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A PSYCHOLINGUISTIC STUDY OF THE ADULT LIFE SPAN:
IS THERE A RELATIONSHIP BETWEEN WRITING
AND STRESS ACROSS THE LIFE STAGES?

A DISSERTATION
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c 1986

by

Loreta Sue Milner

DEDICATION

This research project is dedicated to my husband, Dr. E. R. Milner, and my children, Suzette Camille and Wesley Tyre, who have encouraged and loved me even though at times my stressful self was less than lovable.

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L.S.M.

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ABSTRACT

This study was associational rather than experimental and was designed to explore the proposition that persons' life event responses or their perceptions of those events can affect linguistic choices. The primary purpose of the study was to ascertain if a relationship existed between persons' stress levels and their writing. The second major purpose was to determine, should a relationship exist between persons' psychological stress and their writing, whether sex, adult development stages as indicated by age categories or adult development stages as reflected in marker events included in the life events scale, as measured by the Variation of Social Readjustment Rating Scale (VSRRS) (Holmes & Rahe, 1967 and Cross, 1982), affected the relationship between linguistic measures and stress.

In this research, six sets of null hypotheses were tested. The Pearson product moment correlation was computed to test the null hypothesis of a zero correlatioin between

life event scale scores and linguistic measures. The Pearson product moment correlation was also used to test the null hypothesis of a zero correlation between adult life stage (age category) as reflected in marker events and linguistics. Multiple linear regression was used to determine the degrees of relationship between the seven linguistic measures collectively with life event scale scores to test the null hypothesis of a zero multiple correlation between life event scale scores and linguistic measures. One-way analysis of variance (ANOVA) was computed on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean response by age categories (life stage) and sex for each linguistic measure sampled. Two-way analysis of variance (ANOVA), using age categories and stress categories as factors, was conducted on linguistic measures to test the null hypothesis of no-effect of adult life stage (age category) on the relationship between life event and linguistics.

The results of this investigation seem to confirm that there is a relationship between stress and persons' writings, and also that adult development stages as indicated by age categories and adult development stages as reflected in marker events affect the relationship between linguistic measures and stress.

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CHAPTER I

INTRODUCTION

Background for the study

The proliferation of stress literature in response to society's preoccupation with the concept and increasing occurrence of stress has stimulated multifaceted research. Many researchers have observed a relationship between life event stress and age (life stage) (Masuda & Holmes, 1978; Paykel & Uhlenhuth, 1972; Rahe & Arthur, 1978). Others have studied the relationship between life event stress and behavior (Dohrenwend & Dohrenwend, 1974; Fairbanks & Hough, 1978; Holmes, 1978; Kobasa, 1979; Masuda & Holmes, 1978; Osgood & Walker, 1959; Paykel, 1974, 1978; Selye, 1974; Tennant & Andrews, 1977). Still others have investigated the relationship between age (life stage) and behavior (Cross, 1982; Erikson, 1959; Havighurst, 1979; Levinson, 1978; Weathersby, 1976, 1981). Some have studied, in isolation, psychological behavior or linguistics or a combination of the two called psycholinguistics to investigate the human mental processes as a basis for the acquisition and use of language (Cairns & Cairns, 1976; Slobin, 1974; Moscovici, 1972;

Chomsky, 1978; Spence, 1982; Siegman, 1982). However, none have researched linguistic behavior as a psychophysiological response to life event stress.

Several researchers have noted the need for studies in the above areas as well as other aspects of psychological, physiological, and sociological behavior. Lazarus (1966) recognizes that there are problems in mixing such levels of analysis as the physiological, linguistic, social, and psychological, so more research is needed. Further, the widespread use of the term "stress" has produced many definitions, but none definitive and few in agreement. Many medical scientists address the external conditions of stress such as "stressful life events," "life stress," or "stressors." Most, however, define stress as "bodily responses to stressful life events, to stressors" (Freese, 1976, p. 3). Selye (1972), perhaps the most prominent figure in stress research, defines it as "the most nonspecific response of the body to any demand made upon it" (7). He, along with Dohrenwend and Dohrenwend (1974), sees two specific issues in recent research on stressful life events: (a) Paradoxically, stress is part of life; however, certain activities or the lack of activities may be more stressful or less stressful than other life events, and (b) stressful life

events affect, differently, the etiology of somatic and psychological disorders.

Masuda, Holmes, and Rahe (1975, 1978) in their research have concluded that life changes are associated with illness onset; they have devised the Social Readjustment Rating Scale (SRRS) to quantify the amount of psychological readjustment required to cope with life events; but they caution that while future investigations are needed, care should be taken with the amount of influence indicated by certain variables such as age, marital status, sex, socioeconomic status, ethnicity, level of education, culture, and the experiencing of an event.

Kobasa (1979), like Masuda, Holmes, and Rahe, finds in her studies that life changes are associated with illness:

1. Among persons under stress, those who have a greater sense of control over what occurs in their lives will remain healthier than those who feel powerless in the face of external forces;

2. Among persons under stress, those who feel committed to the various areas in their lives will remain healthier than those who are alienated; and

3. Among persons under stress, those who view

change as a challenge will remain healthier than those who view it as a threat. (pp. 3-4)

Kobasa states that additional research in stress is necessary to explain the role of personality and other mediators regarding stressful life events and health, and thereby improving the quality of life in this complex, urbanized, and industrialized society.

J. Mendels and N. Weinstein (1972), based on the Holmes and Rahe SRRS, used the Schedule of Recent Experiences (SRE) to evaluate the reliability of weights assigned to individual items, but they concluded that more studies are necessary to differentiate between positive and negative events.

Rahe and Arthur (1978) assert that one difficulty in middle twentieth century measurements of life stress results from the assessments of stress being confounded by the effects of stress. For example, rather than researchers focusing on the nature of the stress itself, their studies address the individual's reports along with psychological interpretations of the life stress on the person's moods, emotions, and other states. Lately, research has shifted to more objective studies; that is, investigators studying life events prior to the onset of illness find that the most stressful events cluster around the two-year period before

illness. Rahe and Arthur caution, however, that recent life change events account for only a portion of life stress. Other mediators might be environmental or social demands which necessitate adjustment.

Rahe and Arthur (1978) have formulated a model that incorporates intervening variables (mediators). The first variable in the model is the life situation or stressor and the individual's perception of the life event which includes the effects of mediators such as age, sex, life stage, ethnicity, and social assets. Step two is psychological defense, again incorporating the mediators as determinants or influences of defense preference. Step three pertains to the psychophysiological response, the tangible behavior such as bodily reactions or one's verbal or nonverbal behavior.

Steps four, five, and six focus on the individual's response management, illness behavior, and illness measurement. While recognizing that one's perception of an event may alter or mediate the significance of the event, they postulate that negative events such as the death of a spouse generally cause more readjustment than a positive event such as taking a vacation. Rahe and Arthur propose that future studies should focus on the individual's perception of the

event and the necessary readjustment in response to it. Specifically, they suggest research on mediating factors such as sociological, psychological, and physiological characteristics or responses (behaviors) of the person.

Other researchers such as Fairbanks and Hough (1979) suggest future studies that will show external stimuli (mediators) as prime movers in life events. They also submit that "an increase in the number of events to which the individual is required to adjust will increase the probability that the defenses will fail to reduce the impact of the events" (p. 41). Further, they propose that future research should develop life event measures (behaviors) which are direct expressions of the theory employed.

The question in much of the research focuses on which is the best behavior (measurement) of life events or stressors. The research today is directed toward psychology, linguistics, or a combination called psycholinguistics. Psychology is "interested in investigating the state of human consciousness" (Cairns & Cairns, 1976). Specifically in the laboratory, it studies perception of color, form, auditory signals, but the method is introspection. That is, the activity looks at the "meaning" or "image" of certain aspects such as colors, forms, and auditory signals. The problem

with psychological studies is that there is little agreement on the interpretation of the stimuli; everything is strictly subjective with no objective measurement of the stimuli or stressors. Linguistics has proved to be equally nonproductive because it deals with the structure of language and little concern with "the science of human behavior." This language structure includes speech sounds, meanings, and a complex grammar system relating sounds and meanings (Slobin, 1974). Psycholinguistics, then, has attempted to bring together the "theoretical and empirical tools of both psychology and linguistics to study the mental processes underlying the acquisition and use of language" (Slobin, 1974, Introduction). It is not only the study of underlying knowledge and abilities but a study of overt linguistic behavior. Slobin (1974) suggests that speech is behavior and thus an appropriate measurement; one can listen to or record speech on tape. He notes, however, that one cannot record language, only behavior of language. What Slobin, Cairns, and other are suggesting is that future research in the field of psycholinguistics, studying the mental processes underlying the acquisition and use of language, must utilize speech or some other verbal

measurement (behavior). Researchers like Moscovici (1972) note the need for future studies in the psychology of language:

The semantic realm . . . has, from the psychosociological point of view, remained a virgin territory. The study of meaning in the processes involving changes of attitude, social influence, conflict, or psycho-logic has never been undertaken systematically. (p. xiii)

Cairns and Cairns (1972) also acknowledge the need for measuring this psychology of language; "While the hypothesis is about an unobservable cognitive process, the test of the hypothesis is by means of a measurable, objective human response" (p. 111). And specifically, Cairns and Cairns see speech as one example of observable behavior.

The best defense for future studies in the psychology of language is seen in the profound remarks of Chomsky, the father of modern linguistics: "the study of language may very well, as was traditionally supposed, provide a remarkably favorable perspective for the study of human mental processes" (1968, p. 84). He continues,

For the first time in many years, it seems to me, there is some real opportunity for substantial

progress in the study of the contribution of the mind to perception and the innate basis for acquisition of knowledge. . . . By pursuing the kinds of research that now seem feasible and by focusing attention on certain problems that are now accessible to study, we may be able to spell out in some detail the elaborate and abstract computations that determine, in part, the nature of percepts and the character of the knowledge that we can acquire--the highly specific ways of interpreting phenomena that are, in large measure, beyond our consciousness and control and that may be unique to man. (1972, p. 99)

To date, research on psycholinguistics has mainly used speech as a verbal indicator. Spence (1982), who devoted his studies to linguistic verbal indicators of stress, observed that speech as a measurement has "had a long history and a mixed press" (p. 295). He feels speech indicators have yielded positive results, but that these positive findings often go unreplicated and that there may be other and perhaps more viable alternatives. Mahl (1956) asserts that because speech is complex and highly organized in its behavior it becomes vulnerable to interference of stress. Siegman

(1982) agrees with Mahl that other stress indicators may prove more conclusive; he emphatically states, "the search for unobtrusive, non[speech] correlates of stress and anxiety is a matter of practical importance" (p. 306).

Research utilizing an alternative to verbal (speech) markers of stress can be seen in studies by Emig (1971), Britton et al (1975), Hirsch (1977), Kroll (1978), and Scardamalia and Bereiter (1979) who state there is a need to study writing as a psychological process. Daiute (1981) believes that research should be a combined effort of studying writing and the psychology of language to provide a workable psycholinguistic model of the writing process. Specifically, it should focus on the relationship between behavior and linguistic structure in organic sentence production.

Even though most research about the relationship between speaking and writing has emphasized the differences, Daiute believes that they are sufficiently similar to warrant study of both for insights about "ongoing psycholinguistic processing" (1981, p. 9). Further, since most research has centered on speech as a measurement of linguistic behavior, Daiute (1980), Chaika (1981), Gleser, Winget, and Seligman (1979), Gottschalk and Uliana (1978), and Miller and Phelan

(1979) all have used speech models for their studies of writing as measurement of linguistic behavior. Using these models, Daiute (1980), Goldberger (1982) and others hypothesized that memory constraint contributes to weak semantic structures in writing. Osgood and Walker (1959), Mandler (1982), Miller and Phelan (1980), Selye (1956, 1974), Shattuck-Hufnagel (1979), and Sunshine and Horowitz (1972) suggest that stress is the factor involved in memory constraint and the resultant weak semantic structures. Most of the researchers, however, propose that their investigations are "breaking new ground" and much more work needs to be done.

In addition to the vast amount of research in the areas of stress, linguistics, and psycholinguistics, a large corpus of work has been devoted to adult development, that is, adult life span, adult life stages or phases, and adult life cycles or life stages. Investigators in these areas include Chickering, Havighurst, Gould, Levinson, McCoy, Sheehy, and Weathersby (Cross, 1981). Those addressing ego and personality development comprise Erikson, Vaillant, and Loevinger; moral development is discussed by Kohlberg and Turiel; and cognitive or intellectual development is the focus of Perry (Cross, 1981).

According to Havighurst, and later Chickering, certain developmental life tasks are required for one's healthy and and satisfactory growth in society. These are physiological, psychological, and sociological demands which one must satisfy in order to be happy and successful. For Havighurst, specific demands occur and must be dealt with during certain periods of a person's life. Successful adjustment leads to happiness, but unsuccessful achievement will contribute not only to present unhappiness but also to future difficulties (Havighurst & Chickering, 1981).

Havighurst (1972) identified six stages or ages of development, each of which he feels must be successfully completed on time in order to succeed in the subsequent stage. He also noted that being successful at one stage does not necessarily guarantee success at the next. The six stages include Early Childhood, birth to 5 or 6 years; Later Childhood, 6 years to 12 years; Adolescence, 12 to 18; Early Adulthood, 18 to 30 years; Middle Adulthood, 30 to 60 years; and finally, Late Adulthood, 60 plus. In 1981 Havighurst and Chickering revised several of these stages, adding intervening ones so that the adulthood period could be more comprehensive. They include Late Adolescence as 16 to 23 years; Early Adulthood, 23 to 35 years; Middle Transition as

35 to 45 years; Late Adulthood Transition as 57 to 65 years; and Late Adulthood as 65 and over.

Havighurst credits Erik Erikson as being the second most important adult development researcher (the first, he says is Charlotte Buehler) (Havighurst, 1981). Erikson conceives of growth through the life span as a "process of meeting and achieving a series of eight psychosocial tasks, each of which dominates the development of the individual at a certain stage of life" (Chickering, 1981, p. 18). Further, Erikson feels that resolution of each of these life periods is essential for one to become a wholly functioning person and each involves the person, his ego, and his society. In other words, an individual's growth cannot be separated from his physical and social world. For one's ego to develop, the individual must synthesize opposing tendencies and achieve a sound sense of self (ego identity) (Erikson, 1950). Erikson (1966) proposed that the life cycle has embedded developmental tasks which he articulates in eight stages:

1. Early Infancy (Trust vs. Mistrust) birth to one year.
2. Later Infancy (Autonomy vs. Shame or Doubt) 1 to 3 years.
3. Early Childhood (Initiation vs. Guilt) 4 to 5 years.

4. Later Childhood (Industry vs. Inferiority) 6 to 12 years.

5. Adolescence (Ego Identity vs. Role Confusion) 12 to 20 years.

6. Early Adulthood (Intimacy vs. Isolation) 20 to 40 years.

7. Middle Adulthood (Generative vs. Stagnation) 40 to 60 or 65 years.

8. Late Adulthood (Integrity vs. Despair) 65 years or older.

The last three stages are the focus of studies of the adult life cycle. Erikson believes that one must successfully complete, and on time, each of these eight stages in order to proceed and function well in each subsequent stage (Erikson, 1966).

Vaillant (1977), using Erikson's framework to describe the adaptive techniques each man in the longitudinal Harvard study used to confront life's problems, discovered two new tasks: "career consolidation" as a task between intimacy and generativity and "keeping the meaning" or "rigidity" after the task of generativity and before integrity. But one of the most important findings by Vaillant was that people cannot be expected to remember accurately the

events and meanings of a previous life period. One actually reconstructs his own history as he moves from one life stage to another. An individual gains great empathy and clarity from naming or labeling tasks, regardless of how well or poorly one adjusts to life's circumstances. (Weathersby, 1976, p. 15)

Levinson (1978), similar to Erikson and Vaillant, concluded that developmental tasks are crucial to the evolution of the life periods. He also included transition periods, usually about five years, and proposed that it is the transitional periods which are most important to a person's success. Further, he identified critical issues and periods in adulthood. He sees the developmental tasks, structures, and processes as including "biological, psychodynamic, cultural and social-structural factors" (Weathersby, 1976). Unlike Erikson, though, Levinson believes the periods are more than just a function of the adult's socializing system. Rather, they are shaped by occupational, educational, and familial systems. Also, Levinson proposed only four developmental periods accompanied by four transition periods. The four developmental periods are Childhood and Adolescence, 3 to 17 years; Early Adulthood, 22 to 40 years; Middle

Adulthood, 45 to 60 years; and Late Adulthood, 65 and over. For Levinson, though, the four developmental periods are not as crucial as the transitional periods. The individual must reexamine life at each of these periods in order to be successful at the next. The transitional periods are Early Childhood Transition, birth to 3 years; Early Adulthood Transition, 17 to 22 years; Mid-life Transition, 40 to 45 years; and finally, Late Adulthood Transition, 60 to 65 years.

Levinson's studies of what he calls "the life structure" suggest that if the individual does not reexamine life at each transition period, say at 40, then the identity crisis will be more pronounced, and any stabilization period will be temporary, usually lasting no longer than eight to ten years. Weathersby (1976) and others have questioned Levinson's universality since his study used a sample of 40 men between 35 and 45 from four occupational groups. But Weathersby concluded that universality is not important; instead, the critical element is "acknowledging the validity of the idea that one's life structure, viewed internally, if not externally, changes configuration at regular intervals throughout life" (Weathersby, 1976, p. 29).

Gould's five year study (1978), corroborating Levinson's description of life stages, also addressed different age levels in adulthood and offered an elaborate coverage of the inner developmental tasks through the life stages. Gould noted that the major task involves one's becoming aware of contradictory forces coexisting in the individual's emotions. For Gould, transition must involve the thoughtful confrontation of choices and experiences whereby the individual makes a change or transformation (Weathersby, 1976).

Drawing heavily on the research of Gould and Levinson, Sheehy (1976) conducted a longitudinal study of 115 adults to identify common denominators of the way adults view themselves and their world, to compare the way men's and women's developmental rhythms work, and to look at couples' predictable crises (Cross, 1981). She, too, found ages, stages, and transition periods as internal unfolding in a sequence of natural growth.

Other researchers have studied phases of particular aspects of development rather than the total life-span. For example, Loevinger (1976) studied ego and personality development. Weathersby (1980) discussed her 1977 Goddard study utilizing the earlier work of Loevinger and

suggested implications for future adult development. Gilligan (1981) and Kohlberg and Turiel (1971) researched moral development while Perry (1981) looked at cognitive or intellectual development. Others like Cross and McCoy (1982) along with Chickering and Weathersby (1981) have attempted to synthesize some of these studies.

Most of the researchers agree that the way one perceives and copes with the transitions or the events themselves determines the amount of stress and the type of behavior involved. For example, Weathersby (1976) studying marker events, concluded that they are age-related, and that a person's increased awareness of sources of tension and possible directions for change may affect the amount of stress. Perry (1973) believes that "stress is related to motivation since the degree of stress is related to the length of the motive being threatened. However, as stress increases and anxiety mounts, the organism becomes less capable of mastery" (p. 1).

The research, then, in several disciplines, while interesting and enlightening, has not investigated linguistic behaviors as a psychophysiological response to life event stress. Much research has focused on "stress" as a phenomena of modern society; equally voluminous

have been the studies on linguistics and psycholinguistics; and finally has been the vast corpus of adult development research. The paucity of literature focusing on linguistic behaviors as a psychophysiological response to life event stress is evident. This study proposed to fill this void by ascertaining whether there are relationships between linguistic measurements, stress, gender, life stages as indicated by age categories and life stages reflected in marker events.

Statement of the Purpose

Even though many different psychological states could have been investigated, this study was restricted to the state of stress. One purpose of the study was to determine if a relationship existed between a person's stress level and his writing. The second major purpose was to determine, should a relationship exist between a person's psychological stress and his writing, whether sex, adult development stages as indicated by age categories or adult development stages as reflected in marker events included in the life events scale affected the relationship between linguistic measures and stress.

Questions to be Answered

1. Do individual linguistic measurements reflect stress?
2. When correlating life event scale scores with several linguistic measurements for the subject's writing sample, is there a relationship between linguistic complexity (multiple linguistic measures) and stress?
3. Does adult life stage as indicated by age categories affect the linguistic measurements?
4. Does sex affect the linguistic measurements?
5. If the linguistic measurements do reflect stress, does adult life stage as reflected in marker events which are included in the life events scale differently affect linguistic measurements?
6. If the measurements do reflect stress, does adult life stage as indicated by age categories affect the relationship between linguistic measurements and stress?

Null Hypothesis

1. There is a zero correlation between life event stress scale scores (SRRS) and individual linguistic measures.
2. There is a zero correlation between adult life event stress scale scores (SRRS) and all linguistic measures collectively.

3. There is no significant difference in the mean response by age categories (life stage) for each linguistic measure applied.

4. There is no significant difference in the mean response by gender for each linguistic measure sampled.

5. There is a zero correlation between adult life stage as reflected in the marker events sub-scale of the SRRS and individual linguistic measures.

6. There is no significant effect of adult life stage as indicated by age categories on the relationship between life event scale scores and linguistics.

Rationale for the Study

The rationale for this study was based on six significant premises drawn from the literature briefly reviewed above:

1. There is a relationship between life event stress and age (life stage) (Masuda & Holmes, 1978; Paykel & Uhlenhuth, 1972; Rahe & Arthur, 1978).

2. There is also a relationship between life event stress and behavior (Dohrenwend & Dohrenwend, 1974; Fairbank & Hough, 1978; Holmes, 1978; Kobasa, 1979; Masuda & Holmes,

1978; Osgood & Walker, 1959; Paykel, 1974, 1978; Selye, 1974; Tennant & Andrews, 1977).

3. In addition, there is a relationship between age (life stage) and behavior (Cross, 1982; Erikson, 1959; Havighurst, 1979; Levinson, 1978; Weathersby, 1976).

4. There is a need for the study of psycholinguistics. For example, Chomsky (1968, p. 84) states: "the study of language may very well, as was traditionally supposed, provide a remarkably favorable perspective for the study of human mental processes."

5. To date, research on psycholinguistics has primarily used speech as a verbal indicator, but Spence (1982), Mahl (1956), and Siegman (1982) believe that other verbal indicators such as written language may prove more useful.

6. Research should be a combined effort of studying writing and the psychology of language to provide a workable psycholinguistic model of the writing process (Daiute, 1981).

Based on these premises, the rationale for the study was that (a) linguistic behavior is one of the psychophysiological responses which are affected by stress, (b) both linguistic behavior and stress are affected by life stages (age), and thus (c) the relationship between linguistic behavior and stress is affected by life stages

(age). Furthermore, the premises above also supply the justification for using written rather than oral language.

Definition of Terms

The definition of terms as listed below has been used throughout this investigation:

Adult Development: qualitatively different phases or stages people pass through from birth to death (Cross, 1982).

Age: identifiable period of time in which certain life events or changes may occur, also called life stage in this study.

Algorithm: a precise, completely specified procedure used for seeking the solution to a problem or deriving the answer to a question; the procedure is usually coded into a non-mathematical language, then communicated to a computer which quickly and accurately executes its assigned chores, then transmits results to the human for interpretation (Wachal, 1966).

Behavior: the psychological or physiological response to life events, situations, stress; in this study it may be a linguistic measurement.

Content Words: usually considered to be nouns, verbs,

adjectives, and adverbs contained in a passage (Lowenthal, 1968).

Crisis Periods: time periods in which people must quickly adjust to several overt and/or covert events, situations, changes in their lives.

Disorganization Index (DI): the total number of words in each passage divided by the number of independent clauses in each passage; used to obtain sentence length but corrected for compound sentences.

Effort Index (EI): the number of basic mental differentiations required to produce a passage and the minimum mental effort necessitated to implement a passage (Halstead, 1977).

Function Words: morphemes used "to signal relationships within language and to signal certain favored meanings" (Bolinger, 1968, p. 57); usually they contain little lexical meaning but can be predicted from the text (Lowenthal, 1968); prepositions and conjunctions.

Intelligence Index (II): the amount of information the passage contains (Halstead, 1977).

Level Index (LI): the level of the passage; the conciseness of the passage and the related power of the involved language (Halstead, 1977).

Lexical Diversity Index (LDI): also called a Type/Token Ratio (TTR) (Johnson et al., 1944): a "good measure of lexical diversity, differentiating between educational levels, telephone versus ordinary conversations and so on" (Osgood & Walker, 1959, p. 60).

Life Change Unit (LCU): the score affixed to a life event on the Social Readjustment Rating Scale.

Life Crisis: "any clustering of life change events whose individual values summed to 150 Life Change Units (LCUs) or more in one year" (Holmes & Masuda, 1974, p. 59).

Life Cycle: a person's life from birth to death, also called life span.

Life Event: stimuli or situations to which persons are exposed to some degree in the natural course of life, such as marriage, birth of a child, death of a parent (Cross, 1982).

Life Event Stress: the response to situations to which most individuals are exposed to some degree in the natural course of life, such as marriage, birth of a child, death of a parent (Selye, 1956; Cross, 1982).

