3 = Jewish 4 = Other 5 = None

Item No.	Column No.		
9	13	Marital status	1 = Married 2 = Divorced 3 = Separated 4 = Widowed 5 = Never married
10	14	Number of marriages	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
11	15	Number of divorces	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
12	16	Number of times lost spouse by death	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
13	17	Education attained	1 = Grade school 2 = High school 3 = Technical school 4 = College 5 = Advanced graduate degree
14	18	Time at present residence	1 = 1 year 2 = 2 years 3 = 5 years 4 = 10 years 5 = 10+ years
15	19	Times moved in last five years	0 = 0 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5 6 = 6 7 = 7 8 = 8 9 = 9+ times

Item No.	Column No.		
16	20	Country of birth	1 = U.S.A. 2 = West Europe 3 = East Europe 4 = Asia 5 = Africa 6 = Australia
16	21	Country of birth	1 = New Zealand 2 = Canada 3 = South America 4 = Central America 5 = don't know
17	22	Geographical area of U.S. where most of life spent	1 = East 2 = South 3 = Southwest 4 = Midwest 5 = Rocky Mountain 6 = Alaska
17	23	Geographical area of U.S. where most of life spent	1 = Pacific Coast 2 = Hawaii 3 = Other
18	24	Population of birthplace	1 = Rural area 2 = < 5000 3 = > 5000 4 = > 50,000 5 = > 500,000
19	25	Most of life spent in	1 = Rural area 2 = < 5000 3 = > 5000 4 = > 50,000 5 = > 500,000
20	26	Father's country of birth	1 = U.S.A. 2 = West Europe 3 = East Europe 4 = Asia 5 = Africa 6 = Australia

Item No.	Column No.		
20	27	Father's country of birth	1 = New Zealand 2 = Canada 3 = South America 4 = Central America 5 = don't know
21	28	Mother's country of birth	1 = U.S.A. 2 = West Europe 3 = East Europe 4 = Asia 5 = Africa 6 = Australia
21	29	Mother's country of birth	1 = New Zealand 2 = Canada 3 = South America 4 = Central America 5 = don't know
22	30	Number of brothers you have	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
23	31	Number of sisters you have	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
24	32	Your birth order in family	1 = Oldest 2 = Youngest 3 = Around middle 4 = Only child
25	33	Your age when mother died	1 = Mother living 2 = 0-5 years 3 = 6-10 years 4 = 10-15 years 5 = 16-20 years 6 = > 20 years

Item No.	Column No.		
26	34	Your age when father died	1 = Father living 2 = 0-5 years 3 = 6-10 years 4 = 10-15 years 5 = 16-20 years 6 = > 20 years
27	35	Occupational group	1 = Armed forces 2 = Clerical 3 = Managerial 4 = None 5 = Professional 6 = Sales
27	36	Occupational group	1 = Service 2 = Skilled 3 = Student 4 = Unskilled

IBM Card 1 continued -- Columns 37-80. Section 2, Part A, Yes or No answers to items about recent experiences.

Each item takes four consecutive columns:

1st column refers to the time period 0-6 months
2nd column refers to the time period 6 months-1 year
3rd column refers to the time period 1 year-2 years
4th column refers to the time period 2 years-3 years

Item No.	Column No.		
28	37	0-6 months	The value in the column is either 0 = No 1 = Yes
	38	6 months-1 year	
	39	1 year-2 years	
	40	2 years-3 years	
		and so forth through:	
38	77		
	78		
	79		
	80		

IBM Card 2 -- Columns 1-12.

Item No.	Column No.	
	1	IBM card number for each individual: 2.
	2-8	Same as on Card 1.
39	9	Same as for Items 28-38 on Card 1.
	10	
	11	
	12	

IBM Card 2 continued -- Columns 13-80. Section 2, Part B, Number of times an item event happened in each time period.

Item No.	Column No.		
40	13	0-6 months	For the rest of the items the value in the column is: 0 = 0 1 = 1 2 = 2 3 = 3 4 = 4+
	14	6 months-1 year	
	15	1 year-2 years	
	16	2 years-3 years	
		and so forth through:	
56	77		
	78		
	79		
	80		

IBM Card 3 -- Columns 1-60.

Item No.	Column No.	
	1	IBM card number for each individual: 3.
	2-8	Same as on Cards 1 and 2.
57	9	Same as for Items 40-56 on Card 2.
	10	
	11	
	12	
		and so forth through:
69	57	
	58	
	59	
	60	

IBM Card 3 continued -- Columns 61-80.