Life Phase or Stage: age-related period of change or development in lives of people.

Linguistics: structure of language, including speech sounds and meaning, a complex grammar system, relating sounds and meaning.

Linguistic Behavior: a measurable psychological or physiological response utilizing language or communication to life event, situation, stressor.

Linguistic Measure: a formula which mathematically and systematically measures language property.

Major Life Crisis: a score of 300 or more Life Change Units (LCUs) within one year on the Social Readjustment Rating Scale (Holmes & Masuda, 1974).

Marker Events: specific situations or tasks accepted as "norm" for an individual's particular life phase and age; for example, leaving home, 18-22 involves establishing new living arrangements, entering college, starting first job, and selecting mate (Cross, 1982).

Mediator: intervening variables which affect a person's adjustment to life events or situations, such as age, sex, life stage, ethnicity, social events, environment.

Mild Life Crisis: a 150-199 score of Life Change Units (LCUs) within one year on the Social Readjustment Rating Scale (Holmes & Masuda, 1974).

Moderate Life Crisis: a 200-299 score of Life Change Units (LCUs) within one year on the Social Readjustment Rating Scale (Holmes & Masuda, 1974).

Psychology: a study interested in investigating the state of human consciousness (Cairns & Cairns, 1976).

Psycholinguistics: a synthesis of "theoretical and empirical tools of both psychology and languages to study the mental processes underlying the acquisition and use of language" (Slobin, 1974, Introduction).

Punctuation Incidents: the total number of punctuation marks of a passage. The Snobol computer program used in some of the calculations for this study also includes the number of paragraphs as punctuation incidents and will be noted accordingly.

Readability Index (RI): calibration of factors that makes sources either easier or more toilsome to read as indicated by various grade levels (Bormuth, 1969; Irving & Arnold, 1979).

Social Readjustment: "the intensity and length of time necessary to accommodate a Life Event, regardless of the desirability of this event" (Holmes & Rahe, 1967, p. 213).

Social Readjustment Rating Scale (SRRS): a ratio scale which "measures the intensity and length of time necessary to

accommodate to a life event . . . and ranks the events as to their relative degrees of necessary readjustment" (Holmes and Masuda, 1974, p. 49) in an average person's life.

Stress: nonspecific result of any demand upon the body, effect being mental or somatic (Selye, 1974); bodily response to stressful life events, to stressors (Freese, 1976).

Stressor: a life event or situation causing bodily demands.

Style Index (SI): a measurement of style remaining consistent for different size samples from a particular text (Herdan, 1960); or should be consistent in different texts by the same author "as long as environmental conditions . . . remain the same" (p. 28); Herdan calls it Type/Token Ratio.

Token: in this study, the frequency of word occurrence in a text.

Type: in this study, synonymously used as lexical unit word.

Variation of Social Readjustment Rating Scale (VSRRS): a ratio scale which combines the 43 items of Holmes and Masuda's ratio scale measuring "the intensity and length of time necessary to accomodate to a life event. . . and [ranking] the events as to their relative degrees of necessary readjustment" (Holmes and Masuda, 1974, p. 49) with

the items from Cross' synthesized list (1982) for a total of 59 life events on the instrument used in this investigation.

Word: a sound or combination of sounds, represented in writing that symbolizes and communicates a meaning. In linguistics, a word is the lexical unit and morpheme the smallest lexical unit of meaning. However, in this study "word" not "morpheme" will be used as the smallest lexical unit of meaning.

CHAPTER II

REVIEW OF LITERATURE

This investigation was designed to study the premise that an individual's response to life events or his perception of those events can affect his linguistic choices, that is, there is a relationship between one's stress level and his writing. The purpose of the research was to empirically gather data from adult students to examine life events they had experienced within the last year, their perception of those events, and to ascertain whether the readjustment to the events (stress) was reflected in their writing samples. The review of literature will focus on the exigency for investigation of such a relationship in the adult population, representative authorities in the areas of stress, adult development, and linguistics and psycholinguistics, and the rationale for using certain life event rating scales and linguistics as measurements of life events (stress).

Exigency for the Investigation

Because the learning society of today's world is so

rapidly changing, being able to study the correlation of a learner's life events and his writing has tremendous future ramifications. For example, if a counseling center at a learning institution could identify possible student stress problems, it could perhaps make recommendations to minimize some of the stress areas and ultimately aid in the individual's successful learning endeavor. But more important is the possibility of a student recognizing his own stressful life events, being able to modify his perception and adjustment to those stressful events, and making changes in his schedules, that is, changes in his educational, social, and professional activities. Another possible advantage of isolating such a relationship and providing counseling for successful learning would impact the institutions' concern about retention; with today's colleges' and universities' vast fiscal problems such information could prove invaluable. Still another advantage of knowing a student's attitude and/or stress response to life events could alter an instructor's method of teaching. Finally, if an employer, in an educational setting, could somehow identify possible pressures in an individual's life events, that individual's work-life might prove more profitable for both the individual and the employer. The

significance of these five advantages of identifying adult students' responses to stressful life events emerges in the following discussion of demographic changes, social changes, and technological changes of today's learning society.

In earlier and more simple times, one generation passed on to the next most of the information it needed to function well in the world. But today, as Toffler noted (1970, p. 14), "most people are grotesquely unprepared to cope" with the accelerated changes and the accompanying "shattering stress and disorientation" in their lives. Unless mankind learns to control this rate of change both man and society are "doomed to a massive adaptional breakdown" (p. 2). Over a decade later, Naisbitt (1982) echoed Toffler: "we seem to be a society of events, just moving from one incident--sometimes, even crisis--to the next, rarely pausing (or caring) to notice the process going on underneath" (p. 2).

Moreover, the United States is becoming a nation of adults. No longer is America a nation of the young. In 1980 the pendulum began to swing with the majority of the population being between 15 and 29 years. But by the twenty-first century the largest group will comprise 30 to 40 year olds. Cross (1982) notes that Richard Easterlin, an

economist from the University of Pennsylvania, stated that demographics is the best indicator for predicting economic conditions, divorce rates, fertility rates, and even women's movements. Such demographic information allowed educators and economists alike to realize that the 1970s and 1980s influx of the baby boom would cause a competitive market with college graduates having to remain at entry level jobs. And because of this phenomenon, many displaced or dissatisfied persons are returning to college either for advanced degrees or to retrain for other professions.

Closely associated with demographic fluctuations are social changes. Prior to 1940 men held most of the jobs, but between 1950 and 1977 49% of women over 16 worked in the marketplace. The recent thrusts for equal opportunity also effect tremendous social changes; the Lifelong Learning Act (Public Law 94-482, 1976) provided educational opportunities so that the minorities could better compete for jobs. Specifically it assured no restrictions of "previous education, or training, sex, age, handicapping condition, social or ethnic background, or economic circumstance" (Section 131). Another social change involved attention to leisure time and what Cross (1982) calls a "blended life plan" (p. 9). Older adults are being prodded

into early retirement to create new job opportunities for the younger adults; thus these still quite robust adults now need to find fulfillment for their new full-time leisure. Many of these older adults now are returning to school on either a full-time or part-time basis. Some continue to work part-time and also attend school. Often young adults, particularly women and minorities, are blending their education and employment.

Technology, too, contributes to these changes in today's society. Naisbitt (1982) submits that we are moving from an industrial to an informational society, using brainpower to create rather than physical power. He cautions that society "must not lose sight of the need to balance the human element in the face of all that technology" (p. 250). And the most formidable task will be to train individuals to work in this new information society. The third world countries will now be assuming many of the industrial jobs, so that the United State must forge boldly ahead if it is to meet the new challenges of the future. Optimistic, Naisbitt believes America, having the foresight to recognize advantages of long-term approaches and concomitant reward systems, is changing its business directions as the world changes and will continue

to be the leading "provider of information, knowledge, and expertise" (p. 250).

Stress

Early Studies Defining the Stress Syndrome

Most experts of stress consider Cannon's (1929) Bodily Changes in Pain, Hunger, Fear, and Rage as the definitive source for research in this area. Cannon studied how fear and anger assist in the animal's survival and the relationship of pain and hunger to stress. He observed that in response to an "alarm" reaction adrenalin pours into the blood stream from the adrenal glands and prepares the animal for either flight or fight. Further, Cannon recognized psychological characteristics of stress and that this stress can ultimately manifest itself in disease (Freese, 1976).

Adding to Cannon's speculations that stressful life events can be harmful, Meyer in the 1930's advocated the life chart for use in medical diagnosis. He stated, "we begin with the entering of date and year of birth . . . ; we next enter the periods of disorders of the various organs, and after this the data concerning the situation

and reactions of the patient" (1951, p. 53). Specific events that he considered noteworthy were changes in place of residence; school entrance, graduations, or changes; change of jobs; important births or deaths in the family, and other notable environmental situations (1951). Meyer suggested, then, that even the most ordinary events may contribute to stress and resultant illness.

Wolff (1953), drawing heavily on the insights of the Russian scientist Pavlov and the Austrian psychiatrist Freud, has also contributed much to stress research (Freese, 1976). Studying the different ways people respond to stressful stimuli, he observed that a stimulus may adversely affect one person but not another. He postulated that "noxious" stimuli may damage either the person's individual tissues, entire health, or even survival. Some people, however, may find stress, not noxious, but inspirational; for example, Charles Darwin's illness spurred him to formulate his ideas about evolution, and Florence Nightingale's malady prompted her work for nursing reform (Freese, 1976).

Perhaps the dominant stress authority is Selye (1956) who conceived what he calls the general adaptation syndrome or biological stress syndrome. Stress, for Selye, is "the

nonspecific response of the body to any demand made on it" (1982, p. 7). For example, cold makes a person shiver, heat causes one to perspire, and exercise results in an individual's faster heart rate and higher blood pressure. According to Selye, all stressors necessitate readjustment or adaptation to change, whether the stressor is illness, grief, cold, or some other physical factor. Further, he concluded that stress response is hormonal, and similar to Wolff, believed that it is the same for all stressors (nonspecific). In addition, Lazarus (1966) building on Selye's findings, states that behavior variability decreases as severity of stress increases. But one's adaptation to the stressful event determines whether the stress is beneficial or detrimental. And an individual's adaptation energy is exhaustable; with prolonged or chronic stress disease or death may result. Finally, Selye proposed that the anticipation of a stressful life event such as a new job, a test, or a surgery may be as stressful as the event itself, and that stress is "part of life. . . a natural by-product of all our activities" (1956, p. 299).

Modern Studies of Life Stress Events

The research of Cannon, Meyer, Wolff, and

Selye was the basis on which Holmes and Rahe, in 1949, and later Holmes and Masuda, began using the life chart device systematically. They worked with more than 5,000 patients to empirically study the quality and quantity of life events that cluster at the time of disease occurrence. The events are characterized as "those indicative of the life style of the individual, and indicative of occurrences that involved the individual" (Holmes & Masuda, 1974, p. 46). The events studied evolved from ordinary and extraordinary social and personal interactions to include all significant areas of America's social structure: family, marriage, economics, residence, group and peer relationships, education, religion, recreation, and health. Holmes and Rahe used interviews to record and assess the significance of the events to the individual. Interestingly, they observed that psychological and emotional response vary widely from negative or socially undesirable to positive or socially desirable. But they detected one common denominator: all life event occurrences evoke some adaptive or coping behavior from the person. Results of the investigations determined that any life event category must include situations which require a significant change in the individual's ongoing life pattern. Methodology assigning magnitudes for the

events' items was designed for studying the "physical perception of the quality, quantity, magnitude, and intensity of physical phenomena" (Holmes & Masuda, 1974, p. 47). Such an assessment would provide a reliable process for quantifying certain human experiences. From their clinical experiments in 1967, Holmes and Rahe isolated 43 life events which they believe are a clustering of social (or life) events, achieving etiological "significance as a necessary, but not sufficient, cause of illness and accounts in part for the time of onset of disease" (Holmes & Masuda, 1974, p. 48).

Life Changes and Illness

Rahe and Arthur (1974, 1978) have studied further the relationship between life changes and illness as recognized earlier in the Holmes, Masuda and Holmes, Rahe research. They noted that prisoners of World War II who were subjected to maximal stress demonstrated significant and prolonged physical and mental health problems. Even those exposed to somewhat less stress exhibit varying degrees of illness--some quite acute while others remain virtually healthy. This diverse reaction to stress precipitated Rahe and Arthur to question whether there is a relationship

between events of ordinary life and illness. They found several particular relationships: expectant mothers with several recent life changes and with a paucity of coping capabilities experienced significantly more pregnancy complications than did mothers from the control group; children of parents having recent life changes indicated a higher incidence of illness or accidents such as poisonings, traffic accidents, leukemia, and rheumatoid arthritis.

Rahe and Arthur (1978) also report studies of university and military young adult life-changes; those with high life-change levels have high incidents of illness while moderate levels of life changes correspondingly reflect fewer illnesses. In one study (Paykel, 1975), patients who attempted suicide reflected four times the control group's level of recent life change events. Still other studies demonstrated a high level of change events preceding sudden death from heart disease as well as other fatal illnesses. For example, widows and widowers developed more illness during the year following death of a spouse (Paykel, 1975).

Numerous other investigations revealed relationships between life events and illness. Rabkin and Struening (1976) recognized a predisposing role of social factors as impacting the onset of illness. They postulated that

stronger relationships can be determined if the "psychometric properties of the measuring instrument were improved and the outcome criteria refined" (p. 1015). Selzer and Vinokur (1974) assessed the relationships between life events, subjective stress, and traffic accidents; they found that subjective stress appears to be more significantly related to traffic accidents than are demographic, personality, or social maladjustment variables, or mediators.

Kobasa (1977, 1979) considered personality as a mediator or variable of life event stress and its provocation of illness. She hypothesized that the persons under stress who seem to be in better control of their lives will remain healthier; those who feel committed to various aspects of their lives will be healthier; and finally, individuals under stress who see change as a challenge will not succumb to illness. Similar investigations prompted Rahe and Arthur (1978) to construct a model which would reflect the correlations between life events and the onset of illness along with their defense mechanisms and the role of perception (intervening variables or mediators) in altering one's assessment of his recent life events. The model involves six steps:

Step one indicates that the significance of a person's

life event may be altered by his perception of the event, either positive or negative, as influenced by mediators such as age, sex, life stage, ethnicity, and social assets.

Step two represents psychological defense and three psychophysiological response which comprise mechanisms that may protect the individual from primitive urges and drives of his sub-conscious, protect him from environmental threats, or even protect him from succumbing to fatal illness such as coronary attacks. The psychophysiological responses may be manifestations of which the person is aware, such as sweating, pain, muscle tension or they may be unaware responses, such as elevated blood pressure or serum lipids.

Step four (response management) shows how, if a person becomes aware of his psychophysiological responses, he may elect to manage his responses, for example, relax muscles to avoid subsequent elevated blood pressure.

Steps five and six involve illness behavior and measurement. Such response to stress (life events) may be headaches or elevated blood pressure, and if the person's coping defense is insufficient he may consult a doctor for treatment, miss work, and assume various sick role behaviors. Rahe and Arthur (1978) concluded that there is a significant relationship between an individual's life event change

experiences and his subsequent development of both minor and major illnesses and even death. They add, that more recent studies indicate stronger associations "between subjects' recent change experiences and their subsequent levels of psychological and physiological symptoms" (Rahe & Arthur, 1978, p. 10).

These findings have been documented in the laboratory where subjects have scaled their own perceptions of their recent life change events. Both Rahe and Arthur propose further exploration of life change and illness models to substantiate the relationships, that is, research on such mediating factors as sociological, psychological, and physiological characteristics or responses (behaviors) of the person.

Measurement of Life Change

Studies by Holmes and Masuda (1978) extended those earlier ones of Holmes and Rahe on the Social Readjustment Rating Scale (SRRS). The SRRS records the numerical perceptions of life events while the Holmes and Masuda Schedule of recent Experiences (SRE) records the frequency of the occurrence of the events. This periodic-based recording of SRRS life events includes what Holmes and Masuda called

Life Change Units (LCUs), which is the "sum of the products of the numbers of occurrences of life events multiplied by assigned SRRS values" (p. 237). Further, the investigators' research of a sample of 395 white middle-class individuals included the variables or mediators of age, sex, marital status, and education as each affects the person's perceptions of the events. Using the demographic comparisons, Holmes and Masuda found that while the variables "did not affect the highly significant positive rank-order correlation coefficients between groups, they did affect the magnitude of estimations assigned to life events" (p. 238).

Paykel and Uhlenhuth (1972), like Holmes and Rahe and Holmes and Masuda, recognized the complexity of quantifying stress. So they attempted to minimize the complexity by testing the consistency and the differences between several sociodemographic groups for six variables: age, sex, social class, race, religion, and marital status. Using the work of Holmes and Rahe, they theorized that not only would some events prove more stressful than other events, but also the phrasing of the instrument's instructions would elicit different magnitudes of desirability or undesirability of the event. For example, the Holmes and Rahe scale of 43 events, based magnitudes on a ratio to marriage with marriage assigned

a rating of 500 units. The scale asks the subjects to indicate the amount of social readjustment required to their accustomed life pattern by each event, regardless of its desirability. Paykel and Uhlenhuth attempted to replicate the Holmes and Rahe scale using 61 life events and asking the subjects to rank the events 0 to 20 by the degree to which each is considered upsetting. They believed the instructions would affect the subjects' response. Following are the two differing instructions, first Holmes and Rahe, and second Paykel and Uhlenhuth:

You are asked to rate a series of life events as to their relative degrees of necessary readjustment. In scoring, use all of your experience in arriving at your answer. This means personal experience where it applies as well as what you have learned to be the case for others. Some persons accommodate to change more readily than others; some persons adjust with particular ease or difficulty to only certain events. Therefore, strive to give your opinion of the average degree of readjustment necessary for each event rather than the extreme. (Holmes & Masuda, 1974, pp. 50-51)

. . . .

Below is a list of events that often happen to people. We would like you to think about each event and decide how upsetting it is. Use your own experience and what you know about other people to make your decision. A particular event might be more upsetting to some people than to others. Try to think how upsetting the event would be to the average person. (Paykel & Uhlenhuth, 1972, p. 94)

Paykel and Uhlenhuth concluded that the concept of the "upsetting" aspect of the role of events may be "precipitant [s] of depression" (p. 90). Further, even with the complexity of quantifying life events, there was a commonality by which most people experienced the event, regardless of a particular subject's experience of it. And finally, most people's perceptions of events were predicated on their own experiences together with their observations of others.

Tennant and Andrews (1976), synthesizing the findings of Holmes and Rahe and Paykel and Uhlenhuth, suggested "some association between the magnitude of life change that follows a given event and the degree of emotional stress it causes" (p. 28). For example, divorce probably causes both considerable change in life style and emotional stress while

marriage caused marked life style change but little emotional stress. Tennant and Andrews used a 67 item instrument with a 0 to 20 scale to study Australian populations and ascertain such a scale's applicability to other than American populations. Their findings indicate a surprising consistency among the Tennant-Andrews scale, the Holmes-Rahe scale, and the Paykel-Uhlenhuth scale.

These investigations on stress have been replicated, modified, and expanded. Rahe, in 1975, expanded the original 43 items to 54 events, some of which included four options, making the total number 76 events (Rahe, 1979). Dohrenwend in 1974 pointed out that any list of events will create problems in understanding the experiences-illness chain if the events are not categorized. While noting that most any list will suffice, he used the Holmes and Rahe list to illustrate that there are five classes of life events. His first three classes address a confounding of the individual's psychiatric condition and his responsibility for the condition: (1) events showing superior functioning such as "outstanding personal achievement" (Fairbank & Hough, 1979, p. 42); (2) events indicating inferior functioning such as divorce or being fired at work; (3) events which may themselves be symptoms of psychiatric illness such as sexual

problems. Dohrenwend's fourth class includes life events pertaining to the health of the individual such as accidents or illness; and his fifth class comprises those events which are outside the purview of the person's control, events such as the death of a spouse, retirement, or death of a close friend. Dohrenwend surmises that if more than this fifth category (without differentiation) is included in an events list, the investigator cannot isolate which type events are most closely correlated with illness. Attempting to correct this ambiguity, Dohrenwend et al. (1978) constructed the Psychiatric Epidemiology Research Interview (PERI) Life Events scale of 102 events. Their list is based on surveys of events experienced by various populations and their data suggested that there are certain group differences with more differences attributed to ethnic background than to sex or social class.

Fairbank and Hough (1979) studied several life event scales and theorized that the scales do indeed need to be sub-divided into at least three dimensions: one category showing the person's control over the event, another reflecting the desirability of the event, and a third indicating whether the event or the perception of the event is confounded with subsequent illness. They concur with

Dohrenwend's classification of five classes and specifically they analyze Theorell's discord index (1976) which measures "irritability and life dissatisfaction, and a life change index, and related life change to illness in five discord-change groups of subjects" (p. 44). Theorell's investigation found that life events change produce illness only when these events are "accompanied by discord" (Dohrenwend et al., 1979, p. 44). And that without this discord any extreme change would not be related to hypertension, neurosis, or illness. Thus, an individual's perception of an event does determine the effect of the life change event.

There seems to be consensus among all these stress investigations: a relationship exists between life events (stress) and behavior. Further, one's perception of the event may alter his readjustment to the event. Most of the researchers suggest further research to study variables such as age, marital status, sex, socioeconomic status, ethnicity, level of education, culture, and the experiencing of the event to improve the quality of life in this complex society.

Change Across the Life Span

Throughout antiquity man has been fascinated with the different ages through which one travels. The ancients

cited the Golden Age, innocence; Silver Age, experience; Bronze Age, war; and Iron Age, despair (Kleemeier, 1961). Shakespere included in his stages the infant, the schoolboy, the lover, the soldier, the justice, the pantaloon, and the second childhood (As You Like It, II, vii, 139-178). So, too, does the twentieth century include studies about the stages, ages, or phases of man's development. In this modern study of adult development, however, many researchers have focused on the relationship between age (life stage) and behavior. Several of these theorists are discussed below.

Erikson

Erik Erikson, whom Robert Havighurst stated was the second in importance in adult development research (the first being Charlotte Buehler), conceived of growth through the life span as a "process of meeting and achieving a series of eight psychological tasks, each of which dominates the development of the individual at a certain stage of life" (Havighurst & Chickering, 1981, p. 18). Further, they postulated that each of these major life periods is essential for one to have a strong personality or to become a wholly functioning person. Also, this process involves the person (organism), his ego, and his society--or the physiological,

the psychological and the social. In other words, the growth of an individual cannot be divorced from the physical and the social. Austin (1980) said Erikson's developmental stages "represent a dialectical strain between two opposing tendencies, with the healthy synthesis being an individual who emerges with a sound sense of 'trust,' 'autonomy,' etc." (p. 28).

Erikson himself commented on this aim of achieving a healthy sense of self (ego identity) in 1950:

At this point it is enough to say that this sense of identity provides the ability to experience one's self as something that has continuity and sameness, and to act accordingly (p. 42). . . . In order to create people who will function effectively as the bulk of the people, as energetic leaders, or as useful deviants, even the most "savage" culture must strive for what we vaguely call a "strong ego" in its majority or at least in its dominant minority--i.e., an individual core firm and flexible enough to reconcile the necessary contradictions in any human organization, to integrate individual differences, and above all to emerge from a long and unavoidably fearful infancy with a sense of identity and an idea of integrity. (p. 186)

And for Erikson, then, the task of childhood and adolescence is to synthesize an ego identity:

The integration now taking place in the form of ego identity is more than the sum of the childhood identifications. It is the accrued experience of the ego's ability to integrate all identifications with the vicissitudes of the libido, with the aptitudes developed out of endowment, and with the opportunities offered in social roles. The sense of ego identity, then, is the accrued confidence that the inner sameness and continuity prepared in the past are matched by the sameness and the continuity of one's meaning for others, as evidenced in the tangible promise of a "career." (p. 262)

Ultimately, if a person achieves an ego identity he then is ready to share himself with others, which in turn will strengthen this ego and be concerned with establishing the next generation. And with the ego's integrity, the person is assured of order and meaning for his life. It is an acceptance of human ego that conveys some world order and spiritual sense and allows the acceptance of one's own life cycle as something that has to be (Erikson, 1950).

Specifically, the eight stages are (a) Basic Trust vs. Basic Mistrust, (b) Autonomy vs. Shame and Doubt, (c) Initiative vs. Guilt, (d) Industry vs. Inferiority, (e) Identity vs. Role Confusion, (f) Intimacy vs. Isolation, (g) Generativity vs. Stagnation, and (h) Ego Integrity vs. Despair. (For a detailed chart, see Appendix A.)

Erikson devoted only three of the stages to adult development: intimacy, generativity, and integrity; but from these three one can glean several assumptions (Austin, 1980, p. 28).

1. There is a definite pattern of development throughout life, and a sequential unfolding of the stages.

2. Growth occurs as a result of the synthesis of several "dialectically opposed polarities."

3. There is much interaction between the physiological, psychological, and cultural factors.

4. There is importance between meaning and a sense of purpose.

5. The most important aspect of one's life is his own "sense of self" or "identity."

By assigning intimacy and generativity to adults, Erikson employed Freud's idea that a normal person does two things

well: loves and works. But having children is a voluntary commitment; it does not necessarily insure generativity. An individual must, however, around sixty, accept what has happened in his life as both valid and necessary or else spend his latter days in despair; a balance between the integrity and despair is wisdom.

For Erikson, a developmental crisis is not a crisis but a turning point, and a very decisive one, which will heighten one's "potential for intrapersonal integration and increase vulnerability to personality disintegration" (Erikson, 1980; Weathersby, 1976, p. 14). Further, a developmental task is not permanently mastered; it must be worked out at every stage--a balance between the positive and its negative issue. Erikson explained that this balance can be changed by later experience; during new transitional periods one cycles back through earlier crises and must reaffirm or renegotiate those resolutions. Of course, such action means that during transition periods one's identity may again become problematic and the person must "reconsider or renegotiate" previous resolutions of trust, autonomy, initiative, industry, and identity before he can proceed to a "newer, more integrated or satisfactory" state of intimacy, generativity, or integrity (Weathersby, 1976, p. 14).

Weathersby suggests that Erikson's main contribution is the idea that the life cycle itself contains tasks of functional importance to personality development (1976, 1981). In this process of renegotiation, adults "often seek educational experiences because of the necessity to stand back from their lives and reconsider their needs and options." Even educational institutions, say researchers and educators, can aid adults in their life transitions. (Weathersby, 1976, p. 19)

Havighurst

Havighurst (1968), in his studies of the relationship between age (life stage) and behavior, seemed to parallel Erikson's eight ages of ego development with six levels of developmental tasks. For example, both consider the process of development to be lifelong; both consider that failure at an early stage is difficult to make up without stress and anxiety; and both believe that failure at an early stage jeopardizes full development at a later stage. However, Erikson believes that fulfillment at one stage does not guarantee satisfactory success at the next; in fact, the person may backslide after having successfully passed one stage (Bischof, 1969).

Havighurst (1972) suggests the developmental tasks of life are those required for healthy and satisfactory growth in society. They include the physiological, psychological, and social demands that the individual must meet in order to be a reasonably happy and successful person. "A given developmental task typically arises during a certain period of an individual's life. Successful achievement contributes to happiness and success in later tasks; failure contributes to unhappiness, social disapproval, or later difficulties" (Chickering & Havighurst, 1981, p. 25). According to Havighurst, the tasks are imposed by both internal and external forces. The internal are primarily biological and involve the early and the late years of human development. For example, an infant's legs grow longer and stronger, permitting him to walk; the child's nervous system becomes more complex to permit more precise eye-hand coordination, better perception, and more sophisticated thought. The adolescent develops sex glands, pouring hormones into the bloodstream, which results in new urges and interests. And the older person's stamina, speed, and sensory loss require that he adjust his life-style and responsibilities (Havighurst, 1972; Chickering & Havighurst, 1981).

Social roles and pressures and opportunities in the social environment influence other developmental tasks. For example, a young woman of 23 often confronts new tasks: becoming both a competent homemaker and parent. Or a typical student encounters a student culture with several subcultures from which to choose: academic, collegiate, vocational, and non-conformist. And each student must merge these characteristics he brings with him to college and those he meets on the college campus (Chickering & Havighurst, 1981).

Still other tasks emerge from personal values and aspirations. "As each self evolves, it becomes increasingly a force in its own right; it has its own momentum, its own particular shape and constituents" (Chickering & Havighurst, 1981, p. 26). Havighurst noted that one may be interested in civil rights or politics, which will influence his choice of friends as well as his life style and social commitments. Or an athlete or singer may create rewards and contributions in other directions. With increasing age and experience these "trajectories" and "barriers" become more finely defined for each person; yet one's acceptance, rejection, and modification of these will result in new potentialities for that person.

Thus for Havighurst, developmental tasks may arise from "physical maturation or change; from social roles, pressures, or opportunities; or from aspirations and values of a constantly emerging personality." Further, a chosen activity may be either instrumental, expressive, or both. For example, an accountant may learn skills strictly to run a business (instrumental) while creating a work of art such as a novel or painting may provide pleasure for its own sake (expressive). Or a football player may receive a sense of accomplishment, pleasure (expressive) or also be paid a high salary for his task (instrumental) (Chickering & Havighurst, 1981, p. 30).

Havighurst's six developmental tasks pose many implications for the individual and for his success in school and society. (For a detailed description of each see Appendix B). The late adolescent and youth, 16 to 23 years, is involved with choosing and preparing for a career, achieving emotional independence, preparing for marriage and family life, and developing an ethical system. Havighurst believes that many objectives and much of the content in various disciplines and professions can be addressed so that the student can successfully achieve the key developmental

tasks of late adolescence and youth. For example, many of the humanities courses can include reading, research, and writing which will aid him in this endeavor.

The next stage Havighurst discussed (1972, 1981) is Early Adulthood, 23 to 35 years, a period in which the person decides on a partner, starts a family, begins to manage a home, starts an occupation, and assumes civil responsibilities. The developmental tasks here challenge many of the educational structures and practices.

The next phase Havighurst discussed is the Midlife Transition: 35 to 45 years, where one begins to shift in his self-determination to a sense of life-cycle inevitability. He revises career plans, redefines family relationships, and makes changes or decides to continue in his present situation.

Middle Adulthood, 45 to 57 years, as conceptualized by Havighurst, is a time for persons to actually decide to continue in their present career or embark on a new one; they reestablish or stabilize relationships with family and even begin to contribute time and energy to civic organizations; and they must adjust to biological changes. Now that the children are gone, either off to college or a

job, and the person has more time for other activities. The fifth stage is the Late-Adult transition, 57-65 years, a period resulting from the shift in life expectancies with the average life-expectancy for men at 78 and women at 85. At this phase, persons must ask questions like how can we simplify our lives and cut our expenses? What interests do we really want to continue? How will we feel about leaving this house or this community? How will it feel to be spending our time with old folks? Will we be able to move beyond the superficial skills we have had as a dabbler or dilettante? (Chickering & Havighurst, 1981, p. 45)

Havighurst's last stage, Late Adulthood, 65 plus, includes the person's adjusting to retirement, declining health, joining late-adult age groups, establishing satisfactory living arrangements, often adjusting to the death of a spouse, and finally maintaining integrity. Chickering and Havighurst propose stimulation and enrichment for the more leisure time ahead: arts, crafts, humanities, studies about pertinent social problems, instruction about nutrition, exercise, and disease. Adults in this stage also need to receive concrete information about how to manage their shrinking resources and the pros and cons about renting or owning condominiums, or congregate living arrangements. In

addition, they need religious and philosophical studies to help them cope with death of a spouse, friends, and their own inevitable death.

In 1981, Havighurst and Chickering revised several of Havighurst's original stages, adding a few intervening ones so that the adulthood period can be more differentiated. They include 16 to 23 years as Late Adolescence; 23 to 35 years, Early Adulthood, 35 to 45 years, Middle Transition; 57 to 65 years, Late Adulthood transition; and 65 plus as Late Adulthood.

Cross (1981) and Santrock (1983) note similarities between Havighurst and Erikson. They suggest that both Havighurst and Erikson believe that development and change are continuous throughout life, that persons must successfully complete each stage before moving on to the next, and that if one does not succeed on time with each of these, then he will experience crisis and quasi-failure at some later task.

Levinson

Daniel Levinson's concepts about age (life stage) and behavior have similarities to both Havighurst and Erikson. Like Havighurst, Levinson (1978) believes that developmental

tasks are crucial to the evolution of the periods; that a transition of approximately five years exists between periods; and that the transitional periods are extremely important to a person's success:

The developmental tasks are crucial to the evolution of the periods. The specific character of a period derives from the nature of the tasks. A period begins when its major tasks become predominant in a man's life. A period ends when its tasks lose their primary and new tasks emerge to initiate a new period. The orderly progression of periods stems from the recurrent change in tasks. The most fundamental tasks of a stable period are to make firm choices, rebuild the life structure, and enhance one's life within it. Those of a transitional period are to question and reappraise the existing structure, to search for new possibilities in self and world, and to modify the present structure enough so that a new one can be formed. . . a life structure is satisfactory to the extent that it is viable in society and suitable for the self. (Levinson, 1978, p. 53)

And like Erikson, Levinson identifies critical issues and periods in adulthood. He is concerned with generating

"hypotheses concerning relatively universal, genotypic, age-linked developmental periods in the adult life cycle" (Levinson, 1978, p. 4). Levinson sees the origin of the periods in the nature of man as being a "bio-psycho-social organism" and of society as a type of collective life involving several generations. But while he sees the developmental tasks, structures, and processes as including "biological, psychodynamic, cultural and social-structural factors," and interacting in only partial synchronization, his origin of the life periods differs from Erikson's:

These periods do not represent simply an unfolding of maturational potentials from within; they are thus different from the Freudian or Piagetian stages of childhood development, which are seen largely as internal unfolding. Nor do they simply represent stages in a career sequence as shaped by an occupational education, or familial system. In other words, the periods are not simply a function of adult socializing systems, although these systems play an important part in defining timetables and in shaping one's course through them. (Levinson, 1978, p. 4)

Specifically, Levinson divided his periods into four: (a) Childhood and Adolescence, birth-22 years; (b) Early Adulthood, 17-45 years; (c) Middle Adulthood, 40-65 years; and (d) Late Adulthood, 60 plus years. He identified the transitional periods as (a) Early Childhood transition, birth to three years; (b) Early Adulthood transition, 17-22 years; (c) Mid-Life transition, 40-45 years; and (d) Late Adulthood transition, 60 to 65 years (Levinson, 1978, p. 18). For a more detailed listing see Appendix C.

Levinson included three major concepts in his study. First is his concept of "life structure," which allows him to look at the structure of life rather than its discrete parts; this life structure's three perspectives include the socio-cultural world's effect on man, man's development of "self, personality, wishes, desires, dreams, values," and man's relationship with the world and the world's relationship with man (Levinson, 1978, p. 42). Thus the concept of life structure focuses on the boundary between the individual and society, encouraging the person to examine his social world and the inner workings of his personality.

Levinson also is concerned, in this life structure, with what leads to phase change. Biologically, these

changes are brought about by age, one's own and that of his parents and children; changes in cultural expectations about what one should be doing at a particular age; and "progressive substitutions" about what one sees as reality and the idealized view of adulthood as formed in childhood. So, the adult attempts to resolve the disparities between the individual's "inner sense of the experience of living within a particular life structure, and the aspects of self that were neglected or left out when one created that structure." Levinson calls this balance or equilibrium "goodness of fit." (Weathersby, 1976, p. 26)

The second concept of Levinson's work is the dream or vision of one's personal future, which is usually seen in one's professional or occupational context.

And the third concept is similar to the second, the idea of a mentor or older person who acts as an advisor, teacher or protector, whose blessing becomes psychologically very important to a person "getting into the world" in the twenties or "settling down" in the early thirties. Both the importance of the dream and the mentor change as one's life structure changes (Weathersby, 1976, p. 27).

Weathersby (1976, 1981) and others have questioned the universality of Levinson's study because he used a sample

of forty men between 35 and 45 who were from four occupational groups; blue and white collar workers in industry; business executives; academic biologists; and novelists. They asked, for example, do women, who are not included in the research, have dreams and mentors? Also, even though "marker events" are usually considered age-related, what happens when crisis occur atypical to an age such as death of a 30 year-old spouse or being displaced because of some new technological discovery? Today, people are waiting until they are in their late twenties or early thirties to marry and then have children in middle or late thirties. Some couples are even adopting after they are forty. Further, there is a difference in women's life phase and men's life phase and life-styles because of what Toffler calls "future shock" (1970). But Weathersby concludes that universality is not the most important; rather, it is "acknowledging the validity of the idea that one's life structure, viewed internally, if not externally, changes configuration at regular intervals throughout life" (Weathersby, 1976, p. 29). Levinson seems to be saying, then, that if one does not reexamine his life at forty, his identity crisis at 50 will be more pronounced. And finally, any stabilization period is temporary, usually lasting

no longer than eight to ten years; one's sense of priorities change until one realizes that certain goals and needs do not have to be satisfied at the person's current life structure. "Over time and in some predictable sequences, we change our life structure and our sense of identity" (Weathersby, 1976, p. 30).

Weathersby

Weathersby's later studies (1978 & 1981) probed how people's choices across the life cycle lead to their development and growth. Drawing on the research of Erikson, she recognizes that defining life stages is easier than labeling the stages. Weathersby proposed that "life stages are age-linked periods of stability and transition embedded in our experience of living" and that "a life stage is a time period in which certain concerns are salient" (1978, p. 19). She offered, as example, a person setting and accomplishing long range goals and being involved in adaptive tasks such as marriage, parenthood, retirement, which provide opportunities for that individual's growing, becoming stronger, and even choosing to be a new and different person. Responding to a question about whether they consider themselves to be in a period of transition or stability, 79% of the Goddard students

indicated "transition." Weathersby's findings agree with both Erikson's and Levinson's that probably the transition periods are the most significant parts of a life cycle (stages).

Weathersby conceded that while there is no real consensus among the major researchers on characterizing life stages, most describe early adulthood as the period 20-35 years; midlife transition approximately 35-45; middle adulthood from 45-57; late adulthood transition from 57-65; and late adulthood from 65-death (1978, p. 21). From Weathersby's Goddard study and observations from other adult development researchers, she characterizes life stages, marker events which are common to each life period, and the major psychic tasks of each stage (see Appendix D for detailed chart).

Her first phase (or stage) is entitled Leaving the Family, 16-18 to 20-24 years and involves leaving the home, new roles and independent living arrangements, college, travel, Army, job, and initial decisions regarding what to study, type of career, and romantic affairs.

Getting into the Adult World, the second phase, early twenties to 27 or 29, includes some provisional commitments to careers, such as first job, quitting for the first time or

or being fired, change in living arrangements, deciding to have a child, child entering school, buying a house, getting involved in community activities.

Phase three, Thirty Transition, late twenties or early thirties, incorporates changes in occupation, returning to school, new love affair, separation, divorce, first marriage, or remarriage.

The fourth phase, Settling Down, early thirties, often copes with death of parents, pursuing work, family activities and other interests, mother returning to school or work as children are older.

Phase five, Becoming One's Own Person, 35-39 or 39-42, may involve climaxes such as crucial promotion, special recognition, or breach with mentor.

The Mid-life Transition, phase six, early forties, sees change in activities from recognition that life goals may not materialize, change in career, family situation, empty nest, second career for woman, loss of fertility, death of a friend or child.

Restabilization, phase seven, a three-year period around 45, involves becoming a mentor, sharing ideas and skills with younger people, contributing to the next generation,

developing new hobbies, and for men, the occupation die seems to be cast.

Phase eight, Transition into the fifties, late forties or mid-fifties, seems to be a last chance for women to have a career; family crises, home duties decrease, and change in husband's occupation status.

Restabilization, Mellowing, and Flowering, Phase nine, late fifties and early sixties, has new career opportunities and desired interests, personal accomplishments.

The last phase, Life Review, Finishing Up, sixties and beyond, involves retirement of both self and spouse, death of friends, spouse and self. Weathersby concludes that "if we look at the life cycle from biological, sociological, or psychological perspectives, we pay attention to different phenomena to mark off the periods--our bodies, our roles, and our psyches" (1978, p. 21).

Cross

Cross (1982) synthesized much of the developmental research and particularly constructed six developmental age-related stages or phases (life stages) with 33 appropriate life events. Approximately half (52%) of Cross' 33 marker events are the same as Holmes and Rahe's 43 life events.

Cross noted that writers refer to "phases" of the life cycle and to "developmental stages" of growth and maturity. She observed, however, that researchers and writers prior to 1980 usually do not make a distinction between the two. She, like Erikson, Havighurst, Weathersby, and others, believes that there certainly are identifiable transitions and periods of changes in people's lives. In fact, Sheehy's Passages: Predictable Crises of Adult Life (1976) hypothesized that changes or turning points are both predictable and representative of "an internal unfolding in a sequence of natural growth" (Cross, 1982, p. 169). Sheehy, of course, drew heavily on the earlier research of Gould (1972) and Levinson (1974).

Much of the 1980's research to categorize and describe life phases included biographical studies and in-depth interviews, factor analyses of multiple variables in an effort to group related characteristics together empirically; card sorting of descriptions of hypothetical people into similar age groups, and most recently, a raft of syntheses of past research in an effort to identify age-linked phases that seem common across studies. (Cross, 1982, p. 170)

Most of the studies agree that (a) there are phases in people's lives and (b) the "phases can be identified as common" to a specific age group (Cross, 1982, p. 170). Many of the researchers also seem to agree on seven different age categories.

Cross postulates that the current investigators' disagreement in constructing life-phase charts is not over establishing "age boundaries or phasic descriptions" but over employing "chronological age as the baseline" (p. 171). For example, Levinson and his fellow researchers (1974) suggest universal, age-linked development periods while Lowenthal and her associates (1975) use social roles instead of age. Others such as Schaie (1973, p. 367) are convinced that "it is not only shortsighted but sometimes even useless and damaging to construct age-specific developmental models that ignore interage networks and other aspects of long-term ontogenetic linkages" (p. 172). Cross uses Weathersby's (1978) descriptive scheme which classifies three dimensions of life phases: "major psychic tasks, marker events, and characteristic stance" as a point of embarkation, but then incorporates various other schemes using chronological age as a rough index of life cycle phase" (Cross, 1982, p. 173). See Appendices D and E for complete charts.

The first phase is entitled Leaving Home, 18-22 years, and includes marker events such as leaving home, establishing new living arrangements, entering college, starting first full-time job, and selecting a mate. Phase two, Moving into Adult World, 23-28, includes marriage, establishing home, becoming parent, getting fired or quitting job, and entering community activities. Phase three, Search for Stability, 29-34, incorporates establishing children in school, progressing in career or consider change, possible divorce, remarriage, return to school. Phase four, Becoming One's Own Person, 37-42, comprises promotion, breaking with mentor, responsibility for three generations, and for women: empty nest, entering career, and education. Settling Down, phase four, 45-55, encompasses capping a career, becoming a mentor, launching children, becoming grandparents, finding new interests and hobbies, physical limitation, menopause, and active participation in community events. Phase five, the Mellowing, 57-64, includes loss of mate, health problems, and preparations for retirement. The last phase, Life Review, 65 plus years is composed of retirement, physical decline, change in finances, new living arrangements, death of friends/spouse, and a major shift in daily routine. In this schematic chart, Cross clearly addresses phase and age,

marker events, psychic tasks, and characteristic stance (see Appendix E) and suggests, for example, that the young adult searching for stability has different needs, learning tasks, and stances than does the older adult in the mellowing phase.

Although extensive and seminal adult life span investigations have been conducted by Erikson, Havighurst and Chickering, Weathersby, Levinson, Cross, and others, none have looked at the relationship of the different stages to stress and linguistics. Several have noted relationships between age (life stage) and behavior and have proposed that change (transition) is an important dynamic in development. But none have suggested that specific behavior is related to stress associated with transition or change. Nor have they offered particular methods of measuring the stress-related behavior, such as speech or writing (linguistics). All, nevertheless, intimate that stress is involved in an individual's reaction to life events.

Linguistics and Psycholinguistics

Much of the stress research today focuses on which is the best behavior (measurement) of life events or stressors. Specifically, the investigations are divided into psychology, linguistics, or a combination called psycholinguistics.

Early in the twentieth century psychologists such as Wundt of Germany and Tilchener of the United States researched "the state of human consciousness" (Cairns & Cairns, 1976, p. 95). Their introspective methods studied color perception, form, and auditory signals with primary focus on stimuli and the images they elicit. One of the major problems in such psychological research is that there is no objective criteria for the studies, no agreement regarding the internal sensations associated with certain stimuli.

In the 1920s psychologists such as Watson began to polarize their investigations; for example, the behaviorists held that the only way of knowing is by physical experiencing; the classical conditioning psychologists (such as Pavlov, 1902) had as their basic orientations, stimulus response, which describes the units of behavior and their antecedents. Later, Skinner (1957) embodied operant conditioning "emphasizing not so much association of two units of behavior as the increased frequency and intensity of a particular unit of behavior" (Cairns & Cairns, p. 97). So, for these early psychologists the observed responses (behavior) comprise the accountable data and the associative chains explain them. But still, the psychologists could not arrive at a consensus of interpretation.

Linguistics

Early American linguists' research appears to be equally non-productive because it dealt with structure of the language and not the "science of human nature." These early linguists looked at the taxonomy of language, that is, viewing "language as a string of speech sounds that the trained linguist could faithfully reproduce in phonetic transcription" (Cairns & Cairns, 1976, p. 101). And the linguist's primary task was to identify and classify individual speech sounds, thus discovering the phonemic structure of language. The linguist attempted to develop a general language that would characterize the commonalities of the different world languages. Also, he wanted to provide descriptions of the different languages, that is, the semantic, syntactic, and phonological rules. Today, the linguist provides "the general form and organization of the rules and the basic units of which the rules operate" (Cairns & Cairns, 1976, p. 107). Thus, the explanation must be sufficiently erudite so that if one knows any particular language he must be able to distinguish grammatical from ungrammatical sentences, to recognize ambiguous sentences, and to be able to identify submerged grammatical relations in

sentences of the language (Cairns & Cairns, 1976). The linguists are interested only in the observable units of behavior (speech sounds).

Psycholinguistics

Psycholinguists attempted to synthesize "the theoretical and empirical tools of both psychology and linguistics to study the mental processes underlying the acquisition and use of language" (Slobin, 1974, Introduction). This language structure includes speech sounds and meaning, a complex grammar system, relating sounds and meaning. And both the linguist and the psycholinguist are concerned with language use, "with regarding utterances as holistic stimuli or responses in their own right" (Cairns & Cairns, 1976, p. 102). The psycholinguist attempts to study not only underlying knowledge and abilities but overt linguistic behavior. Slobin suggests that speech is an overt language behavior; one can record or listen to it but one cannot tape language. Speech, therefore, is an appropriate measurement of language. He adds that future studies must include both disciplines: "we cannot study behavior without a theory of the structure of that behavior, and we cannot study the structure without being concerned

with the behavior in which the structure is manifested" (Slobin, 1976, Introduction).

Moscovici (1972), also studying structure and behavior of language, noted that language is a special form of behavior; it is symbolic behavior. Specifically, he stated that language is embodied in the collective psychology of "social conceptions, myths, and ideologies" and language and psychology should be closely linked to "emphasize that a sentence or a word are forms of thought and action in human setting" (p. vi). Moscovici like Slobin suggested speech as a behavior of language. He says speech should be incorporated in any thorough investigation of the communication process (p. xiv). He also recommends further investigations because psychologically "the semantic realm remains a virgin territory"; no one has studied it systematically (p. xiii). Chomsky (1968, 1972, 1979), the father of modern linguistics, profoundly addressed psycholinguistics as an appropriate perspective for studying the human processes.

It seems to me that the most hopeful approach today is to describe the phenomena of language and of mental activity as accurately as possible, to try to develop an abstract theoretical apparatus that will as far as

possible account for these phenomena and reveal the principles of their organization and functioning. . . . We can only leave open for the future the question of how these abstract structures and processes are realized or accounted for in some concrete terms, conceivably in terms that are not within the range of physical processes as presently understood--a conclusion that, if correct, should surprise no one. (1972, p. 14)

Chomsky also proposes that behavior provides much of the evidence in the study of psycholinguistics. But he recognized that this actual behavior or performance of language does not merely reflect "the intrinsic sound-meaning connections established by the system of linguistic plans," that there may be other factors involved. Extralinguistic factors concerning the speaker affect how speech is produced, identified, and understood" (Chomsky, 1972, pp. 115-116). Speech does pose some research problems because sound is unrecoverable; whereas such restrictions are not present in writing. For example, writing provides a system of "external memory that changes the perceptual problem in quite a significant way" (p. 156).

Fodor (1964, 1974, 1979) built on much of Chomsky's theories. He sought to empirically confirm or disconfirm how

"a speaker's perception, production, or assimilation of linguistic material are controlled by features or history and stimulus situated" (1964, p. 545). More important, he supported not only Chomsky but many of the adult developmental researchers in saying one's behavior is determined not just by the stimuli to which one is exposed but also by the way the stimuli are interpreted. And because generative grammar has provided a sentence structure theory explaining how linguistic stimuli are perceptually integrated, the mental processes involved in a study of the psychology of language can now be characterized. Further, psycholinguistics may be considered "a test case for the possibility of an experimental mentalism" (Fodor, 1974, p. xviii).

Many researchers have specifically studied speech as behavior of language while others have considered the relationship between written and oral language. Laver (1970) included five chief functions in the production of speech:

- the ideation process, which initiates the approximate semantic content of any verbal message the speaker wishes to communicate;
- the permanent storage of linguistic information;
- the planning process, which constructs an appropriate neurolinguistic program

for the expression of the idea; the execution of the neurolinguistic program by the articulatory muscle systems; and the monitoring function, which allows the detection and correction of errors. (p. 62)

Of special importance to Laver is the subject of storage and retrieval. Long-term memory, acquisition, retention, and the use of memory storage involve learning, recall, confusion, and forgetting. The implication is that any retrieval of selected linguistic information from memory store is a necessary part of one's program planning, that is, speech or other verbal behavior. He concluded that normal speech often involves errors, and because speech production is not error-free, further research should be devoted to the origin of the errors.