In the following, the sum of the number of experiences is multiplied by the rating factor* of each experience:

Column No.		
61-65	Summation of all SRE points for	0-6 months
66-70	Summation of all SRE points for	6 months-1 year
71-75	Summation of all SRE points for	1 year-2 years
76-80	Summation of all SRE points for	2 years-3 years

Thus, the three IBM cards contain the following:

1. Section 1, Identification and personal history.
2. Section 2, Part A, Yes or No answers to items about recent experiences.
3. Section 2, Part B, Number of times an event happened in each time period.
4. Summation of individual's SRE scores for each time period.

---

*The rating factors are consecutively listed under the subscripted variable MULT in the SRE Fixer.

APPENDIX H

SRE WORKSHEET

SUBJECT NUMBER: _____ GROUP NUMBER: _____ NAME: _____

SRE SCORES: (0-6 mos.) _____ (6 mos. - 1 yr.) _____ (1-2 yrs.) _____ (2-3 yrs.) _____

TOTAL SCORE: _____

VARIABLES	TOTALS
TEACHER ABSENCES ILLNESS	
TEACHER ABSENCES FREQUENCY	
TEACHER ABSENCES DURATION	
REQUESTS FOR TRANSFER	
TIMES MOVED	
CREDITS EARNED	
STUDENT DROP-OUTS	
PERCENT A's & B's	
PERCENT D's & F's	

APPENDIX I

CODING OF DATA FOR STUDY

IBM Card 1

Item No.	Column No.		
	1 2 3	Subject's number: 001-110	
(Items 4 through 27 -- Demographic Data)			
5	4	Sex	1 = Male 2 = Female
6	out		
7	5	Age Group	1 = Less than 21 2 = 21-30 3 = 31-45 4 = 46-65
8	6	Religion	1 = Protestant 2 = Catholic 3 = Jewish 4 = Other 5 = None
9	7	Marital Status	1 = Married 2 = Divorced 3 = Separated 4 = Widowed 5 = Never married
10	8	Number of Marriages	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+

Item No.	Column No.		
11	9	Number of Divorces	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
12	out		
13	out		
14	10	Time at Present Residence	1 = 1 year 2 = 2 years 3 = 5 years 4 = 10 years 5 = 10+ years
15	11	Times Moved in Last Five Years	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4 6 = 5 7 = 6 8 = 7 9 = 8+
16	out		
17	out		
18	12	Population of Birthplace	1 = Rural area 2 = 5,000- 3 = 5,000+ 4 = 50,000+ 5 = 500,000+
19	13	Most of Life Spent in	1 = Rural area 2 = 5,000- 3 = 5,000+ 4 = 50,000+ 5 = 500,000+
20	out		
21	out		

Item No.	Column No.		
22	14	Number of Brothers You Have	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
23	15	Number of Sisters You Have	1 = 0 2 = 1 3 = 2 4 = 3 5 = 4+
24	16	Your Birth Order In Family	1 = Oldest 2 = Youngest 3 = Around Middle 4 = Only Child
25	17	Your Age When Mother Died	1 = Mother living 2 = 0-5 years 3 = 6-10 years 4 = 10-15 years 5 = 16-20 years 6 = over 20 years
26	18	Your Age When Father Died	1 = Father living 2 = 0-5 years 3 = 6-10 years 4 = 10-15 years 5 = 16-20 years 6 = over 20 years
27	out		

(Items 28 through 32 -- LCU Scores)

28	19 20 21	0-6 months LCU Score	0-9
29	22 23 24	6 months to 1 year LCU Score	0-9

Item No.	Column No.		
30	25 26 27	1 to 2 years LCU Score	0-9
31	28 29 30	2 to 3 years LCU Score	0-9
32	31 32 33 34	Total LCU Score	0-9

(Items 33 through 42 -- Teacher Performance Variables)

33	35 36	Teacher Absenteeism - Illness	0-9
34	37 38	Teacher Absenteeism - Frequency	0-9
35	39 40	Teacher Absenteeism - Duration	0-9
36	41	Requests/Transfer	0-9
37	42	Job Moves	0-9
38	43	Credits Earned	1 = BA 2 = BA + 23 3 = MA 4 = MA + 45+
39	44 45	Number of Student Drop-Outs	0-9
40	46 47 48	Number of Students	0-9
41	49	Number of Classes	0-9

Item No.	Column No.		
42	50	% A's & B's	0-9
	51	Given by Teacher	
	52	% C's & P's	0-9
	53	Given by Teacher	
	54	% D's & F's & I's & N's	0-9
	55	Given by Teacher	
.			
.			
.			
--	80	(Card Number)	0-9