Chaika (1981) suggested in her studies that psycholinguistics begins from those language parts that are shared by speakers. And analysis of language includes actual words used plus specific syntax and the relation of both elements to social context. Problems arise when language is not used correctly, when it deviates from the norm. Chaika's research involved comparing speech of schizophrenics with those considered normal. She found that while not all utterances of schizophrenics are highly

deviant, there is a great variety in the degree of deviance in their linguistic structure, and that patients become more and more disorganized in their speech as they experience "interpersonal intimacy" or any situation in which they do not feel that they have control (p. 74). In addition, Chaika observed that those persons evincing normal speech also fail to make pauses and false starts. Their speech flows rapidly with phrases tumbling on adjoining phrases without interruption. Although these findings raise many possibilities about applying deviant schizophrenic speech patterns to non-schizophrenic speech, Chaika recommended that additional studies should be done before making definitive assumptions.

Miller and Phelan (1980) extended Chaika's research by comparing adult schizophrenics with matched normal native speakers to determine whether occasional distortations in speech are a thought disturbance or problematic comprehension and usage of standard English speech. They concluded "that distortion in thought processes, rather than inability to use the semantic and syntactic rules of English 'speech' may underlie the cause for disordered speech patterns in schizophrenics" (p. 579). They suggested additional research to ascertain whether such bizarre verbalizations are

actually caused by thought disorders, linguistic deficits, or perhaps a combination of both.

Gottschalk and Uliana (1978) collected psychological profiles from five-minute speech samples of children and reported that single scores of anxiety "measure a relatively labile psychological dimension" (p. 273). They affirmed that speech tests are sufficiently reliable to measure psychological states like anxiety, outward hostility, inward hostility, social alienation, personal disorganization, human relations, hope, and certain achievement attempts (1979, p. 148). These content analyses, however, involve complex steps: (a) the defined psychological state, anxiety, (b) the grammatical clause specified, (c) lexical cues articulated in order for receiver of message to make inferences, (d) linguistic cues specified, (e) differential weights assigned signifying intensity for both semantic and linguistic cues, and (f) scales formulated so that a specific state can be compared to an individual's other states and comparison between one person's psychological dimensions with those of another.

Gleser, Winget, and Seligman (1979) replicated these content analyses in a study which included 112 young people aged 11-18 and stratified by age, race, and sex. Scales were

applied to five-minute verbal samples obtained by asking the subjects to speak into a tape recorder about some dramatic life experience. The following standardized instructions were given:

As you know, one of the things we are studying is how people talk and what they talk about. I want you to think for a moment about something in your life, past or present, that is important or interesting to talk about, and then when you are ready I'll turn on the tape recorder for five minutes. You can ask questions before we turn on the tape recorder, but after you start I'm not supposed to talk until you finish. (p. 285)

In addition to the five-minute speech verbal sample, the youths were asked to complete three paper-and-pencil forms, the ALAC, the DMI, and the I-E scale. Correlations were obtained between sub-scores (affective distress, cognitive unproductivity, somatic complaints, peer alienation, sociopathy, and tolerance of intimacy). The only verbal effect scores which were significantly correlated were the number of words with social alienation and personal disorganization. Individuals who speak most have fewer problems regarding peers and greater tolerance of intimacy.

Also those from higher socio-economic groups speak more and have fewer siblings than those who speak fewer words.

Gottschalk and Gleser (1979) applied these content analyses to the language of adults, also using five-minute speeches and following the same steps as Gottschalk and Uliana in 1978. The scores derived from application of the Gottschalk scales from the five-minute speeches indicated a negative trend in anxiety with IQ level because often the speaker feels inadequate when speaking into a microphone; in large samples no sex differences were found and no linear relation was found between age and anxiety (no examination of age-related marker events), but in sub-scales, anxiety did increase consistently with increased age. Several studies indicated lower hostility-out in blacks than caucasians and higher hostility-out in males than females. Gottschalk proposed that content analysis scales to elicit psychological states can be applied to different kinds of language material and in both spoken and written forms with high reliability and validity. Specifically, he applied the scales to "interviews, dreams, projective test data, written verbal samples, and even literature, letters, and public speeches" (1979, p. 550).

Most content analyses have focused speech samples. But Shattuck-Hufnagel's (1979) research indicated that it is the errors in both speech and writing that provide valuable insights into sentence production. Fromkin (1971) suggested that the errors reflect one's planning units whereby utterances are processed for production. Garrett (1975) stated that the errors may play an important part in autonomous syntactic components and Fay (1978) proposed that the error patterns influence particular syntactic transformations in sentence derivation. Shattuck-Hufnagel recognized five error types which they attribute to a malfunction in the segment selection process. They formulated a model called MIT-CW which will describe and/or explain the steps in the psycholinguistic planning and production of sentences. They also stated that such a model has powerful implications for understanding many kinds of psycholinguistic behavior.

Shaughnessy (1977) has suggested that the occurrence of errors, whether in speech or writing, is related to failure of immediate memory. Ideally, any utterance would generate an accurate, complete, and effective sentence, but usually this ideal does not occur because our short memory can handle only a limited number of items.

Many of the items are stored in long-term for later retrieval. Flower and Hays (1980) noted that retrieving knowledge and creating a structure of "which one thinks" is quite a demanding task of planning, translating, and reviewing, and they described composing as a juggling act; it has many demands upon it. To be successful one must minimize the number of demands made on conscious activities.

Bock (1982) explained some of these constraints to automatic phonological production. One of the interventions he called "the failure of lexical processing to make information available for phonetic coding" or what others call stress (p. 34). For Bock, sentence formulations are influenced by the structure of the ideas of the intended utterance and by the retrieval of the ideas, and any constraint, such as stress, may adversely affect the thinking, speaking, and/or writing of the process.

Bereiter's (1980) research focused on both written and spoken utterances as he established that writing reflects one's overall language development, level of cognitive development, level of moral development, and social cognition, as well as other factors. Specifically, he recognized both written and spoken English as a subsystem of English, both are tied to different modalities,

both involve a number of conventions (but not necessarily the same conventions); writing may require and even foster a different kind of thought from that of speaking, and finally, writing contains more deliberately shaped and structured utterances than does speaking. Emig (1977), studying the differences between speaking and writing, proposed that they differ in their output, permanence, speed of production, and even biological origins.

Higgins (1977) and Kroll (1978) also examined oral written discourse, but they primarily discerned their differences. Higgins elicited both written and spoken messages from 192 fourth, fifth, sixth, and eighth grade subjects. The stimulus charge included viewing a series of events in a model town, then telling orally and in writing two others about the event. Higgins found that the younger children perform better on written tasks and the older better on oral. He conjectured that the older students have more highly developed memories and can take full advantage of the oral code since speaking requires what has been expressed and what still needs to be expressed. However, he deemed more research necessary because theoretically, it seems, writing would pose additional problems for younger children: "more demanding motor movements,

a hypothetical audience, and hence should accentuate egocentrism" (p. 274). Based on Higgins' findings, Kroll's investigations included 44 fourth graders who would learn to play a game and then explain how to play the game in written and oral modes. Group A writes the first time (lower mean) and Group B speaks (higher mean); two weeks later the tasks are reversed. Both groups, written and oral, reflect higher yet comparable scores during the second session. Kroll concluded that communication skills improve each time an event or activity is repeated. Further, Kroll suggested that writing could facilitate performance on the type of communication task that Higgins used because "writing can provide a means for checking information which has already been conveyed and for reflecting upon what still needs to be communicated" (p. 279). Further research needs to include adult subjects to verify both Higgins' and Kroll's findings.

Because of inconclusive studies such as Higgins' and Kroll's, Daiute (1981) and others suggest there is a basic need to study writing as a psychological process. Interestingly, Daiute's model of writing is based on a psycholinguistic mode of talking. First she concurs with earlier researchers that "language behavior is the result of

the interaction of linguistic structures of cognitive operations" (p. 6). She supported her use of the speech model by noting that "talking is the closest verbal behavior to writing, so it is worth adapting a model of talking to a model of writing" (p. 6). And as stated by earlier researchers (Osgood, 1963; Laver, 1970; Fromkin, 1971; Fodor et al., 1974; Bever et al., 1976; Garrett, 1975, 1976; Ford & Holmes, 1978) sentence production includes some form of the clause as the basic unit of production. Moreover, a central issue in the research is the relation of listening to speaking. Daiute observed that an individual mentally monitors what he says as he says it. And this interaction involves cognitive factors such as short-term memory and linguistic structure (Fodor et al., 1974; Bever et al., 1976). Sentences are produced by a set structural-clause frame representing major surface structure forms of the English clause and so do not have to be reconstructed for each utterance. If the produced structure, then, is different from a fixed-clause frame, might it be because of some behavioral factor such as stress? Grammatically complicated sentences are stronger perceptual units, while, conversely, those with less grammatically complex clause units are considered as weak perceptual clauses.

Another aspect Daiute (1981) studied is the number of words used in the perceptual clause; if too many words are attempted, memory limits may interact with the intent and result in ungrammatical clauses or sentences. Or if the speaker, after semantic recoding, forgets the syntactic details, the speaker may utter an ungrammatical, garbled meaning clause. Daiute and others have suggested, then, that occurrences of strong perceptual clauses, a large number of words, and complex syntactic structures prior to the onset of errors in sentences "suggest that semantic recoding influences the production of errors" (p. 18). Daiute predicted that writers of ungrammatical sentences have more limited short-term memory than do writers who do not write error sentences.

Language Production and Stress

Spence (1982) suggested that the ungrammatical clauses (sentences) include sentence change, repetition, omission, and sentence incompleteness, and indicate a "high level of underlying stress" (p. 299). Sunshine and Horowitz (1972) specifically studied differences in egocentricity between spoken and written expression under stress and non-stress condition. For normal adults, generally there is a balance

between diversification and repetition, between the number of different words used and their frequency of employment. Such a balance is called sociocentric, but greater repetition and less diversification is labeled egocentric. They used a Zipf rank frequency curve to measure the balance between repetition and diversification and represented mathematically the differences between egocentric and sociocentric expressions. Zipf (1949) had found that the distribution of words in English approximate a harmonic series, that is, the most frequent word would occur every ten words in a sample. But he speculated that such a harmonic distribution would be valid for only written language since spoken language involves facial expressions and gestures which would distort the curve. Horowitz and Newman (1964) confirmed Zipf's inferences.

Spoken language has been found to be more redundant and prolific with a greater number of communication signals and orientation signals. Speaking is psychologically easier and more efficient in that it produces more ideas in ratio to words used and time expended (Sunshine & Horowitz, 1972, p. 159). When speaking, one has less time to be precise and diverse, so more common and general words are used, thus

more repetition and egocentricism. Writing, on the other hand, takes more time, is less natural, more artificial, difficult, stimulus oriented, inhibited, and deliberate; therefore, it is more sociocentric, varied, and non-repetitive.

Sunshine and Horowitz's (1972) studies of schizophrenic speech and writing indicated high egocentric orientation. The anxious person, more concerned with his own welfare, tended to repeatedly use common words, "less precise in meaning and perhaps more affect-laden, in an effort to relieve his tension and restore internal balance" (p. 159). Controlling for such variables as setting, time for thinking, topic, order for speaking or writing, and subjects, Sunshine and Horowitz found in a study of forty students in an introductory psychology course at Queens that spoken expression reveals more egocentricism than written language and that elicited expression under stress is more egocentric than that under non-stress conditions. In the study, students in the non-stress speech group used 4662 words, and in non-stress writing 3750; those in the stress speech group used 4996 and in the stress writing group 3979. Twenty-five percent of the stress speech group and 32% of the stress writing group repeated words less than five times, thus

establishing that writing is the more sociocentric expressive mode.

Osgood and Walker (1959, 1972) researched writing (suicide notes) to ascertain the effects of motivation upon language behavior. They postulated that when an individual produces a message, whether it is conversation, a personal letter, or a suicide note, he uses a complex set of encoding procedures. Further, they speculated that a person contemplating suicide and writing a note shortly before taking his life would be in a highly motivated state. Therefore, the content and structure of that note probably would be somewhat different than an ordinary letter to a friend or a simulated suicide note.

Osgood and Walker (1959) noted that any message, whether a conversation, a letter to a relative, or a suicide note "employs a complex set of encoding" (p. 58). Further, they hypothesize that such language habits are organized similarly to those underlying nonlanguage behavior, and therefore, the same principles of learning and performance would apply in both instances. And they concluded that motivation affects language behavior. For example, presumably a suicide note would be written under extreme stress or motivation. Moreover, both the content and structure should differ from

ordinary conversations or letters. Specifically,

1. Suicide notes will be characterized by greater stereotypy than messages produced under lower degrees of motivation.

2. If extremely high levels of drive can be assumed, suicide notes should display greater disorganization of language behavior.

3. Suicide notes should be characterized by increased frequency of those grammatical and lexical choices associated with the motives leading to self-destruction.

4. Suicide notes should be characterized by more evidence of conflict than messages produced under non-suicidal states. (Osgood & Walker, 1959, p. 59)

Osgood and Walker tested the above hypotheses by (a) comparing suicide notes with regular letters to relatives and friends and, (b) comparing genuine suicide notes with simulated suicide notes. The null hypothesis was rejected by either .05 or .01 for the comparison between suicide notes and regular letters, but in the second comparison the differences were smaller but still "discriminating significantly" (p. 67). Of the sixteen linguistic measures employed, thirteen differed significantly between suicide notes and the

ordinary letters, twelve significant at .01 level and with no sex differences. Specifically, they found that suicide notes tend to be shorter, using simple words and less diversified vocabulary; are more repetitious; include more simple action words such as nouns and verbs, fewer qualifiers like adjectives and adverbs; and the messages are more easily filled in or completed by others. The suicide notes also display more absolute and evaluative expressions, a high frequency of demands, commands, and more ambivalence constructions. Osgood and Walker (1968) concluded that other variables than motivation could be responsible for their results and that more studies involving other determinants are needed to test their findings.

Using less dramatic data, Sunshine and Horowitz (1968) studied schizophrenic speech and writing and found a high egocentric orientation. Their research supports Osgood and Walker's findings. They discovered that the autist has as affinity for general or generic words which cover many different meanings rather than specific ones which effect better communication. Further, the highly anxious person is more concerned with presenting "his own emotional equilibrium than in communicating effectively" (p. 159). Thus he uses more common words with general meanings.

Summary of Literature Basis for the Study

Because of today's rapidly changing world, the ability of individuals to cope with the accelerated changes, and the United States becoming a population of adults, research needs to be directed toward identifying stressful events in adults' lives and their concomitant readjustment to those events. Specifically, investigations should focus on the most viable techniques for measuring the stress-related behavior of adults. Many researchers have studied, in isolation, stressful life events; others have investigated relationships between the events, and some have researched linguistic behavior, but none have looked at linguistic behavior as a psychophysiological response to life event stress and, thus, as a measurable indicator of stress the literature reviewed in this chapter supports the feasibility and desirability of such a study.

Cannon (1929) and Meyer (1951) have noted that stressful life events can be harmful. Wolff (1953) found that noxious stimuli may impede one individual but inspire another. Selye (1956) conceived the general adaptation syndrome which proposed that an individual's perception of the event determines whether the stress will be beneficial or detrimental. In the 1940s Holmes and Rahe and later

Holmes and Masuda began a series of empirical studies of the quality and quantity of life events that cluster at the time of disease occurrence. These studies revealed that the clustering of life events "achieved etiologic significance as a necessary, but not sufficient, cause of illness and accounts in part for the time of onset of disease" (Holmes & Masuda, 1967, p. 48).

The life events studies were extended by other researchers to include other variables as mediators of life event stress. For Kobasa the mediator was personality; she concluded that a robust individual has better control of his life, will see change as a challenge, remains healthier, and will not succumb to illness. Rahe & Arthur (1978) included such variables as age, sex, life stage, ethnicity, and social assets in their model of correlations between life event and the onset of illness. Paykel and Uhlenhuth (1972) found that phrasing of an instrument's instructions could elicit different magnitudes of desirability or undesirability of an event. Investigations by Dohrenwend et al. (1978) found that certain group differences regarding illness onset may be attributed more to ethnic background than to sex or social class. Fairbank and Hough (1979) concluded that any scale of life events should include at least three dimensions: one showing the person's

control over an event, another the desirability of the event, and a third indicating whether the event or perception of the event is confounded with subsequent illness.

The consensus among the stress researchers was that a relationship exists between life events (stress) and behavior, that one's perception may alter his readjustment to the event, and that further investigations should include variables such as age, marital status, sex, socioeconomic status, ethnicity, level of education, and culture.

The adult development researchers suggested in their studies that a relationship between age (life stage), change, and behavior does exist, but they did not specify that behavior is related to stress. Erikson (1950, 1980) conceived of growth through the adult life span as a process of eight psychosocial tasks, each dominating the individual at a certain stage of life. Further, he felt that any crisis (change) is a turning point, and with each crisis one must renegotiate or reaffirm earlier resolutions. Similar to Erikson, Havighurst (1968) formulated six levels of developmental tasks, considered development to be lifelong, and believed failure at an early age jeopardizes full development at a later stage. Chickering and Havighurst (1981) revised and expanded the six stages so that the

adulthood period would be more comprehensive. Levinson (1978) identified a life structure of four developmental stages and concluded that developmental tasks are crucial to the evolution of the period, that there is a transition period of approximately five years between the periods, and that the negation of transition periods (change) is paramount to one's success.

Weathersby's and Cross's schema synthesized many of the earlier researchers' life-events, stages, and phases. For example, Weathersby's life stages are age-related periods of stability and transition and indicate that during each life stage time period "certain concerns are salient" (1978, p. 19). She also agrees with Erikson and Levinson that probably the transition periods are the most significant parts of the life cycle (stages). To validate this proposition, Weathersby's Goddard Study of adult students (1977) revealed that 79% considered themselves to be in a period of transition. From her studies and from those of other adult development researchers, she constructed a life-cycle chart of 10 stages including three periods of transition (see Appendix D), and concluded that investigations must look at the life cycle from the biological, sociological, and psychological perspectives.

Cross (1982) like Weathersby synthesized much of the developmental research and constructed a chart of six developmental age-related stages or phases (life stages) associated with 33 life events (Appendix E). She also believes that there are identifiable transitions and periods of changes in people's lives. Her chart addresses phase and age, marker events, psychic tasks, and characteristic stance. She suggests that adults in one specific period have different needs, learning tasks, and stances than do those in other periods.

Although the linguists' studies focused on language structure, rather than of the "science of human nature" (Cairns & Cairns, 1978, p. 101), many of them suggest that language and thought are inseparable. They sought to define, question, observe, classify, verify, and revise the process of inquiry about language. They were primarily interested in observable units of behavior (speech sounds).

The psycholinguists attempted to synthesize psychology and linguistics, that is, to study the mental processes involved in the acquisition of language and linguistic behavior. Many researchers studied speech as language behavior (Chomsky, 1972; Moscovici, 1972), while others looked at the relationships between written and oral language

(Laver, 1970; Chaika, 1981). Some have investigated disordered speech patterns or collected psychological profiles from speech samples (Miller & Phelan, 1980; Gottschalk & Uliana, 1978; Gleser, Winget, & Seligman, 1979). Several have narrowed their studies to the errors in speech and writing and propose that the errors provide valuable insight into sentence production (Shattuck-Hufnagel, 1979). Further, Shaughnessy (1977) suggests that these errors are related to failure of short-term memory or faults in retrieval from long-term memory. Higgins (1977), Kroll (1978), Emig (1977), and Daiute (1981), all examining oral and written discourses, recognized differences but suggest their findings are inconclusive and replications are deemed necessary before definitive claims can be made.

Several researchers (Osgood & Walker, 1959, 1972; Sunshine & Horowitz, 1972; Spencer, 1982) found relationships between linguistic measures and stress or anxiety.

Thus, it seems that numerous researchers have examined relationships between life event stress and life stage, life event stress and behavior, and life stage and behavior; however, none have investigated relationships among all three variables of life event stress, life stage, and linguistic behavior. Therefore, this study undertook the task of

articulation of linguistics attachments and certain life events rating scales to measure stress in relationship to life stage.

Many psychologists, linguistics, and psycholinguists recommend that linguistics, both written and oral, is a viable measurement of stress. In several studies by Osgood and Walker and Sunshine and Horowitz, for example, linguistic measures were applied to written material to differentiate between a person's low and high stress states and significant results were noted. Because of these early but laudable findings, this investigator hoped to identify relationships among the individual's life stage, stress level, and linguistic measures of writing.

Initially, seven linguistic measures were implemented in this investigation. Their creators/originators labeled them as (a) Disorganization Index, (b) Effort Index, (c) Intelligence Index, (d) Level Index, (e) Lexical Diversity Index, (f) Readability Index, and (g) Style Index. To compute these seven measures, nine types of raw data and stylistic property measures were included: (a) punctuation incidents, (b) unique function words, (c) unique content words (d) total function words, (e) total content words, (f) number of sentences, (g) average word length, (h) average sentence

length, and (i) estimated percentage of words on the Dale Long List ("easy" words). For simplicity in this research, all of the sixteen indices and measurements have been labeled "linguistic measures" and will be discussed in depth in Chapter III.

To identify potentially stressful periods (life stages), the investigator employed the Variation of the Social Readjustment Rating Scale (VSRRS), which is a composite of the Holmes and Rahe Social Readjustment Rating Scale of 43 items (SRRS, 1967) and the Cross' synthesized list (1982) of 33 items for a total of 59 life events. Chapter III discusses in detail the evolution of these two instruments and the rationale for their implementation in this investigation.

CHAPTER III

DESIGN AND PROCEDURES

This study was associational rather than experimental and was designed to explore the proposition that a person's life event responses or his perceptions of those events can affect his linguistic choices. One purpose of the study was to empirically gather data from adult students to examine life events they had experienced within the last year, their perception of those events, and whether the readjustment to the events (stress) was reflected in their writing samples. A second purpose was to ascertain, should a relationship exist between a person's psychological stress and his writing, whether sex, adult development stages as indicated by age categories or adult development stages as reflected in marker events included in the life events scale affected the relationship between linguistic measures and stress.

Analysis to determine these relationships utilized data from the subjects' life event scale scores as measured by the Variation Social Readjustment Rating Scale (Appendix F, synthesis of Holmes' & Masuda's SRRS, 1967 and Cross' marker event scale, 1982) and linguistic properties of the subjects'

writings as identified by linguistic measures. Further, the research attempted to discover possible relationships among certain linguistic variables and the scores on the VSRRS, age, and gender.

Each linguistic measure described under instrumentation was applied to each individual's writing sample. Analysis of variance, correlation, and multiple linear regression were used, variously, to test the null hypothesis specified for the study.

This study did not involve any manipulation of variables. The investigation focused on analysis of the material thereby abrogating the possibility of variable manipulation. Therefore, the relationships identified are associations, not statements of cause and effect.

Sampling Procedures

Six steps constituted the sampling procedures for the investigation.

1. Selecting the 100 subjects to be studied.
2. Administering the Variation of Social Readjustment Rating Scale (VSRRS) to the selected subjects.
3. Compiling the respective scores from the VSRRS and concomitant life change units (LCUs).

4. Collecting writing samples from the subjects.

5. Applying instrumentation to each of the writing samples.

Selection of the Subjects for the Study

The subjects were selected on the following criteria:

1. They must be currently enrolled at Tarrant County Junior College.

2. They must be enrolled in either a freshman or sophomore level English course at Tarrant County Junior College.

3. They must be at least 18 years of age.

4. They must voluntarily agree to participate anonymously in the study.

In the initial phase of the research, the investigator decided to use a stratified random sampling from Tarrant County Junior College English courses for several reasons.

1. Since the college's formation in 1966 some 250,000 students had enrolled in classes at Tarrant County Junior College, and the institution appeared to have included a fairly large representation of all persons attending post secondary schools in a metropolitan area.

2. All students enrolling for credit classes toward an associate of arts or associate of science degree are required to take six semester hours of freshman-level English.

3. Any student anticipating transfer to a senior institution must take six additional hours of sophomore level English.

4. Students enrolled in English classes participated in daily writing exercises as part of their regular curriculum; therefore, producing a writing sample for this study would not evoke any additional stress to confound the results. This investigator postulated that sampling from classes not accustomed to daily writing recitations could cause the students anxiety with resultant contaminated compositions not accounted for.

5. This investigator as a professor of English at Tarrant County Junior College had access to all English classes and could collect the writing samples without disrupting class routines or provoking student apprehension.

6. The Tarrant County Junior College administration fully supported the project because it anticipated

significant findings which could have positive implications for future instruction and counseling of students.

Description of the Corpus

The corpus of the investigation included 160 Variation Social Readjustment Rating Scales (VSRRS) and writing samples from freshman and sophomore English students attending both day and night classes at Tarrant County Junior College. Because the class enrollments vary from 15 to 40, and because the total enrollment is equally divided between day and night classes, the samples were collected randomly from six classes, four freshman and two sophomore-level courses. Three of the selected classes were day and three were night. Although the average student's age is 27, historically, many of the older students attend the night sessions. So the investigator felt confident that the three night classes would produce a representative sampling of the older students. Even though no control was implemented for age or sex, the students were asked to indicate their age and sex.

From the 160 samples collected, only 100 complete, legible, and accurate VSRRS and writings were usable. Any writing sample with fewer than 100 words, omission of

age or sex designation, some illegible words, or gross unexplainable errors was deleted from the corpus. Also any VSRRS sample without age or sex indicated or blank score was omitted from the sample data. One hundred samples, however, seemed an appropriate number for this study based on Osgood and Walker's comparison of 100 suicide notes and 100 fabricated suicide notes (1959, 1972). Other authors had verified the reliability of such sampling (Gottschalk, Winget, Gleser, 1969, 1979; Haskins, 1960). The 100-word samples used in this study were drawn from the 50 words on either side of the mid-point of the composition, beginning with the first word of the sentence nearest the 50 count. These sampling procedures derive from Haskins (1960) and Osgood and Walker (1959). Using a prototype method, drawing 200 word-samples from a lengthy passage, Haskins (1960), validated the procedure and proposed that such a sample is representative of the entire text, having a rank correlation of .95 and being significant at the .01 level.

Appendix G contains the 100 samples drawn from the 100 subjects. The samples were reproduced as accurately as possible, retaining all irregular syntax, diction, spelling, and punctuation. Since the samplings were drawn from 50 words

either side of a mid-point area of the composition, the semantics may appear at times to lack coherence.

Collection of the Data

The data for this investigation included two types: a variation of the Social Readjustment Rating Scale together with life change units (LCUs), both totaled, and a 100-word sample writing from the subjects.

Instrumentation: Measurement of Life Events

The Social Readjustment Rating Scale (Holmes & Rahe, 1967) and the Cross synthesized model (1982) were combined and used to empirically score the amount of adaption required of each individual. Appendix E includes the Cross model and Appendix F exhibits the Holmes and Rahe scale. The synthesized scale, VSRRS, used in this study appears in Appendix G.

The Social Readjustment Rating Scale. Beginning in 1949 Holmes et al. used the life chart systematically with 5000 patients to study both quantity and quality of life events clustering near the time of disease onset. These studies "established that a cluster of social events that require change in ongoing life adjustment is significantly

associated with the time of illness onset" (1964, p. 47). Contiguous with these illnesses were terms such as "life stress," "emotional stress," and "object loss."

Subsequent to the initial observations, Holmes and Rahe (1967) devised a 43-item life event questionnaire to estimate the magnitude of events. In their investigations, the 394 subjects were asked to follow certain written instructions.

1. Social readjustment includes the amount and duration of change in one's accustomed pattern of life resulting from various life events. As defined, social readjustment measures the intensity and length of time necessary to accommodate to a life event, regardless of the desirability of this event.

2. You are asked to rate a series of life events as to their relative degrees of necessary readjustment. In scoring, use all of your experience in arriving at your answer. This means personal experience where it applies as well as what you have learned to be the case for others. Some persons accommodate to change more readily than others; some persons adjust with particular ease or difficulty to only certain events. Therefore, strive to give your opinion of the average degree of

readjustment necessary for each event rather than the extreme.

3. The mechanics of rating are these: Event 1, marriage, has been given an arbitrary value of 500. As you complete each of the remaining events think of yourself, "Is this event indicative or more or less readjustment than marriage?" "Would the readjustment take longer or shorter to accomplish?" If you decide the readjustment is more intense and protracted, then choose a proportionately larger number and place it in the blank directly opposite the event in column marked "Values." If you decide the event represents less and shorter readjustment than marriage, then indicate how much less by placing a proportionately smaller number in the opposite blank. (If an event requires intense readjustment over a short time span, it may approximate in value an event requiring less intense readjustment over a long period of time). If the event is equal in social readjustment to marriage, record the number 500 opposite the event. (Holmes & Masuda, 1974, pp. 49-50)

The Social Readjustment Rating Scale (Appendix F) reflects the magnitude of the life events when the mean

score is divided by 10 for each item and then the items are arranged in rank order. Such a magnitude score is designated a Life Change Unit (LCU). Masuda and Holmes (1967) composed three measures of central tendency: the arithmetic mean, the geometric mean, and the median. They found that the arithmetic mean scores consistently were higher than the other two. Numerous investigations have replicated the scaling method and reported similar findings: Siegel, 1956; Stevens, 1966; Pasley, 1969; Ruch & Holmes, 1971; Bramwell, 1971; Coddington, 1972, (Holmes & Masuda, 1974). The generalization of the scaling method is supported by extensions into more cross-cultural areas between minority groups and white populations (Holmes & Rahe, 1967).

To validate their findings and to quantitatively define a life crisis, Holmes, Masuda, Rahe et al. combined the earlier constructed Schedule of Recent Experience (SRE) (Hawkins et al., Holmes, 1967; Rahe et al., 1964) with the SRRS. The SRE had been administered to 200 physicians at the University of Washington hospital system (unpublished by Rahe & Holmes) along with a questionnaire asking them to list all "major health changes" by year which had occurred during the last ten years. Based on the 88 questionnaires returned, values were summed for each year and the total life change

(LCU) affixed for each subject. From analyses of the data, the investigators noted a direct relationship between the magnitude of the life crisis and the health change risk; that is, as the life change units increased so did the percentages associated with illness. From the studies, Holmes and Masuda (1974) formulated three categories of life crises:

1. Mild Life Crisis reflects a total score on the SRRS of between 150 and 199 Life Change Units within one year.

2. Moderate Life Crisis is associated with a total score on the SRRS of 200 to 299 Life Change Units within one year.

3. Major Life Crisis indicates a total score on the SRRS of 300 or more Life Change Units during the last year.

The investigator decided to use the SRRS for this study because (a) it had been found to be reliable (Holmes & Rahe, 1967) and (b) the instrument had been used in numerous replications involving thousands of subjects. Casey, Masuda, and Holmes (1967) administered the SRRS to 55 subjects twice, nine months apart, to show that recall consistency is related to saliency of life events. Their comparison of the two questionnaire data revealed that the instrument was reliable.

Pearson's r for the three representative years was .744 for the previous 1-year period, .638 for the previous 4-year period, and .669 for the previous 7-year period. For both administrations, the findings were significant at the .0005 level of confidence. The numerous replication studies included Kamaroff, Masuda & Holmes (1968) Celdran (1970); Harmon, Masuda, & Holmes (1970); Seppa (1972); and Woon (1971) who reported high correlations between minority groups and white population in their cross-cultural studies, ranging from .943 to .629 (Swenson, 1983).

The Cross Synthesized Life-Cycle Phase Scale.

Cross (1982) researched the explosion of adult development material developed over the past ten years and found that many investigators polarized themselves into two groups, those classified as researchers of life cycle or life phases and the others as generic adult development. The first group refers to phases of the life cycle while the latter discusses the developmental stages of growth and maturity. Recent studies have tended toward attempts at identifying age-linked phases which seem common across all the investigations. Cross notes that the major controversy over constructing charts is not over the details of defining age boundaries or phasic descriptors but over the whole idea of using chronological age

as the "baseline." Some have differed by defining research groups by social role rather than age. Others are primarily interested in application of life-cycle studies while still others focus on disciplinary research, hoping they will stimulate more and better studies.

Cross' life-cycle phase chart of 33 items or marker events includes seven age groups and is a synthesis of researchers Chickering and Havighurst (1981); Gould (1972); Lehman and Lester (1978); Levinson and others (1974); McCoy, Ryan, and Lichtenberg (1978); Neugarten (1968); Sheehy (1976). But she relies most heavily on Weathersby (1978). Weathersby, drawing on the research of Erikson, Levinson, Gould, Neugarten, and her own Goddard College study of adult undergraduate students, recognizes that defining life stages is easier than labeling them. She proposes that "life stages are age-linked periods of stability and transition embedded in our experience of living" and that "a life stage is a time period in which certain concerns are salient" (1978, p. 19). Her nine phases include both periods of transition and stability and note that probably the transition periods are the most important parts of the life cycle (stages). Cross' chart addresses phase and age, marker events, psychic tasks, and characteristic stance (see Appendix E) and proposes that

each group's searching for stability has different needs, learning tasks, and stances.

Variation of Social Readjustment Rating Scale. The present study decided to combine the SRRS and Cross' synthesized chart because her schema includes several items which seem more current than do those on the SRRS. Therefore, the investigator compared events of the two lists and added those from the Cross chart which did not appear on the earlier SRRS. The primary purpose of using the synthesized life events list (VSRRS) was to include all potentially stressful events related to the life stage of each subject. Scores representing these events could then be related to scores attained from applying linguistic measurements to the subject's writing samples. The linguistic measurements are discussed below.

Instrumentation: Measurement of Linguistic Properties

The study empirically measured certain linguistic properties of the subject's writings to determine if there was a relationship between a person's linguistic choices and his life event responses as reflected on the VSSRS. The purposes for employing the particular linguistic measures in this research were (a) to identify the varied

linguistic properties of the subject's writings; (b) to ascertain whether linguistic measurements reflect stress; (c) to determine if there is a relationship between linguistic complexity (multiple linguistic measures) and stress, (d) to analyze whether age categories or sex affect linguistic measurements, (e) to note if one's perception of life events (stress) affect linguistic choices, and (f) when correlating life event scale scores with several linguistic measurements for the subject's writing sample to determine a relationship between linguistic complexity and stress.

Linguistic instrument reliability was not a concern because no error of measurement was possible; that is, all linguistic measurements except the Disorganization Index were programmed for computer analysis. Replication resulted in duplicate values.

Halstead (1977), developer of three of the indices used in this study, and his colleagues specified the validation process for linguistic measures of this type. They postulated that an algorithm, or communication, is a distillation of human thought, and because of this theory their research included only properties of algorithms which could be empirically measured. Moreover, their investigations involved both computer languages and natural languages. So, because

human thought is integral to this study, Software Science was the most appropriate measurement.

Halstead (1977) discussed validations of Software Science measures; however, he as well as other Computer Science researchers interpret "validation" as explanation of formula derivation. Thus Halstead offered no statistical results of his validation. But the measures did prove reliable in that they produced identical results upon application to the same algorithm. For a more thorough discussion of the derivations and mathematical aspects of the specific indexes by Halstead (Effort Index, Intelligence Index, and Level Index), see Halstead's Elements of Software Science (1977).

The following linguistic and software science measures used in this study are labeled by their originators/users as

1. Disorganization Index
2. Effort Index
3. Intelligence Index
4. Level Index
5. Lexical Diversity Index
6. Readability Index
7. Style Index

The seven measures discussed below will include the respective measure title, the appropriate abbreviation, the originator(s) or user(s) together with their developmental purpose, and any mathematical notation necessary to compute the ratio. Much of the nomenclature for each is borrowed from Sherron Swensen (1983) who systematized the measures for her research.

Disorganization Index (DI). Osgood and Walker (1959) developed and labeled the Disorganization Index (DI) for their comparative study of suicide versus psuedo-suicide notes. The linguistic characteristics indicated that persons functioning under heightened motivation tend to write with shorter, simpler words, less diversified vocabulary, more repetition, simple action expressions (nouns and verbs) and fewer qualifiers (adjectives and adverbs). Osgood and Walker (1959) labeled such explosive and unsystematic sentences Disorganization Index.

$$DI = \frac{N}{IS}$$

N = the total number of words in a passage.

IS = the total number of segments (clauses).
which can function independently as a
sentence.

DI = Disorganization Index, used to obtain
sentence length but corrected for compound
sentences.

Effort Index (EI). This index includes the average number of basic mental differentiations required to produce a passage and the minimum effort necessitated to implement the algorithm. Halstead (1977), desiring to estimate the time required to form a preconceived algorithm, used Stroud's concept of "moments" which attempted to locate the internal processing rate of the brain (1966). Halstead noted that as the passage level increases the Effort Index decreases; that is, the Effort Index decreases as the passage is stated in a more concise manner.

$$EI = \frac{V}{L}$$

Where: V = the volume of a passage; the observed size of any implementation of a passage.

L = the passage level; how succinctly the passage is stated; the relative power of the language involved.

EI = Effort Index; the number of elementary mental discriminations required to create a passage; the minimum mental effort required to implement an algorithm.

Intelligence Index (II). Most Software Science defines "intelligence" as "information content" of a passage. However, Halstead (1977) chose the term "intelligence" rather than "information content" to differentiate from Shannon's (1935) use of the term to determine only the volume and not the level of a passage. Usually, the Intelligence Index increases as the volume or complexity of a passage increases.

$$II = L \times V$$

L = the level of the passage; how concisely the passage is stated; the relative power of the language involved.

V = the passage volume; the observed size of any implementation of a passage.

II = Intelligence Index; the information content of a passage; "how much" the passage says.

Level Index (LI). The Level Index concerns the ease or difficulty of understanding a passage. Halstead's observations precipitated his conclusion that "for a person fluent in a language the difficulty of comprehension varies inversely with the level" (1977, p. 26). However, the Level Index does not depend on the length of the passage (N). The higher the level of the passage, the fewer operators or functions are used and the more concisely the passage is stated. Bolinger noted, however, that "if the operators are omitted or garbled, the total sense is lost no matter how clear the content words may be" (1968, p. 68). See Appendix I for the function word list used in this study.

$$LI = \frac{V^*}{V}$$

Where: V* = the potential volume; the most succinct form in which a passage can be expressed.

V = the volume of a passage; the observed size of any implementation of a passage.

LI = Level Index; the passage level; how succinctly the passage is stated; the relative power of the language involved.

Lexical Diversity Index (LDI). This index was developed by Johnson et al. (1944) and called Type/Token Ratio (TTR), but Osgood and Walker (1959) labeled it Lexical Diversity Index (LDI) in their investigations on suicide vs. simulated notes. Because of the nature of this research, "Lexical Diversity" has been used rather than the "Type/Token Ratio" label. Osgood and Walker postulated that lexical diversity would decrease under stress. Results of this study confirm their hypothesis.

$$LDI = \frac{n_1 + n_2}{N}$$

Where: n_1 = the unique function words in a passage.

n_2 = the unique content words in a passage.

$n_1 + n_2$ = the vocabulary of a passage; the number of unique words in a passage.

N = the total number of words in a passage.

LDI = Lexical Diversity Index; differentiates
"between educational levels, telephone
vs. ordinary conversations and so on"
(Osgood & Walker, 1959, p. 60).

Readability Index (RI). Bormuth (1960) designed an accurate and practicable mathematical test of text difficulty, relying both on his own research on the cloze procedure (1968) and the original work of Taylor (1957). The Bormuth model was formulated from comprehension tests where students were asked to identify missing words from a text. The tests define "a text's difficulty with a regression equation that is dependent on the number of difficult words in a passage, the average word length and the average sentence length" (Irving & Arnold, 1979). Bormuth's use of "difficult words" means those words which do not appear on the Dale Long List (Dale & Chall, 1948). Using the Dale Long List, however, requires extensive table research with a large computer memory and/or extensive time requirements.

To alleviate this mammoth task, Irving and Arnold have developed a formula, using other parameters in the equation, which will mathematically estimate the number of difficult

words. They report very good correlation with the values by the full formula for younger children's reading matter, but they offer no statistical results. Irving and Arnold qualify their formula by noting that technical writing and prose produce a Bormuth value over 68 (11th grade-level reading) which tends to be consistently less than the value obtained when using the full Bormuth scale. Since neither technical writing nor grade level was a concern in this research, the Irving and Arnold modified formula was substituted for the Bormuth scale.

The full Bormuth Readability Index formula (1969) is

$$RI = 100 [1 - (.886593 - .08364 (L/W) + .161911 (DLL/W)^2 - .021401 (N/SEN)^3 + .000577 (W/Sen)^2 - .000005 (W/Sen)^3)].$$

Where: L = the number of letters in a passage.
W = the number of words in a passage.
DLL = the number of words on the Dale Long List (easy words).
SEN = the number of sentences in the passage.
RI = Readability Index; a gradation of the set of factors independent of context

which makes material either easy or
difficult to read.

To estimate the number of Dale list words in the passage
substitute:

$$W[1 - (.05(L/W) - 3.2)]$$

for DLL in the above Bormuth formula.

The following chart indicates the comparable level
difficulty for different readability values (Irving & Arnold,
1979):

Readability	Grade
<u>Value</u>	<u>Level</u>
39	1.8
48	3.2
55	5-6
59	7-8
65	9-10
69	11-12
72	13-15
76	16+

Style Index (SI). Herdan (1960) developed this index
which measures characteristics of writing style. He labeled
the measure Type-Token Ratio (TTR), but the assumptions and
formulation differ from Johnson's et al. (1944). Herdan

proposed that the Style Index would not vary as long as environmental conditions remain constant and that the index is independent of text length.

The Style Index (SI) is as follows:

$$SI = \frac{\log(n_1 + n_2)}{\log N}$$

where: n_1 = the number of unique function words
passage.

n_2 = the number of unique content words
in a passage.

$n_1 + n_2$ = the number of unique words in a passage;
the vocabulary of a passage.

N = the total number of words in a passage.

SI = Style Index; a measure characteristic
of style, independent of text length,
which should remain essentially constant
from text to text of the same author;
also called a Type/Token Ratio.

Instrumentation: Calculation of Linguistic Properties.

To calculate the above seven indices, four types of raw data and five stylistic measures were employed. These nine additional linguistic properties posed substantial

interest as the research progressed and are included below:

Four raw data tabulations for each one hundred word sample:

1. the number of unique function words
2. the number of unique content words
3. the number of sentences
4. the percent of words on the Dale Long List

Five stylistic measures for each one hundred word sample.

1. punctuation incidents
2. total function words
3. total content words
4. average word length
5. average sentence length

For consistency and clarity, the four raw data tabulations and the five stylistic measures are identified and described below (The descriptions below are largely based on those of Swenson, 1983).

Unique Function Words: The different system morphemes included in a passage, which convey little lexical meaning and are usually called conjunctions, prepositions, relative or conjunctive adverbs, or relative pronouns.

Unique Content Words: The total different nouns, verbs, adjectives, and adverbs contained in a passage.

Number of Sentences: The number of sentences and the percentage of any unfinished sentence in a passage.

Percent of Words on the Dale Long List: The estimated percentage of words from the Dale Long List included in a passage. The estimate was derived from the Irving and Arnold (1979) formula discussed in the Readability Index.

Punctuation Incidents: The total number of punctuation marks contained in a passage minus any immediately repeated punctuation.

Total Function Words: "The frequency of prepositions, conjunctions, relative or conjunctive adverbs, and relative pronouns in a passage. Adjustments had to be made, however, because of SNOBOL computer program used in this research included not only prepositions, conjunctions, relative or conjunctive adverbs, and relative pronouns but also punctuation incidents, number of paragraphs, and number of possessives." (Swenson, p. 22)

Total Content Words: The frequency of nouns, verbs, adjectives (including numbers) and adverbs contained in a passage.

Average Sentence Length: The number of passage words divided by the total number of passage sentences.

Average Word Length: The total number of letters in a passage divided by the total number of words in the passage.

Procedures for the Collection of the Data

As stated earlier, the subjects for this study were selected on the following criteria.

1. They must be current students at Tarrant County Junior College.

2. They must be enrolled in either a freshman or sophomore level English course at Tarrant County Junior College.

3. They must be at least 18 years of age.

4. They must voluntarily agree to participate anonymously in the study.

The criteria were met and the subjects selected.

A combined Social Readjustment Rating Scale (SRRS) and Cross' synthesized scale, titled the Variation of Social Readjustment Rating Scale (VSRRS), was administered during regular class sessions by the investigator to all 100 subjects and used to score their Life Change Units (LCUs).

The LCUs were calculated by first totaling the subject's number of major life events experienced during the last year and the individual's perception of those events based on the Holmes and Rahe (1967) ratio scale (SRRS) which gave marriage an arbitrary value of 500. As in the Holmes-Rahe scale each person was asked to rank his or her readjustment to the event more or less proportionate to the 500 value. The numbers of Standard Life Change Units were also totaled for the corresponding events the subject had marked. Isolating Cross' specific age-marker events from the scale, scores were collected along with the person's age so that the data could be appropriately grouped by age-categories for statistical analysis.

Upon completion of VSRRS, the subjects were asked to write 100-word samples using the following standardized instructions (formerly designed and used by Gleser and Gottschalk, 1969, who established reliability and validity for a content analysis method to measure various psychological states of language behavior for adults and children).

As you know, one of the things we are studying is how people write and what they write about. I want you to think for a moment about something in your life,

past or present, that is important or interesting to write about, and then when you are ready, write 100-150 words on that subject. You can ask questions before you begin writing, but then write until you have finished the narrative (Gleser, Winget, & Seligman, 1979).

Utilizing sampling procedures derived from Haskins (1960) and Osgood and Walker (1959), the 100-word writing samples in this investigation were drawn. Haskins (1968) validated this procedure and proposed that such a sample is representative of the entire text.

The seven linguistic measures discussed under Instrumentation (Disorganization Index, Effort Index, Intelligence Index, Level Index, Lexical Diversity Index, Readability Index, and Style Index) were then applied to the writing samples. With the exception of the Disorganization Index all of the linguistic measurements were programmed for computer analysis.

Following application of the linguistic measures to the writing samples, the scores were subjected to certain statistical analyses as discussed below.

Statistical Treatment

The Pearson product moment correlation was computed between each of the seven linguistic measures on the

sample passages and the associated life event scale scores to test the null hypothesis of a zero correlation between life event scale scores and linguistic measures. Tests of significance were incorporated into the procedure.

Multiple linear regression was used to determine the degrees of relationship between the seven linguistic measures collectively with life event scale scores to test the null hypothesis of a zero multiple correlation between life event scale scores and linguistic measures.

One-way analysis of variance (ANOVA) was computed on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean response by age categories (life stage) and sex for each linguistic measure sampled.

The Pearson product moment correlation was used between each of the seven linguistic measures on the sample passages and the marker event sub-scale of the life event stress scale scores to test the null hypothesis of a zero correlation between adult life stage (age category) as reflected in marker events and linguistics.

Two-way analysis of variance (ANOVA), using age categories and stress categories as factors, was conducted on

linguistic measures to test the null hypothesis of no-effect of adult life stage (age category) on the relationship between life event and linguistics.

Null Hypothesis

The following sets of null hypotheses were tested at the .10, .05, and .01 levels of significance, using one-way analysis of variance, two-way analysis of variance, Pearson product moment correlation procedures, and multiple linear regression procedures:

1. There is a zero correlation between life event stress scale scores (SRRS) and individual linguistic measures.

$$\text{Ho: } p_{xy_1} = 0$$

Where: x = life event stress scale score.

y_1 = a linguistic measure.

p = the correlation between the life event scale score and linguistic measure 1.

$$\text{Ho: } p_{xy_2} = 0$$

x = life event stress scale score.

y_2 = a linguistic measure.

p = the correlation between the life event scale score and linguistic measure 2.

.

.

.

$$\text{Ho: } p_{xy_n} = 0.$$

Where: x = life event scale score.

y_n = a linguistic measure.

p = the correlation between the life event scale score and linguistic measure n .

The relationship between the life event scale scores and each linguistic measure was examined by computing the Pearson product moment correlation between the scores and each measure and testing its significance.

2. There is a zero correlation between life event stress scale scores (SRRS) and all linguistic measures collectively.

$$H_0: \rho_{x.y_j .y_k \dots y_l} = 0$$

Where: x = the perceived stress life event scale scores.

$y_j .y_k \dots y_l$ = linguistic measures determined by multiple regression.

ρ = the correlation between perceived life event scale scores and all linguistic measures collectively as determined by multiple regression.

The multiple linear regression was used to compute the relationship between perceived life event stress scale scores and all linguistic measures collectively. Then the multiple linear regression was again employed to compute the relationship between perceived life event stress scale scores and all linguistic measures collectively

with age added as a predictor variable. Finally, the multiple linear regression was used to compute the relationship between perceived life event stress scale scores and all linguistic measures collectively with life change units as a predictor variable.

3. There is no significant difference in the mean response by age categories (life stage) for each linguistic measure applied.

$$H_0: \mu_{y_1} = \mu_{y_2} = \dots = \mu_{y_1}$$

$$H_0: \mu_{y_2} = \mu_{y_2} = \dots = \mu_{y_2}$$

.

.

.

$$H_0: \mu_{y_k} = \mu_{y_k} = \dots = \mu_{y_k}$$

The one-way analysis of variance with age as factor variable was used on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean

response by age categories (life stage) for each linguistic measure sampled. T-tests were then employed to any index in which significance was obtained in order to determine which groups were different from others.

4. There is no significant difference in the mean response by gender for each linguistic measure sampled.

$$H_0: \mu_{y_1}^1 = \mu_{y_1}^2 = \dots = \mu_{y_1}^{ny_1}$$

$$H_0: \mu_{y_2}^1 = \mu_{y_2}^2 = \dots = \mu_{y_2}^{ny_2}$$

.

.

.

$$H_0: \mu_{y_k}^1 = \mu_{y_k}^2 = \dots = \mu_{y_k}^{ny_k}$$

The one-way analysis of variance with sex as factor variable was used on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean response by gender for each linguistic measure sampled.

5. There is a zero correlation between adult life stage as reflected in the marker events sub-scale of the

SRRS and individual measures.

$$\text{Ho: } r_{xy_1} = 0$$

Where: x = Age-specific marker event sub-scale score.

y_1 = a linguistic measure.

p = the correlation between the age specific marker event sub-scale score and linguistic measure 1.

$$\text{Ho: } r_{xy_2} = 0$$

Where: x = Age-specific marker event sub-scale score.

y_2 = a linguistic measure.

p = the correlation between the age specific marker event and sub-scale score and linguistic measure 2.

$$H_0: \quad xy_n = 0$$

x = Age-specific marker event sub-scale score.

y_n = a linguistic measure.

p = the correlation between the age specific marker event sub-scale score and linguistic measure n .

The relationship between age-specific marker event sub-scale score and each linguistic measure was determined by computing the Pearson product moment correlation between the two measures and testing its significance.

6. There is no significant effect of adult life stage as indicated by age categories on the relationship between life event scale scores and linguistics.

$$\text{Ho: } \begin{matrix} 1 \\ y \\ 1 \end{matrix} = \begin{matrix} 2 \\ y \\ 1 \end{matrix} = \dots \text{ny}_1$$

$$\text{Ho: } \begin{matrix} 1 \\ y \\ 2 \end{matrix} = \begin{matrix} 2 \\ y \\ 2 \end{matrix} = \dots \text{ny}_2$$

.

.

.

$$\text{Ho: } \begin{matrix} 1 \\ y \\ k \end{matrix} = \begin{matrix} 2 \\ y \\ k \end{matrix} = \dots \text{ny}_k$$

Two-way analysis of variance was conducted with each life event stress category and age category as factors to determine if there was a significant interaction of age category with stress category on linguistic measures.

This chapter has addressed the sampling procedures for the study, the selection of the subjects, description of the corpus, the instrumentation employed, the statistical analyses computed, and the null hypotheses tested. Chapter IV will present the statistical analyses and the results of the investigation.

CHAPTER IV

STATISTICAL ANALYSES AND RESULTS

The primary purpose of this investigation was to determine if a relationship existed between a person's stress level and his writing. The second major purpose was to ascertain, should a relationship exist between a person's psychological stress and his writing, whether sex, adult developmental stages as indicated by age categories or adult development stages as reflected in marker events included in the life events scale, affected the relationship between linguistic measures and stress. Answers to the following questions were sought:

1. Do individual linguistic measurements reflect stress?
2. When correlating life events scale scores with several linguistic measures for the subject's writing sample, is there a relationship between linguistic complexity (multiple linguistic measures) and stress?
3. Does adult life stage as indicated by age categories affect the linguistic measurements?
4. Does sex affect the linguistic measurements?
5. If the linguistic measurements do reflect stress,

does adult life stage as reflected in marker events, which are included in the life events scale, differentially affect linguistic measurements?

6. If the linguistic measurements do reflect stress, does adult life stage as indicated by age categories affect the relationship between linguistic measurements and stress?

The following null hypotheses were tested at the .10, .05, or .01 levels of significance:

1. There is a zero correlation between life events stress scale scores (SRRS) and individual linguistic measures.

2. There is a zero correlation between life event stress scale scores (SRRS) and all linguistic measures collectively.

3. There is no significant difference in the mean response by age categories (life stage) for each linguistic measure applied.

4. There is no significant difference in the mean response by gender for each linguistic measure sampled.

5. There is a zero correlation between adult life stage as reflected in the marker events sub-scale of the SRRS and individual linguistic measures.

6. There is no significant effect of adult life stage

as indicated by age categories on the relationship between life event scale scores and linguistics.

The .10 level of significance, although greater in magnitude than is usual in the social sciences, was included in the tests of hypotheses because this is an exploratory study of theoretical relationships. Thus, the researcher was concerned with identifying trends for further investigation as well as ascertaining more stable relationships.

Answers to the preceding questions and tests of the null hypotheses were sought using the following sources of information: (a) sex, age, age category, life events as indicated by subject, and life change units as marked by subject; (b) perceived marker event stress scale scores, marker event stress scale scores, standard life change units, and age-specific marker events stress scale scores as measured by the SRRS and the VSRRS; (c) the linguistic properties of each subject's prose as measured by punctuation incidents, number of unique function words, number of unique content words, total function words, total content words, number of sentences per passage, average word length, average sentence length, percentage of words on the Dale Long List,

Disorganization Index, Effort Index, Intelligence Index, Level Index, Lexical Diversity Index, Readability Index, and Style Index.

The statistical analyses and results are presented as follows:

1. The Pearson product moment correlation was computed between each of the seven linguistic measures on the sample passages and the associated life event scale scores to test the null hypothesis of a zero correlation between life event scale scores and linguistic measures.

2. Multiple linear regression was used to determine the degree of relationship between life event scale scores and the seven linguistic indices collectively to test the null hypothesis of a zero multiple correlation between life event scale scores and linguistic complexity.

3. One-way analysis of variance (ANOVA) was conducted on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean response by age categories (life stage) for each linguistic measure sampled.

4. One-way analysis of variance (ANOVA) was conducted on each of the seven linguistic measures to test the null hypothesis of no significant difference in the mean response

by sex for each linguistic measure sampled.

5. Pearson product moment correlation was calculated between each of the seven linguistic indices on the sample passages and the marker event sub-scale of the life event scale score to test the null hypothesis of a zero correlation between linguistic measures and adult life stage as reflected in age-appropriate marker events.

6. Two-way analysis of variance (ANOVA), using age categories and stress categories as factors, was conducted on linguistic measures to test the null hypothesis of no effect of adult life stage (age category) on the relationship between life event and linguistics.

Relationship of Total Test Scores in Standard Life Change Units and Perceived Total Test Scores

As described earlier, the Variation of Social Readjustment Rating Scale (VSRRS) used in this study consisted of 59 life event items, of which 43 were from Holmes' and Rahe's Social Readjustment Rating Scale (SRRS, 1967) and 16 were from Cross' Life-Cycle Phase Chart. Standardized life change units (LCUs) were available for the SRRS items but no such standardized units were available for the Cross-originated items; therefore, perceived stress

ratings were obtained from the subjects for all items. Later, the standardized LCU ratings were attached to the SRRS items.

Thus, the first step in the study was a validation of the perceived life event total stress scores against the standardized life event total stress scores (LCUs). Pearson's correlation coefficients for perceived total stress scores and standard total stress scores in Life Change Units were obtained. The acquired r was .464; $p = .001$. Thus, the investigator concluded that there was a significant correlation between the two rating forms for the instrument. Furthermore, the researcher concluded that the longer form, containing the Cross-originated items, was sufficiently valid for use in further analysis in the study.

Analysis of relationships Between the Linguistic Measures and Life Event Scale Scores

The first question investigated possible relationships between individual linguistic measurements and scores obtained from the life event scales using LCUs and the perceived life event rating. Correlation coefficients for standard life event stress scores and each of the seven linguistic measures: Disorganization Index, Lexical

Diversity Index, Readability Index, Style Index, Effort Index, Intelligence Index, and Level Index were computed. Next, correlation coefficients were secured for perceived life event scores and the seven linguistic measures. These procedures provided the data to answer the first question proposed for this study.

1. Do individual linguistic measurements reflect stress as measured by various forms of the life event scale?

Tables 1 and 2 present the results of these correlational analyses. Table 1 provides the Pearson product moment correlation between the standard life event total stress scores (LCUs) and each linguistic measure. Investigation of the results of Table 1 indicates that a number of the linguistic measures are related to the standard life event total stress scores. Each linguistic measure is reported separately beginning with the Disorganization Index.

Examination of the correlations between the standard life event total stress scores (LCUs) and the linguistic measures revealed significance at the .05 level for Disorganization Index and Readability Index, and a trend toward significance for level index ($p = .079$), Effort Index ($p = .0525$), and Intelligence Index ($p = .10$).

Table 1

Correlations of the Seven Linguistic Measures with Standard
Life Event Rating Scale Total Stress Scores (LCUs)

Linguistic measures	Correlation with total stress scores	Significance level
Disorganization index	-.1753	.0387
Lexical diversity index	-.0612	.2674
Readability index	-.1691	.0443
Style index	-.0578	.2874
Effort index	.1613	.0525
Intelligence index	-.1193	.1177
Level index	-.1407	.0795

All correlations based upon 100 samples.

Table 2

Correlations of the Seven Linguistic Measures
with perceived Life Event Rating Scale
Total Stress Scores

Linguistic measure and/or variable	Correlation with perceived total stress scores	Significance level
Disorganization index	-.0396	.3490
Lexical diversity index	.0383	.3533
Readability index	-.0400	.3475
Style index	.0394	.3496
Effort index	.0267	.3941
Intelligence index	-.0279	.3897
Level index	-.0464	.3258

All correlations based upon 100 samples.

Analyses reported in Table 2 revealed no significance in the correlations between perceived life event total stress scores and the seven linguistic measures. All correlations registered significance levels of $p = .32$ or greater.

As indicated by the signs on the correlation coefficients in Table 1, when stress levels associated with standard life events increased, the scores for Disorganization Index and Readability Index decrease and Effort Index increases. In other words, high levels of stress are associated with behaviors consisting of shorter, more explosive sentences; grammatical, syntactical, spelling, and punctuation errors; simpler words; less diversified vocabulary; more repetition; and more effort required to produce the passage. Thus, linguistic measures do appear to reflect stress and the hypothesis was rejected.

Analysis of Relationships Between Multiple Linguistic Measures and the Life Event Scale Scores

In this analysis, the purpose was to ascertain relationships with perceived life event scale scores as the dependent variable and the seven linguistic measures as the predictor variables. Next, procedures were implemented to determine relationships with standard life

event scale scores as the dependent variable and the seven linguistic measures as the predictor variables. For both procedures a multiple linear regression was employed to glean relationships in an attempt to answer the second research question.

2. When correlating life event scale scores with several linguistic measures for the subject's writing sample, is there a relationship between linguistic complexity (multiple linguistic measures) and stress?

The results of the multiple linear regressions are summarized in Table 3 using an overall test for goodness of fit of the regression equation to determine the significance of relationships between standard life event scale scores and the seven linguistic measures. With testing at the .05 level of significance, the F-value found was .7184 indicating no significance (Table 3). Another overall test for goodness of fit of the regression equation was conducted to determine relationships between standard life event scale scores and the seven linguistic measures, testing at .05 level of significance. The F-value found was 1.09, indicating no significance (Table 3). Since both analyses resulted in F-values which failed to reach the .05 level of significance, the null hypothesis was retained. Thus,

it was concluded that while there seems to be a relationship between individual linguistic measures and stress, there is

Table 3

Linear Multiple Regression Summary Table for Seven Linguistic Measures Predicting Stress as Measured by Perceived Life Event Scale Scores and Standard Life Event Scale Scores

Dependent variable	Predictor	Multiple R	Multiple R sq.	F Value
Perceived life event scale score	DI, LDI, RI, SI, EI, II, LI	.2276	.0518	.7184*
Standard life event scale score	DI, LDI, RI, SI, EI, II, LI	.2761	.0763	1.09*

* Not significant at .05 level of significance; critical table F-value = 2.09.

little additional relationship when they are used in combination.

Analysis of Mean Differences By Age Categories
(Life Stage) Among Linguistic Variables

In this treatment of data, one-way analysis of variance by age category was conducted for each of the seven linguistic measures to test for mean differences. In addition, for those indices for which significant F was obtained, a t-test was administered of sub-groups (age categories) to determine which groups were different from the population mean. In conducting these analyses, only five categories were included because categories 6 and 7 contained only one subject each, so there was zero group variance to be analyzed. The two subjects were deleted from the analyses thus reducing the N to 98. These procedures provided the data to answer this question:

3. Does adult life stage as indicated by age categories affect the linguistic measurements?

Tables 4-10 present a summary of each analysis of variance. These tables provide the F-statistic for examining the difference between the age-category

means for the seven linguistic measures. The tables list the data parameters of age group, the number in each age group, the mean, the standard deviation; the results of ANOVA, that is, sources of variance, sums of squares, degrees of freedom, F ratio, and significance. After the levels of significance were identified, t-tests were implemented for indicated linguistic measures.

Inspection of Table 4 indicates clearly that reliable differences exist among age categories for the Disorganization Index. Specifically, the Disorganization Index showed age category differences significant at the .05 level. When the individual group means were tested for significance, age category 2 (ages 25 to 28) was different from the population mean at p = .09; t-statistics = -1.387). Thus, it seems that individuals in this age range for this sample tended to write shorter, more explosive sentences; more grammatical, syntactical, spelling, and punctuation errors; and more repetition than did the other groups.

The Effort Index, as indicated in Table 5, did not establish significance. Thus, it would seem that there were no significant differences among age groups in the elementary

Table 4

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Disorganization Index

Data Parameters				Results of ANOVA				
Age Group	N	Mean	SD	Source of Variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	12.9	2.68	Among	115.53	4	2.59	.04
2	18	12.6	2.44	Within	1036.83	93		
3	6	14.5	3.30	Total	1152.35	97		
4	9	16.3	7.05					
5	6	14.4	3.65					
Total	98	13.4	3.42					

Table 5

Results of Analysis of Variance for Age Categories
for Linguistic Measure: Effort Index

Data parameters				Results of ANOVA				
Age group	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	7870.6	1362.9	Among	6737364.6	4	0.81	.52
2	18	8264.2	1358.0	Within	193689231.4	93		
3	6	7565.4	1681.4	Total	200426595.0	97		
4	9	7292.3	1945.6					
5	6	8130.8	1427.4					
Total	98	7892.7	1431.1					

mental discriminations, or the mental effort, required to create the passage.

Table 6, displaying the results for the Intelligence Index, shows significance at the .05 level thus indicating significant differences among age categories. Again, age category 2 was significantly different from the population mean ($p = .001$; t -statistic = -20.609) and age category 4 was different at $p = .078$; t -statistic = 1.553. Thus, it seems that persons in age category 2 (ages 25 to 28) write passages with less information content or intelligence while those in age category 4 (ages 35 to 42) write passages that have more content information or intelligence.

Inspection of results in Table 7, Level Index, revealed a trend toward significance, reaching $p = .09$. Differences between groups were not tested as the overall F -ratio failed to reach $p < .05$. Inspection of the means in Table 7, however, reveals a non-significant trend towards larger group means with increasing age. That is, as age increases (except when one reaches category 5, 43 to 55), the number of operators or function words decrease and the more precise the passage.

The results displayed in Table 8 distinctly indicate that reliable differences exist among the means of age

Table 6

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Intelligence Index

Data parameters				Results of ANOVA				
Age group	N	Mean		Source of Variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	60.65	10.58	Among	1753.50	4	2.81	.03
2	18	58.49	10.29	Within	14527.50	93		
3	6	66.23	15.16	Total	16281.00	97		
4	9	73.96	23.75					
5	6	59.52	10.73					
Total	98	61.66	15.65					

Table 7

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Level Index

Data parameters				Results of ANOVA				
Age Group	N	Mean	SD	Source of Variance	SS	DF	F Ratio	P
1	59	.0890	.0152	Among	.00	4	2.05	.09
2	18	.0852	.0143	Within	.03	93		
3	6	.0960	.0240	Total	.03	97		
4	9	.1041	.0312					
5	6	.0868	.0163					
Total	98	.0890	.0180					

Table 8

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Lexical Diversity Index

Data parameters				Results of ANOVA				
Age group	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	0.58	.05	Among	0.03	4	3.56	.01
2	18	0.69	.04	Within	0.20	93		
3	6	.71	.02	Total	0.24	97		
4	9	.74	.04					
5	6	.70	.05					
Total	98	.69	.08					

categories for the Lexical Diversity Index ($p < .01$; $F = 3.56$). This linguistic measure comprises stereotypical vocabulary of the passage, that is, the unique content words and the unique function words divided by the total number of words in the writing. Results of t-tests of the individual means indicate that age categories 3 and 4 are different from the population mean (3 is $p = .009$, t-statistic = 3.395; 4 is $p = .001$, t-statistic = 4.296). So it seems that, for this sample, people aged 29 to 34 and 34 to 42 use more Lexical Diversity, or more unique content and function words, in the passage.

Significance again is noted in Table 9, Readability Index. The overall differences among the means of age categories for the Readability Index achieved the .03 level of significance. Age category 4 (ages 35 to 42) was significantly different from the population means ($p = .03$; t-statistic = 2.036) while age category 1 (ages 17 to 22) closely approached significance ($p = .059$; t-statistic = -1.566). Readability concerns the difficulty of the text. For example, the complexity depends upon the average word length, the number of difficult words (those words which do not appear on the Dale Long List), and the average sentence length (Dale & Chall, 1948). Inspection

Table 9

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Readability Index

Data Parameters				Results of ANOVA				
Age Group	N	Mean	SD	Source of Variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	38.7	4.74	Among	270.39	4	2.80	.03
2	18	39.5	4.57	Within	2247.02	93		
3	6	42.7	6.26	Total	2517.41	97		
4	9	43.7	6.03					
5	6	40.7	4.47					
Total	98	39.6	5.08					

of the means in Table 9 indicate that category 4 had the highest mean (43.7) while category 1 had the lowest mean (38.7). In other words, persons 35 to 42 seem to write more complex sentences with a high incidence of longer, more difficult words. Whereas, age 18 to 22 individuals appear to write more staccato-type sentences composed of many monosyllabic words.

Inspections of the results in Table 10 for the analysis of Style Index indicates a significant difference among the means of the age categories. Specifically, they show differences at the .01 level of significance. When individual group means were tested, age categories 3 and 4 were significantly different from the population mean, with t-statistics of 3.693 ($p = .007$) and 4.498 ($p = .001$) respectively. Inspection of Table 10 indicates that categories 3 and 4 had larger Style Index means than the other groups. Hence, people 29 to 34 and 35 to 42 probably write more varied style than do other adult age groups. In other words, the characteristics of the subject's writing style should remain constant from text to text by the same author as long as the author's environment remains unchanged, and theirs do not.

Table 10

Results of Analysis of Variance by Age Categories
for Linguistic Measure: Style Index

Data parameters				Results of ANOVA				
Age Group	N	Mean	SD	Sources of Variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	59	.916	.017	Among	.00	4	3.43	.01
2	18	.918	.012	Within	.02	93		
3	6	.926	.005	Total	.02	97		
4	9	.935	.011					
5	6	.920	.017					
Total	98	.919	.025					

Because five of the seven one-way analyses of variances (Disorganization Index, Intelligence Index, Readability Index, Lexical Diversity Index, and Style Index) revealed significance at either the .05 or .01 levels, and one linguistic measure, the Level Index showed a trend toward significance at .09, the question must be answered affirmatively: adult life stage as indicated by age categories does affect linguistic measurements. The null hypothesis was rejected.

Analysis of Mean Differences by Sex Among
Linguistic Variables

In this data analysis, a one-way analysis of variance by sex was applied to each of the seven linguistic measures to test the mean differences between gender categories for each of the seven linguistic indices. This procedure provided the data to answer the question:

4. Does sex affect the linguistic measurements?

Tables 11-17 present the findings of one-way analysis of variance to test the differences between sex and the seven linguistic measures, individually. The tests revealed no significance at either .05 or .01 level, although Disorganization Index ($p = .06$) and Readability Index

Table 11

Results of Analysis of Variance for Sex and
Linguistic Measure: Disorganization Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	14.03	4.15	Among	39.02	1	3.40	.06
2	54	12.77	2.56	Within	1125.10	98		
				Total	1164.12	99		

1 = male; 2 = female

Table 12

Results of Analysis of Variance for Sex
and Linguistic Measure: Effort Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	7753.01	1516.06	Among	1663999.00	1	.81	.38
2	54	8011.84	1357.45	Within	201091057.06	98		
				Total	202755056.00	99		

Table 13

Results of Analysis of Variance for Sex and
Linguistic Measure: Intelligence Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	62.218	14.602	Among	206.64	1	1.24	.27
2	54	60.334	11.311	Within	16375.58	98		
				Total	16582.22	99		

Table 14

Results of Analysis of Variance for Sex
and Linguistic Measure: Level Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	.092	.021	Among	0.00	1	1.29	.25
2	54	.088	.015	Within	0.03	98		
				Total	0.03	99		

Table 15

Results of Analysis of Variance for Sex and
Linguistic Measure: Lexical Diversity Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	.692	.052	Among	0.00	1	0.04	.84
2	54	.690	.048	Within	0.24	98		
				Total	0.24	99		

Table 16

Results of Analysis of Variance for Sex and
Linguistic Measure: Readability Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	40.550	5.115	Among	69.98	1	2.77	.09
2	54	38.872	4.944	Within	2472.36	98		
				Total	2542.34	99		

Table 17

Results of Analysis of Variance for Sex
and Linguistic Measure: Style Index

Data parameters				Results of ANOVA				
Sex	N	Mean	SD	Source of variance	SS	DF	<u>F</u> Ratio	<u>P</u>
1	46	.919	.017	Among	0.00	1	0.03	.86
2	54	.919	.015	Within	0.02	98		
				Total	0.02	99		

($p = .09$) approached significance. Hence, the null hypothesis was retained and this investigator proposes that sex, unlike age category, does not affect the linguistic measures.

Analysis of Relationships Between Marker Events
Sub-scale (Age Categories) of the Life Event
Stress Scale Score and Linguistics

Pearson product moment correlation coefficients were calculated for age-specific marker events sub-scales (five age categories) and each of the seven linguistic indices: Disorganization Index, Effort Index, Intelligence Index, Level Index, Lexical Diversity Index, Readability Index, and Style Index to ascertain if there is a relationship between the five age categories and linguistics. This process furnished the question:

5. If the linguistic measurements do reflect stress, does adult life stage as reflected in age-appropriate marker events which are included in the life events scale differentially affect linguistic measurements?

Table 18 presents the findings of these correlational analyses. Disorganization Index and Readability Index reflect significant results at the .05 level of significance. The null hypothesis was rejected and this investigator proposes

Table 18

Correlations of the Seven Linguistic Measures with
Age-Specific Marker Events Sub-Scales (Age Categories)

Linguistic measure	Correlation with age-specific marker events sub-scales	Significance level
Disorganization Index	-0.1958	.0240
Lexical Diversity Index	-0.0068	.4724
Readability Index	-0.1689	.0446
Style Index	-0.0036	.4851
Effort Index	0.0013	.5000
Intelligence Index	-0.0099	.4593
Level Index	-0.0278	.3900

All correlations based upon 100 samples.

that, in fact, age-appropriate marker events do affect one's linguistic choices and that future replication research will confirm this premise.

As indicated by the signs on the correlation coefficient in Table 18, when stress levels associated with age appropriate marker events increased, the scores for Disorganization Index and Readability Index decrease. Higher levels of stress are associated with linguistic behaviors consisting of shorter, more explosive sentences; grammatical, syntactical, spelling, and punctuation errors; simpler words; less diversified vocabulary; more repetition; simple action words; and fewer discriminative qualifiers.

Analysis of Interaction Effects of Age Categories and Life Event Stress Categories on Linguistic Measures

For this data treatment, the investigator coded each subject into a stress category according to total scores in Standard Life Change Units. The four stress categories were (a) unstressed = 0-149, (b) low stress = 150-199, (c) moderate stress = 200-299, (d) major stress = 300 or more (Holmes & Masuda, 1974).

Two-way analysis of variance using age and stress categories as factors, was conducted on each linguistic

measure to detect the effects of the interaction of age with stress on the linguistic measure. These procedures were designed to answer the final research question:

6. If the measurements do reflect stress, does adult life stage as indicated by age categories affect the relationship between linguistic measurements and stress?

Results of this procedure, testing at the .10 level to detect trends, yielded significant main or interaction effects for five linguistic indices, and in three of these there was a significant total amount of variance explained. Tables 19-23 present the results of the analyses in which significant effects were detected.

Total explained variance was significant for three measures (Disorganization Index, Level Index, and Intelligence Index, Tables 19, 22, and 23). The interaction of age category and stress category was a significant source of variance for three variables: Lexical Diversity Index, Level Index, and Intelligence Index (Tables 20, 22, and 23), with significance of .09, .06, and .02 respectively. The null hypothesis was rejected. The researcher concluded that there is a significant interaction of age category with stress category on linguistic measures.

Table 19

Two-Way Analysis of Variance by Age Category and Stress
Category of Linguistic Measure: Disorganization Index

Source of			<u>F</u>	Significance
variation	SS	DF	Ratio	of <u>F</u>
<hr/>				
Main Effects:				
Stress Categories	80.19	3	2.58	.059
Age Categories	120.27	4	2.90	.027
Interaction of				
Stress x Age	129.72	9	1.39	.206
Explained	312.59	16	1.88	.034
Residual	828.93	81		
Total	1151.53	97		

Table 20

Two-Way Analysis of Variance by Age Category and Stress
Category of Linguistic Measure: Lexical Diversity index

Source of Variation	SS	DF	<u>F</u> Ratio	Significance of <u>F</u>
<hr/>				
Main Effects:				
Stress Categories	.008	3	.405	.750
Age Categories	.045	4	1.782	.140
Interaction of				
Stress x Age	.101	9	1.768	.087
Explained	.151	16	1.488	.125
Residual	.514	81		
Total	.665	97		

Table 21

Two-Way Analysis of Variance by Age Category and Stress
Category of Linguistic Measure: Readability Index

Source of variation	SS	DF	<u>F</u> Ratio	Significance of <u>F</u>
<hr/>				
Main Effects:				
Stress Categories	42.675	3	.568	.638
Age Categories	270.957	4	2.704	.036
Interaction of				
Stress x Age	206.929	9	.918	.514
Explained	498.834	16	1.244	.254
Residual	2029.244	81		
Total	2528.078	97		

Table 22

Two-Way Analysis of Variance by Age Category and Stress
Category of Linguistic Measure: Level Index

Source of variation	SS	DF	<u>F</u> Ratio	Significance of <u>F</u>
Main Effects:				
Stress Categories	.001	3	1.746	.164
Age Categories	.002	4	2.161	.081
Interaction of				
Stress x Age	.005	9	1.939	.058
Explained	.009	16	.001	.026
Residual	.023	81		
Total	.032	97		

Table 23

Two-Way Analysis of Variance by Age Category and Stress
Category of Linguistic Measure: Intelligence Index

Source of variation	SS	DF	<u>F</u> Ratio	Significance of <u>F</u>
Main Effects:				
Stress Categories	735.75	3	1.814	.151
Age Categories	1642.76	3	3.037	.022
Interaction of				
Stress x Age	2891.93	9	2.376	.019
Explained	5334.49	16	2.466	.004
Residual	10953.42	81		
Total	16287.91	97		

Post Hoc Analysis

In addition to the planned analyses, a Post Hoc analysis was conducted. Although from the planned analyses, which were conducted, there was an interaction of age with stress on linguistic measures, the relationship seemed not as strong as would be expected from the relationship of age and linguistic measures alone. One hypothesis for such explanation is related to the idea of transition periods as identified by Cross, Weathersby, Levinson, and Havighurst and Chickering. Cross (1978) included three transition periods, but she neither labeled nor discussed them. She just omitted certain ages from her Life Cycle Phase chart. For example, first transition period (35-36) should appear between Search for Stability (29-34) and Becoming One's Own Person (37-42); the second transition period (43-44) should occur between Becoming One's Own Person (37-42) and Settling Down (45-55); and the third transition (56) falls between Settling Down (45-55) and the Mellowing (57-64).

Weathersby (1978) included three similar transition periods and labeled them but did not list specific ages. For example, Age 30 Transition (late 20s-early 30s) is her

first transition period, then Mid-Life Transition (early 40s), and finally Transition into the 50s (late 40s to mid-50s).

Levinson, the researcher who most emphasized the importance of transition periods, enumerated five. The first he called Early Adult Transition (17-22); the second, Age 30 Transition (28-32); the third, Mid-Life Transition (40-45); the fourth, Age 50 Transition (50-55); and fifth, Late Adulthood transition (60-65).

Havighurst's first developmental research specified four periods, but the later work in which he and Chickering were involved added two transitional periods and re-structured the existing four periods. The two added transitional periods were Midlife Transition (35-45) and Late-Adult transition (57-65).

In this study, the investigator used age categories such that ages identified by adult development researchers as transitional periods were included with subsequent stable periods in the age category; this categorization was based on Cross' work because of her identification of marker events. Since the researchers indicate that transitional periods are characterized by change, it seemed possible that inclusion of those periods with more stable periods might have confounded the interaction of age and stress. Therefore, Post Hoc

analysis was done to test the hypothesis that when age categories were constructed in such a fashion where the transitions were separately delineated there would be stronger relationships between age and stress. So, a second age variable was formulated to ferret transitional periods:

1. Age Category 1 (17-19)*
2. Age Category 2 (20-22)*
3. Age Category 3 (23-27)
4. Age Category 4 (28-32)*
5. Age Category 5 (33-39)
6. Age Category 6 (40-45)*
7. Age Category 7 (46-49)

In the above categories, the transitions are indicated by an asterisk.

Pearson r was calculated individually between age category variable as used in the study and the age category variable with transitional periods delineated and the three measures of stress in the study. The analysis resulted in the correlation coefficient reproduced in Table 24.

As indicated in the table, the age category variable in which the transitional periods are separately discriminated had higher correlations with all three of the stress variables than did the age category variable as used in the study. This

Table 24

Correlations of Age Categories (Transitional periods not delineated) and the Transitional Age Periods with Standard Life Event Stress Scores, age-related Marker Events, and Perceived Life Event Stress Scores

Stress variables	Standard life stress scores	Age-related marker events sub-scale scores	Perceived life event scale scores
Age Categories (Transitional periods not delineated)	.024	-.127	-.060
Transitional Age Categories	-.114	-.166	-.162

finding would seem to support Levinson's contention that transitional periods are crucial to a person resolving disparities between the "inner sense of the experience of living within a particular life structure, as the aspects of self that were neglected or left out when one created that structure." Levinson called this balance or equilibrium during a transition period "goodness of fit." (Weathersby, 1976, p. 26)

Summary of Results

The statistical analysis for this study included one-way analysis of variance, two-way analysis of variance, Pearson product moment correlation, and multiple linear regression. The results appear below.

1. The null hypothesis of a zero correlation between life event stress scale scores (SRRS) and individual linguistic measures was rejected at the .05 level for Disorganization Index and Readability Index. In addition, trends approaching level of significance were found for Effort Index ($\underline{p} = .0525$), Level Index ($\underline{p} = .079$), and Intelligence Index ($\underline{p} = .10$).

Analysis of perceived life event stress scale scores and individual linguistic measures revealed no significance. However, there do appear to be relationships between individual linguistic measures and standard life event stress scores.

2. The null hypothesis of a zero correlation between life event stress scale scores (SRRS) and all linguistic measures collectively was retained because there was no significance at .05 level of significance for the Disorganization Index, Lexical Diversity Index, Readability Index, Style Index, Effort Index, Intelligence Index, or Level Index. Thus, there seems to be a relationship between individual linguistic measures and stress, but little additional relationship where they are used in combination.

3. The null hypothesis of no significant difference in the mean response by age categories (life stage) for each linguistic measure applied was rejected at the .05 level for the Disorganization Index, Intelligence Index, Readability Index and at .01 level for Lexical Diversity Index and Style Index. The Level Index was approaching significance at the .09 level. Adult life stages, then,

as indicated by age categories do affect linguistic measures.

4. The null hypothesis of no significant difference in the mean response by gender for each linguistic measure sampled was retained because none of the tests revealed significance at either the .05 or .01 level. Therefore, sex, unlike age category, does not appear to affect the linguistic measures.

5. The null hypothesis of a zero correlation between adult life stage as reflected in the marker events sub-scale of the SRRS and individual linguistic measures was rejected at the .05 level for Disorganization Index and Readability Index. The proposition, then, is that age-appropriate marker events do affect one's linguistic choices.

6. The null hypothesis of no significant effect of adult life stage as indicated by age categories on the relationship between life event scale scores and linguistics was rejected because, when an analysis of interaction effect of age categories and life event stress categories on linguistic measures was conducted, testing at .10 level yielded main or interaction effects for five linguistic indices: Disorganization Index, Lexical Diversity Index, Readability Index, Level Index, and Intelligence Index. The

researcher concluded that there is a significant interaction of age category with stress category on linguistic measurement.

CHAPTER V

SUMMARY AND DISCUSSION

Summary

Summary of Investigation

The design of this investigation was associational. The purpose of the study was to explore the thesis that there is a relationship between stress and one's writing; that is, that a person's life event responses or his perceptions of those events can affect his linguistic choices. One purpose of the study was to gather data from adult students to examine life events they had experienced within the last year, their perception of those events, and whether the readjustment to the events (stress) was reflected in their writing samples. A second purpose was to determine, should a relationship exist between a person's psychological stress and his writing, whether sex, adult development stages as indicated by age categories, or adult development stages as reflected in marker events, affected the relationship between linguistic measures and stress.

One hundred subjects were randomly selected from freshmen and sophomore composition and literature classes at

Tarrant County Junior College, Fort Worth, Texas. The Variation of Social Readjustment Rating Scale (synthesis of Holmes' & Rahe's SRRS, 1967, and Cross' marker events scale, 1982) was administered to the subjects to measure their life event scale scores.

The corpus of writing included 100-150 word passages from the subjects for which linguistic properties were identified by linguistic measures. The data collected and utilized for statistical analysis included the following:

1. Number of unique function words
2. Number of unique content words
3. Total function words
4. Total content words
5. Number of sentences
6. Number of letters
7. Average sentence length
8. Punctuation incidents
9. Percentage of words on the Dale Long List
10. Disorganization Index
11. Effort Index
12. Intelligence Index
13. Level Index
14. Lexical Diversity Index

15. Readability Index

16. Style Index

The data for the statistical analysis also included the subjects' scores on the VSRRS.

Measures of analysis of variance, correlation, and multiple linear regression were used, variously, to test the null hypothesis specifically for the study. The Statistics With Finesse package was employed to analyze the data for statistical reporting (Bolding, 1984).

Summary of Findings

The purpose of this study was to answer the following six questions:

1. Do individual linguistic measurements reflect stress?

The results of the study reveal that there are relationships between standard total stress scores and individual linguistic measures.

2. When correlating life event scale scores with several linguistic measures for the subject's writing sample, is there a relationship between linguistic complexity (multiple linguistic measures) and stress?

None of the findings indicated correlations between combinations of linguistic measures and standard life event

scale scores or perceived life event scale scores (stress), although, there is a relationship between individual linguistic measures and stress.

3. Does adult life stage as indicated by age categories affect linguistic measurements?

The results of the investigation reveal that the majority of linguistic measures are affected by adult life stage as indicated by age categories.

4. Does sex affect the linguistic measurements?

From the findings of the research, sex does not appear to affect any of the seven linguistic measures.

5. If the linguistic measurements do reflect stress, does adult life stage as reflected in marker events which are included in the life events scale differentially affect linguistic measurements?

Because several of the correlational analyses indicate significance, this investigator proposes that in fact age related marker events do affect one's linguistic choices.

6. If the measurements do reflect stress, does adult life stage indicated by age categories affect the relationship between linguistic measurements and stress?

Results of analysis of interaction effects of age categories and life event stress categories on linguistics

yielded significant main or interaction effects for several of the linguistic indices. Therefore, there does appear to be a significant interaction of age category with stress category on linguistic measures.

Discussion

Several researchers have intimated that relationships between person's stress levels and their writing do exist. For example, Spence (1982) suggested that ungrammatical clauses (sentences) include sentence change, repetition, omission, and sentence incompleteness, and that the grammatical structures indicate a "high level of underlying stress" (p. 299). Sunshine and Horowitz (1972) specifically investigated differences in egocentricity between spoken and written expression under stress and non-stress conditions. They found that both spoken and written communications reflected high egocentric orientation under stressful situations; that is, an anxious person, more concerned with individual welfare, tended to repeatedly use common words, with less precise meaning and more "affect-laden, in an effort to relieve his tension and restore internal balance" (p. 159). Osgood and Walker (1959, 1972) researched writing (suicide notes) to determine the effects of motivation upon

behavior. They postulated that persons contemplating suicide would be in a highly motivated state and would write the note somewhat differently than they would an ordinary letter to a friend or relative. Osgood and Walker's findings revealed that suicide notes use repetition, many monosyllabic words, little lexical diversity, high noun-verb ratio and low adjective-adverb ratio, numerous absolute terms such as "always," "never," and "forever," short explosive clauses common evaluative terms like "sweet," "run," and "eat," and qualifiers reflecting conflict such as "I have failed" and "I tried to help you." Osgood and Walker formulated two linguistic measurements which were included in this investigation: Disorganization Index and Lexical Diversity Index.

Other investigators, recognizing such relationships, also sought to quantify their findings. Halstead (1977), using Software Science measures, in a computer program, attempted to measure algorithm or written set of instruction complexity. He postulated that an algorithm, or communication, is a distillation of human thought, and because of this theory he included only properties of algorithms which could be empirically measured. Further, he "validated" or explained the formula derivation and stated the measures were reliable

because they produced identical results upon application to the same algorithm. Halstead's Effort Index, Intelligence Index, and Level Index were included in this study. Herdan (1960) developed the Type-Token Ratio to measure characteristics of writing and suggested that the ratio would not vary as long as environmental conditions remained constant. Moreover, the Type-Token Ratio, renamed by Swenson (1983) the Style Index and used in this investigation, is not affected by text length.

The findings of this study confirm those of Spence (1982), Osgood and Walker (1972), Sunshine and Horowitz (1972), Halstead (1977), and Herdan (1960) that there is a relationship between linguistics and stress. Correlations between standard life event total stress scores and the linguistic measures revealed that the scores for the Disorganization Index and Readability Index decrease and Effort Index increase. So, high levels of stress are associated with writing behaviors of short, explosive sentences, simple words, repetition, few qualifiers (adjectives and adverbs), simple action expressions (nouns and verbs), and more effort required to produce a passage.

Additional researchers focused their investigations on the stress itself and attempted to identify the life events most

associated with stress. Holmes and Rahe (1949) and later Holmes and Masuda, began using a life chart device to study the quality and quantity of life events that cluster around time of disease. They detected one common denominator: all life event occurrences evoke some adaptive or coping behavior from the person. Attempting to quantify their findings, Holmes and Rahe (1967) isolated 43 life events which they believe cluster at the time of illness onset. Their instrument constructed for this purpose (the Social Readjustment Rating Scale) measures the magnitude of the required readjustment to each life event. Further, their SRRS included what they called Life Change Units (LCUs), which is the "sum of the products of the numbers of occurrences of life events multiplied by assigned SRRS" (Holmes & Masuda, 1978, p. 237). Of particular importance, the SRRS could empirically score the level of adaptive or coping behavior during a specified time period and identify potentially stressful events and periods of a person's life cycle.

Holmes' and Rahe's SRRS scale combined with Cross' originated life-phase scale to measure readjustment of standard life events and perceived life events certainly proved effective in this investigation. Using their

instruments and conducting one-way analysis of variance, the study revealed that adult life change, as shown on the VSSR Scale, does measure stress effectively.

Even though one group of researchers has intimated relationships between stress and writing, and others have attempted to empirically measure certain linguistic properties, and still others have quantified life events and suggested identifying potential stressful events and periods, none have combined their efforts in an endeavor to discern relationships between stress and linguistics. Nor have they speculated whether sex, adult development stages as reflected in marker events included in the life events scale affect the relationship between linguistic measures and stress. But the correlational analyses in this study of Disorganization Index and Readability Index with age specific marker events subscales (age categories) affect one's linguistic choices.

Because of the paucity of research to identify such relationships and this investigator's preliminary findings of those relationships based on correlations, multiple correlations between linguistic measures to life event scale scores, the researcher proposes that tentative models can be

constructed to use linguistic measures for identifying stressful events or periods in an individual's life.

Conclusions

This investigator tested six hypotheses to examine adult student's life events experienced the last year, their perception of those events, and whether the readjustment to the events (stress) was reflected in their writing samples. Also, the study attempted to ascertain, should a relationship exist between a person's psychological stress and his writing, whether sex, adult development stages as indicated by age categories, or adult development stages as reflected in marker events included in the life events scale affected the relationship between linguistic measures and stress. The statements of this study's findings, following the six hypotheses, seem to confirm these relationships.

1. There is a zero correlation between life event stress scale scores (SRRS) and individual measures.

The null hypothesis was rejected at the .05 level of significance for two linguistic measures, the Disorganization Index and Readability Index and at the .10 level for the Level Index, Effort Index, and Intelligence Index.

2. There is a zero correlation between life stress scale scores (SRRS) and all linguistic measures collectively.

Tested at the .05 level of significance, this null hypothesis was retained because results of the multiple linear regressions indicated no significant relationships between life event stress scale scores and the seven linguistic measures collectively

3. There is no significant difference in the mean response by age categories (life stage) for each linguistic measure applied.

This null hypothesis was rejected because five of the seven one-way analyses of variance revealed significance at either the .05 or .01 levels of significance and one at the .10 level. These findings reveal that adult life stage as indicated by age categories does affect linguistic measures.

4. There is no significant difference in the mean response by gender for each linguistic measure sampled.

Results of the one-way analysis of variance, testing at the .05 or .01 levels, revealed no differences between sex and the seven linguistic measures, individually. So the null hypothesis was retained and the researcher concluded that sex does not affect the linguistic measures.

5. There is a zero correlation between adult life stage as reflected in the marker events sub-scale of the SRRS and individual linguistic measures.

This null hypothesis was rejected because correlational analyses revealed significance at the .05 level for several of the linguistic indices. The investigator proposes that age-appropriate marker events do affect one's linguistic choices.

6. There is no significant effect of adult life stage as indicated by age categories on the relationship between life event scale scores and linguistics.

This null hypothesis was rejected based on analysis of interaction effects tested at the .10 level revealed main or interaction effects for four linguistic indices. There does appear to be a trend toward significant interaction of age category with stress category on linguistic measures.

Implications of the Study

Being able to study the correlation of a learner's life events and his writing has tremendous ramifications for educational institutions.

1. If a counseling center at a learning institution could identify possible student stress problems, it could make recommendations to minimize some of the stress areas

and ultimately aid in the individual's successful learning endeavor.

2. More important is the possibility of a student recognizing his own stressful life events, being able to modify his perception and adjustment to those stressful events, and making changes in his educational, social, and professional activities.

3. With institutions' pressing fiscal problems, knowledge of students' events and their concomitant perception of those events could impact the institutions' actions about retention.

4. Still another advantage of knowing students' attitude and/or stress response to life events might alter an instructor's method of teaching.

5. Finally, if an employer, either at an educational or industrial facility, could identify possible pressures in an individual's life events, that individual's work-life might prove more profitable for both the individual and the employer.

Recommendations for Future Research

1. Because of the pristine yet important findings of this

investigation, replication studies are warranted to confirm the relationships.

2. Other studies should be initiated to explore relationships by specific ages, not just age groups.

3. Future life event scale instruments need to be refined. Based on the adult development, stress, and linguistic research, revised life event (stress) scales should include (a) chronological phases or stages, (b) specific periods of life events and transitions between the periods, (c) particular marker events, and (d) major psychic tasks. Most of all, for future studies to be productive, there needs to be a consensus among the researchers for these criteria.

4. Replication studies should include different populations. For example, similar surveys and writing samples could be collected from the industrial sector. And since the majority of the subjects in this study were from category 1, ages 18 to 22, and category 2, ages 23 to 28, investigations need to include more subjects from the older age groups at both educational institutions and industrial facilities.

5. Comparative studies of different ethnic groups, socio-economic or socio-cultural classes, and even

international adult populations could provide invaluable future possibilities. In addition, comparative projects of the seven age categories in this investigation might uncover interesting insights for the respective and collective age groups.

6. Because the Post Hoc analysis found that when transitional periods were delineated from the age categories used in the study, there was a higher correlation with all three of the stress variables than was indicated in the study's findings, this researcher suggests that future investigations should focus on the impact that transitions have on persons resolving disparities.

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APPENDIX A

Erikson's Psychosocial Stages of Life

ERIKSON`S PSYCHOSOCIAL STAGES
OF LIFE

Stage	Chronological Age	Basic Virtues
1.	Infancy	Basic Trust versus Mistrust Drive and <u>Hope</u>
2.	Toddlerhood	Autonomy versus Shame, Power: Self Control and <u>Willpower</u>
3.	Childhood	Initiative versus Guilt Direction and <u>Purpose</u>
4.	School Age	Industry versus Inferiority: Method and <u>Competence</u>
5.	Adolescence	Identity versus Role Confusion: Devotion and <u>Fidelity</u>
6.	Young Adulthood	Intimacy versus Isolation Affiliation and <u>Love</u>
7.	Adulthood	Generativity versus Stagnation Production and <u>Care</u>
8.	Old Age	Ego Integrity versus Despair Renunciation and <u>Wisdom</u>

(Erikson, 1963)

APPENDIX B

Havighurst's Developmental Tasks
of Adulthood

HAVIGHURST'S

DEVELOPMENTAL TASKS OF ADULTHOOD

1. 0 - 2 years Infancy
2. 2 - 6 years Early Childhood
3. 6 - 12 years Middle Childhood
4. 12 - 18 years Adolescence
5. 18 - 30 years Early Adulthood
 - Select mate
 - Learn to live with mate
 - Start family
 - Rear children
 - Manage home
 - Get started in an occupation
 - Take on civic responsibilities
 - Find a congenial social group
6. 30 - 60 years Middle Age
 - Achieve adult civic and social responsibility
 - Establish and maintain an economic standard of living
 - Assist teenagers as responsible and happy adults
 - Develop adult leisure time activities
 - Relate oneself to one's spouse as a person
 - Accept physiological changes of middle age

Adjust to aging parents

7. 60 -

Later Maturity

Adjust to decreasing physical strength and health

Adjust to retirement and reduced income

Adjust to death of spouse

Establish an explicit affiliation with one's age
group

Meet social and civic responsibilities

Establish satisfactory physical living
arrangements

(Havighurst, 1979)

APPENDIX C

Levinson's Developmental Periods
of Life Structure

LEVINSON'S DEVELOPMENTAL PERIODS

Develop Period	Age	Tasks
1. Childhood and Adolescence	0-17	
2. Early Adulthood	17-40	
Novice Phase	17-32	Forming a dream and giving it a place in the Life Structure. Forming mentor relationships. Forming an occupation. Forming love relationships, marriage, and family.
Early Adult Transition	17-22	Movement out of Pre-Adult world. First movement into Adult world.
Entering the Adult World	22-28	The creation of a viable link between the self and adult society. The exploration of the possibilities of adult living. The creation of a stable life structure.
Age Thirty Transition	28-32	Dealing with the "age thirty crisis," What have I done with my life? What do I want to make out of it? What new directions shall I choose?
Settling Down Phase	33-40	Establishment of one's niche in society. Working at advancement.
Becoming One's Own Man	36-40	Accomplishment of the goals of settling down. Advancement on the occupational ladder. To become a senior member of the enterprise. To speak more clearly with one's own voice.

3. Middle Adulthood 40-60 To have a greater measure of authority. To become less dependent, internally and externally on other individuals and institutions.
- Five Sequences of Settling Down Advancement within a stable life structure. Serious failure or decline within a stable life structure. Breaking out: trying for a new life structure. Advancement which produces a change in the life structure. Unstable life structure.
- Mid Life Transition 40-45 Review, reappraisal, and termination of early adulthood. The initiation of middle adulthood, modification of life style. Dealing with the basic polarities of life-individuation. Youth versus age Destruction versus creation. Masculinity versus femininity. Attachment versus separateness. Reworking the dream.
- Entering Middle Adulthood 45-50 Form new life structure. Job change, divorce or love affair, illness, death of loved one, and move to new locale.
- Age 50 Transition 50-55 Modify mid-life transition.
- Culmination of Middle Adulthood 55-60 Build second middle-adult form. Rejuvenate self and enrich life.
- Late Adulthood Transition 60-65 Create basis for starting late adulthood.
4. Late Adulthood 65- (Levinson, 1978) Review accomplishments. Accept retirement, aging, death of friends, spouse, self.

APPENDIX D

Weathersby's Adult Life Phases

WEATHERSBY'S ADULT LIFE PHASES

<u>Life Phase</u>	<u>Major Psychic Tasks</u>	<u>Marker Events</u>
1. Leaving the family (16 or 18 to 20-24)	Separate self from family; reduce dependence on familial support and authority; develop new home base; regard self as an adult.	Leave home, new roles and more autonomous living arrangements; college, travel, army, job. Initial decisions about what to study, career, love affairs.
2. Getting into the Adult World (early 20s to 27-29.	Explore available possibilities of adult world to arrive at initial vision of oneself as an adult. Fashion an initial life structure; develop the capacity for intimacy, create a dream; find a mentor.	Provisional commitment to occupation and first stages of a career; being hired; first job; adjusting to word world; quitting, being fired; unemployment; moving; marriage; decision to have a child; child goes to school; purchase of a home; community activities; organizational roles.
3. Age 30 Transition (late 20s; early 30s)	Reexamine life structure and present commitments; make desired changes, particularly to incorporate deeper strivings put aside in the 20s.	Change occupation or directions within an occupation; go back to school; love affair; separation; divorce, first marriage; remarriage.

- | | | |
|------------------------------------|---|--|
| 4. Settling down early (30s) | Make deeper commitments; invest more of self in work, family and valued interests; for men and career women, become a junior member of one's occupational tribe; set a time-table for shaping one's life vision into concrete long-term goals; parenting. | Death of Parents; pursue work, family activities, and interests; children old enough for mother to return to school. |
| 5. Becoming One's own Person | Become serious member of occupational group; prune dependent ties to boss, critics, colleagues, spouse, mentor. Seek independence and affirmation by society in most valued role. For woman whose first career is in the home, a growing comfort with family responsibilities and independence to seek valued interests and activities. | Crucial promotion, recognition; break with mentor. |
| 6. Mid-life Transition (early 40s) | Create a better fit between life structure and self, resolve experience of disparity between inner sense of the benefits of living within a particular structure and what else one wants in life. | Change in activities from realization that life ambitions might not develop; change of career; remarriage; empty nest; a second career for women whose first career was in the home; loss of fertility; death of friend, sibling or child. |

- | | | |
|---|---|--|
| 7. Restabi-
lization
(a three-
year
period
around.
50. | Enjoy one's choices
and style. | Become a mentor,
share knowledge and
skills with younger
friends and
associates,
contribute to the
next generation,
develop new
interests or
hobbies;
occupational die is
cast for men. |
| 8. Transi-
tion
into
the 50s
(late
40s to
mid-50s) | Another reexamination
of the fit between life
structure and self; need
for redirection, a whole
new beginning for some. | Last chance for
women to have a
career, or
vigorously pursue a
deferred life goal
or interests--family
crises, home duties
diminished, change
husband's job
status. |
| 9. Restab-
lization
mellowing
and
Flowering
(late 50s,
early 60s) | Accomplishing important
goals in the time left
to live. | New opportunities
related to career
and valued
interests;
personally defined
accomplishments. |
| 10. Life
Review
Finish-
ing Up
(60s and
beyond) | Accepting what has
transpired in life as
having worth and
meaning; valuing one's
self and one's choices. | Retirement of self
and spouse; aging;
death of friends,
spouse and self. |

APPENDIX E

Cross' Life-Cycle Phases

CROSS' LIFE-CYCLE PHASES

<u>Phase and Age</u>	<u>Marker Events</u>	<u>Psychic Tasks</u>
1. Leaving Home (18-22)	Leave Home Establish new living arrangements Enter College Start first full-time job Select mate	Establish autonomy and independence from family Define identity Define sex role Establish new peer alliances
2. Moving into Adult World (23-28)	Marry Establish home Become parent Get hired/fired/ quit job Enter into community activities	Regard self as an adult Develop capacity for intimacy Fashion initial life structure Build the dream Find a mentor
3. Search for Stability (29-34)	Establish children in school Progress in career or consider change Possible separation, divorce, remarriage Possible return to school	Reappraise relationships Reexamine life structure and present commitments Strive for success Search for stability, security, control Search for personal values Set long-range goals Accept growing children

- | | | |
|---|---|---|
| 4. Becoming
One's own
Person
(35-42) | Crucial promotion
Break with mentor
Responsibility for
three-generation
family; i.e., growing
children and aging
parents
For women: empty nest;
enter career and
education | Face reality
Confront mortality;
sense of aging
Prune dependent
ties to boss,
spouse, mentor,
Reasses marriage
Reasses personal
priorities and
values |
| 5. Settling
Down
(43-55) | Cap career
Become mentor
Launch children;
become grandparents
New interests and hobbies
Physical limitations;
menopause
Active participation
in community events | Increase feelings of
self-awareness and
competence
Reestablish family
relationships
Enjoy one's choices
and life-style
Reexamine the fit
between life
structure and self |
| 6. The
Mellowing
(56-64) | Possible lost of mate
Health problems
Preparation for
retirement | Accomplish goals
in the time left
to live
Accept and adjust
to aging process |
| 7. Life
Review
(65 +) | Retirement
Physical decline
Change in finances
New living arrangements
Death of friends/spouse
Major shift in daily
routine | Search for integrity
versus despair
Acceptance of self
Disengagement
Rehearsal for death
of spouse |

APPENDIX F

Social Readjustment Rating scale

SOCIAL READJUSTMENT RATING SCALE

<u>Rank</u>	<u>Life Event</u>	<u>Mean Value</u>
1	Death of spouse	100
2	Divorce	73
3	Marital separation	65
4	Jail term	63
5	Death of close family member	63
6	Personal injury or illness	53
7	Marriage	50
8	Fired at work	47
9	Marital reconciliation	45
10	Retirement	45
11	Change in health of family member	44
12	Pregnancy	40
13	Sex difficulties	39
14	Gain of a new family member	39
15	Business readjustment	39
16	Change in financial state	38
17	Death of a close friend	37
18	Change to different life of work	36
19	Change in number of arguments with spouse	35
20	Mortgage over \$10,000	31
21	Foreclosure of mortgage or loan	30

<u>Rank</u>	<u>Life Event</u>	<u>Mean Value</u>
22	Change in responsibilities at work	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Wife begins or stops work	26
27	Begin or end school	26
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in work hours or conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreation	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan less than \$10,000	17
38	Change in sleeping habits	16
39	Change in number of family get-togethers	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas	12

<u>Rank</u>	<u>Life Event</u>	<u>Mean Value</u>
43	Minor violations of the law	11

(Holmes & Rahe, 1967)

APPENDIX G

Variation of Social Readjustment
Rating Scale

Variation Social Readjustment

Rating Scale

Instructions

1. Circle any event in which you have been involved within the last year. If you have been involved in more than one, circle all applicable events.
2. Now go back and rank each event that you circled. Event 1, Marriage, has been given an arbitrary value of 500. As you complete each of the remaining events, think to yourself, "Is this event indicative of more or less readjustment than marriage?" If you decide the readjustment is more intense, then choose a proportionately larger number and place it in the blank opposite the event in the column marked "values." If you decide the readjustment is less than marriage, then indicate by placing a proportionately smaller number in the opposite blank. If the event requires about the same intensity as marriage, then place the number 500 opposite the event.

Variation of Social Readjustment

Age _____

Rating Scale

Sex _____

Please circle any event in which you have been involved within the last year; if involved in more than one, circle all appropriate. Then rank each event that you have circled.

- | | |
|--|-------|
| 1. Marriage | 500 |
| 2. Troubles with the boss | _____ |
| 3. Physical decline | _____ |
| 4. Detention in jail or other institution | _____ |
| 5. Leave home | _____ |
| 6. Death of spouse | _____ |
| 7. Enter college | _____ |
| 8. Preparation for retirement | _____ |
| 9. Death of a close family member | _____ |
| 10. Major change in sleeping habits (a lot more or a lot less sleep, or change in part of day when asleep) | _____ |
| 11. Revision of personal habits (dress, manners, assoc., etc.) | _____ |
| 12. Active participation in community events | _____ |
| 13. Foreclosure on mortgage or loan | _____ |
| 14. Break with mentor (a wise and trusted counselor or teacher) | _____ |
| 15. Major change in eating habits (a lot more or a lot less food intake, or very different mean hours or surroundings) | _____ |
| 16. Female menopause or male change of life | _____ |
| 17. Death of a close friend | _____ |
| 18. New interests or hobbies | _____ |
| 19. Start first full-time job | _____ |
| 20. Minor violations of the law (e.g., traffic tickets, jaywalking, disturbing the peace) | _____ |
| 21. Outstanding personal achievement | _____ |
| 22. In-law troubles | _____ |
| 23. Preganancy | _____ |
| 24. Select mate | _____ |
| 25. Responsibility for three-generation family (i.e., growing children and aging parents) | _____ |
| 26. Sexual difficulties | _____ |
| 27. Major change in the health or behavior of a family member | _____ |
| 28. Become mentor (a wise and trusted counselor or teacher) | _____ |

29. Establish home _____
30. Major change in number of family get-togethers
(e.g., a lot more or a lot less than usual) _____
31. For women: empty nest; enter career and education _____
32. Become parent _____
33. Establish children in school _____
34. Beginning or ceasing formal schooling _____
35. Major change in financial state (e.g., a lot
worse off or a lot better off than usual) _____
36. Change in living arrangements or residence _____
37. Son/daughter leaving home (e.g., marriage or
entering college) _____
38. Marital separation from mate _____
39. Being fired from work _____
40. Major change in church activities (e.g., a lot
more or a lot less than usual) _____
41. Marital reconciliation with mate _____
42. Divorce _____
43. Changing to a different line of work _____
44. Changing to a new school _____
45. Major change in responsibilities at work (e.g.,
promotion, demotion, lateral transfer) _____
46. For men: wife beginning or ceasing work outside
the home _____
47. Major change in working hours or conditions _____
48. Major change in usual type and/or amount of
recreation _____
49. Vacation _____
50. Taking on a mortgage or loan less than \$10,000
(e.g., purchasing a car, TV, freezer) _____
51. Major personal injury or illness _____
52. Christmas _____
53. Retirement from work _____
54. Major change in living conditions (e.g., a new
house, remodeling, deterioration, or home or
neighborhood) _____
55. Major change in social activities (e.g., clubs,
dancing, movies, visiting) _____
56. Taking on a mortgage greater than \$10,000
(e.g., purchasing a home, business) _____
57. Major business readjustment (e.g., merger,
bankruptcy, reorganization) _____
58. 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.) _____

59. Gaining new member of immediate family (e.g.,
through birth, adoption, oldster moving in)

APPENDIX H

One Hundred Subjects' Writing Samples

ONE HUNDRED SUBJECTS' WRITING SAMPLES

The samples have been taken out of context; that is beginning at the mid-point of the entire passage, the investigator took 50 words either side of this mid-point to collect the total 100 words needed for the study. The passage was begun at the first word of a sentence nearest the 50-word mark, but often the 100 words would end in the middle of a sentence. These partial sentences, though sometimes causing distortion in meaning, have been reproduced in this manner.

The passages, with the exception of the order of counting technique, have been reproduced here exactly as they were written by their composers, including unusual grammatical structure and spellings. In addition, paragraph structure follows the subject's intention even though occasionally the composition may be a collection of one-sentence paragraphs. The following format was used for typing the sample writing headings:

Column 1	The subject's sample number.
Column 2	The sex of the subject: M=1, F=2.
Column 3	The subject's age.

ADULT STUDENT WRITING SAMPLE

INSTRUCTIONS

As you know, one of the things we are studying is how people write and what they write about. I want you to think for a moment about something in your life, past or present, that is important or interesting to write about, and then when you are ready, write 100-150 words on that subject. You can ask questions before you begin writing, but then write until you have finished the narrative.

001:2:19

I enjoyed it sometimes. The age group that I am involved with is five to eleven. Something new and interesting is always going on. Just the other day the fourth and fifth grade girls saw a film and received a book about starting their menstrual cycles. Well, anyway when they got off the bus and entered the YMCA they had several questions. Although I am only nineteen years old, it made me feel like a little girl again I remember when I was that age and had a million questions and no one to confide in. I could not tell

002:2:37

Living one's life fully takes planning, constructive effort and wise counsel.

In retrospect, drugs were introduced into my life early as my mother worked in a hospital and it was not unusual to have pills brought home to make you feel better. The introduction of alcohol was in my Jr. High School days. The initial feeling of giddy was, relaxation and warmth gave way to depression, hostility and isolation. The aerial view of my life being trudged, showed there had to be an immediate change. After prayerful deliberation, not having been a spiritual person, I found myself looking for other

003:2:21

She brings it out in him, though. He's so happy intensely happy. Why didn't my mother make his happy part appear? Why did he stay with someone who didn't brighten his life? Who's life he didn't brighten?

It's so thrilling to see this joyous part of my father. I'm so grateful to her for saving him from loneliness. But, more than just the salvation from dinner alone, sleeping alone, and growing old alone, she has brought him the gift of puppy love. His heart seems young. His actions are boyishly excited. He says that he's getting the wonderful chance to have a second life. And he's right. I can see

004:2:35

They lived on a farm near Azle, where I spent many long, relaxing days of my life.

My Pappy was truly a man of few words, but what he did say was either important or helpful. I can't honestly remember his having even one enemy in his 76 years of life. Now that he's gone, I miss him terribly.

My grandmother is now 85 years old and still as bubbly as ever. As a child I always looked forward to being with her. She has that rare zest for life that few people have. No matter what the problem, it

005:1:20

The trip to Europe enclued visiting the countries of France and England. It was sponsored by the National Honor Society at my high school. Each of those who wished to go, it was only 6, had to assist with raising money, \$3000 a person. However, we accomplished this task with the help of generous business and with a few dollars from our own savings. Visitin England and France was very exiting. We toured all the major tourist attractions and mingled with the people. The two countries aaaare very be

006:2:18

Arriving at the Bahamas airport everyone seemed startled about the fact of having to get off the airplane and walk the the airport I only thought that happened on Hawaii Five O. The hospitality of the Bohemians was one I had never experienced before. Bohemian men love American women and we were harassed our whole stay, but they made you feel welcome. Five nights and four days seemed like a long time to be away from home, by the fourth day I had gotten homesick for mom & dad and my own bed. In preparing to leave the Bahamas our

007:1:19

His love gave me a real inspiration. We dated for several months and soon, he began talking about marriage. I told him marriage had never crossed my mind and probably wouldn't til I was out of college and had a good, stable career. This broke his heart because he felt a woman should stay home and have kids.

Eventually, I made myself stop seeing him because we had nothing in common. He became real jealous and overprotective of me. After we broke off, he would call about twice a month, to see how I was doing. Christmas day was the last time I had heard from him, so I wrote

008:2:24

I eat, drink, sleep, and think my job twenty four hours a day. Everything I do or everything I say will relate back to my job in one way or another. It is the only thing in my life that will follow me wherever I go. I enjoy my job for several different reasons. There will always be something different to do everyday. My gross income for a year will be around twenty five thousand dollars. There is a new and different challenge awaiting me every morning. I get to meet and relate to different people everyday. There is, also,

009:2:18

My stay was very nice I was able to visit with my cousins who have grown so big. I stayed with my Aunt for two weeks and during one of the weekends I went to visit my sister who lives in the city. She is 22 yrs old and I hadn't seen her for a while. I really had a blast visiting with her and doing silly things. Last, but not least, I was able to visit with my grandmother and grandfather. I loved it because it gave me a chance to get closer with everybody. Living a few thousand

010:1:20

The most recent and accountable reason for the purple craze is the football team. The TCU gridiron boasted and 8-3 record, a second place SWC finish and prestigious appearance in the Bluebonnet Bowl. These events turned and interest into an explosion that swept the city by surprise. The college and its football were the hottest items of conversation and news. The new prince of the city had arrived, and his name is Jim Wacker. This enthusiastic, outgoing, unbelievable man was called a savior to the TCU football program and a credit to the city. Jim Wacker and Texas Christian

011:1:18

I worked alot and was unable to do much of the things that I liked. I realized that I liked some of these hobbies so much that I would sacrifice my school to workout. Now I am doing all the things that I like to do and going to school. If I just did school all the time I would of crazy. Although school takes alot of time, right now. I am able to exercise 6 times a week and work all day the other. We (my dad and other business men) are opening or beginning to build a health

012:1:21

Having been an avid fire buff for many years, I knew that evacuation was the first step in the firefighting process. I started banging on doors. No one was home in any of the other units. Then the apartment maintainance man arrived and together we extenguished the blaze, which was small and confined to a sofa. Then the fire department arrived, just in time to discharge the remaining smoke from the building. This fire was caused, as you might have guessed, by careless use of smoking material. A cigarette was left burning inside while the tenant went shopping.
I hate

013:1:19

Mountains have always been an important part of my life. I grew up in Denver, Colorado and when I was younger my family would go spend the weekend at one of my dad's freinds cabin. I have always liked the Rocky Mountains. I prefer them in the spring, but I have nothing against skiing.

My father was in the Air Force so we did our share of moving from state to state. When I was in the second grade we had to move to North Carolina. The Great Smoky Mountains were not as nice as the Rockys but then again,

014:1:26

College is a challege. Its simular to the Marines. It weeds out the people who really don't want to take the challege of going to school. If college were easy, everybody would be attending school. College gives an individual a certain polish. Their vocabulary is more advanced. The way they speak in public is different from someone with only high school eduction. And their job opportunity is greater. Know one can promise that if we attend college

We will be successful in business, and be able to speak and spell properly. This is left up to the individual. We are

015:2:18

I had never had any experience working with the public or with money, but I was willing to learn. Luckily they really needed help and I knew one of salesperson, who was also a manager trainee, he pulled a few strings and I was hired. It took only about a week and a half to really catch on, and once I did I flew through my work like a breeze. I am still employeed at the same place, I don't like my job as much as I did when I had just started, but who likes to work?
A couple

016:2:18

I had known Rowdy exactaly one year before we married. It took me a long time to decide if this was what I really wanted to do or not. I had many things to consider. His job was the major one. Four and a half months after our wedding Rowdy was assigned to an air base in Guam. His assignment is for fifteen months, and I am not allowed to join him until June. Another important factor was my parents. More so my father than my Mother. My dad was against it from the very begining. My mother told me

017:1:28

We traveled through Arkansas stopped and stayed two days in Tennessee, which was very nice, for everything was green and clean and crisp. Later we visited Gettysburg, Eisenhower's home, and due to getting lost, toured the back roads of Pennsylvania. We visited the skyline Caverns, which was very cool and dark, while on our way to Buffalo New York. We stayed with friends and family there and visited Niagra Falls, and the horse race track. We then left for Chicago for a wedding, stayed overnight and then we were off to Mt. Rushmore, and then went to Yellowstone National Park,

020:2:18

We arrived about 10:30 p.m., but unfortunately I had to be home early. When we arrived there were not too many people there. The birthday boy's wife introduced me to a few of boys and girls. there was a real handsome guy dressin in bluejeans and a blazer. I didn't pay too much attention to him at first, but when he began to dance he suddenly became attractive to me. My boss was sitting next to me at that time and she told me another friend Joanne had a crush on him. Well, all my hopes just suddenly fell in pieces.

021:1:22

I find this has never been a problem for me for I have worked long and hard to be an excellent basketball player. The steam of sweat and the smelly gyms are only reminders of how much fun basketball really is. To play is one thing, to coach others is a new experience altogether and that's what was happened to me last fall in a high school church league. I was supposed to lead ten young men of different backgrounds and ethnic origins and bond them into one adhesive unit. I now was forced to not only use instinct, which I

022:2:20

I feel very helpless watching this person that I love suffer.

I always remember him as he was when he was strong. He is a retired Lt. Colonel who was in the Air Force for thirty years and a veteran of three wars. He has made me very proud to be his daughter. I can feel his frustration of no longer being well enough to live his life as he did in the past. More than that, I can sense the fear of dying that he has, which he tries so hard to hide.

His illness keeps him in constant

023:1:24

I started to feel icy patches on the road because the car was slipping, coming down a hill we started into a slow curve and the car started spinning violently out of control. Black ice I screamed to myself and a helpless feeling fell upon me. The car spun into the oncoming lane and narrowly missed a bridge support. We rolled into a ditch and rolled several times before the car stopped upside down. I yelled over to Gary not knowing his fate. He yelled back that he was ok and we proceeded to get out of the car. The

026:1:20

Then I moved to a smaller town not far from Fort Worth. In a small town you don't really have that much of a choice as to who you go and do things with. When I was in high school just about every friend I had used drugs on a daily basis. Not just marijuana but anything they could get. I went through high school thinking that was the way every kid my age acted, but once I got into college I realized that not all kids do, and that I could be exactly what I wanted to be.
I

027:1:20

When I was in Washinton D.C., I saw the Washington Monumont, the Lincoln Memorial, The Congress bulding, the Library of Congress, the White House, and many more sights. However, the best features of Washington D.C. were all the good looking women. I met one girl that was from France, but she was living in New York. She had gone to Washington D.C. to attend some kind of geology convention. One thing led to another and we were on our way to New York together.

Once in New York, this girl took me all over New York and we saw just

028:2:32

While working with four year olds at a Mom's Day Out Program, I learned I have the ability to work well with children. Now I am attending college to recieve a bachelor's degee in Elementary Education.

Teaching requires much patience and dedication. I realize I will probably make less money than if I had entered the accounting field. But I want to help children learn their basic skills. I will be firm but with love and understanding.

I have the dertermination to finish school and still care for my own family. Hopefully, one day I will be a well trained dedicated

029:1:36

I fixed us breakfast, we ate; then I loaded up our gear and off we went. We met Joe, a fishing buddy, along the way at a predetermined spot; picked up the boat and made it to the Brazos River in less than two hours after the alarm went off.

By two oclock we were catching fish. Lady Luck was with the lady of course, because she caught the first fish. The significance of the first fish has never really been fully understood by anyone. I've always felt it was the last fish that was the most significant one; unless of

031:1:22

While the time before, I decided to move out of the house and finish my schooling on my own. I wanted to develop my own personal being. I relieved my parents of any final obligation to me. I did pay for everything I have to do. (school, food, work living car insurance) I was told this was not necessary. But it was something I wanted to do. It was my way of telling my parents thanks for everthing. Now, it's my turn to give to you. The change has been tuff but it is one change I am doing cause

032:2:17

On the other hand, it was a very distressing time because my very best friend died in a terrible car accident. Four other people were killed with him. No matter what I did, I could not forget him. If I went to the lake, I thought about all the times we had partied down there. If I went into town, his favorite clubs and parks were still there. If I stayed at home, I would remember all those nights we sat in my room listening to records and talking when neither of us had anything better to do. At times

033:2:19

I didn't know how to act around someone who was famous. I was so nervous, but when she walked into the room I realized that she was just a normal person just like me. She didn't have a spotlight on her all the time and she wasn't peering through a television at me. Cyndi was actually breathing, sweating, and talking like every day people. If she wasn't so famous I would consider her one of my good friends after that night, but I just can't make myself take her off of the pedestal I have put her on. I do

034:1:19

The colt we raised and he stands about 15 hands. He is in well condition and has a real good haircut. He is entered in a March futurity where a lot of money is in stake. To get this colt in condition for a race we gallop him 3 miles a day, cool him down where his breathing is normal feed him vitamins, oats and alfalfa hay. This Sunday is his next out and should be expecting the colt to win. The last race he won, he ran against some top bred horses. The colt is a small bone colt, very

035:1:19

Upon arrival at the cost, on Saturday, we had no place to stay. We did have reservations but, they did not start until Sunday. We knew we didn't have reservations until Sunday, but we didn't want to wait until then to get there So the first night we stayed with some friend and the next morning we got kicked out for having too many people in the room. That day we checked into our room where we stayed for two nights until we were kicked out again. We then moved into another place where we stayed another two nights.

037:2:28

I, a trusting and devoted mate. I know my partner cares deeply for me but is not satisfied so he starts a relationship with another person. At first it's just a friendship and then things get involved and out of hand. It is so hard for me to understand how someone could care so very much for me so he says and hurt me so deeply. I'm living separately from my partner, of whom I am deeply in love with and things are like they were in the beginning. I'm admired and romanced. I also feel a lot of bitterness

040:2:21

There is not a day that passes by without one of us picking up the phone and at least saying Hi, bye. We have gone through many experiences together which we have shared in the pain or joy. Last June, she got married. All through the preparations and excitement of the wedding. Not once did she leave me out. She asked me to help her look for her dress, find the right catering service, and the bridesmaids and their dresses. When the moment arrived, I felt a mixture of emotions. I was glad she had found somebody to share her

041:2:19

First of all, I have learned that there must be communication in order for a relationship to survive. Also one must think of his mate as much of himself. It is important to always think of the other before he realizes that he is not thought of equally. If one always thinks of only himself the relationship will not endure. Equally important, there must be love. In order to grow with one another there must be communication, caring for one another and love. A relationship can not be nourished to grow fully without these characteristics. If you love something very

043:2:21

When we arrived in New York it was pretty late at night 11:45 p.m. We took a cab to our Hotel and we registered and then left the hotel to get a bite to eat. We were both very nerves and yet very excited. We were very amazed at all the people we saw they were all dressed so different then we were acustomed to. We both had about \$200.00 to spend our hotel was already paid for we were just planning to stay for the weekend anyway. The next morning we got up and decided to go shopping at

045:1:26

I was amazed at how versatile it was. The effect which I could achieve were mind boggling. To be able to have such control over a medium is and was something to get excited about. The procedure was larger and tedious but the results were well worth the effort. After working on my design for about one week I had what produced my first professional piece of art with the airbrush. I have been as ecstatic over my picture that I am going to enter it in Works on Paper which I believe will be on exhibit at the Walsh Library. This

046:2:21

He had a championship bloodline although we never planned to show him. I have always been a dog freak and I thought of him as my own child. I talked to him like a person & treated him better than I treat some people.

He loved riding in the car with me and he always had his head out the window. His favorite fast food restaurant was Whataburger and occasionally Burger King. Everytime I drove through he knew he was going to get a hamburger.

The saddest part about his death was how my other dog acted. She is a

048:2:25

I cannot pin point when the recent renaissance began, for I have always been taught about God, Jesus and the Holy Spirit. However, up until about six months ago, my relationship with Christ was more on an intellectual level. Over the past few months I have come to see the importance of a daily, intimate walk with God through such elements as prayer, Bible reading, Bible study, fellowship with other Christians, praise and worship, and a sensitivity to the leading of the Holy Spirit in all situations of life.

My life has taken on a dynamic flavor; I have been empowered

050:2:18

It is amazing to me how suddenly tragedies occur. My close friend died five days after a motorcycle accident. Three days after his death one of my uncles passed away, because of the individual that was suppose to be taking care of him. The dirt on the grave of my close friends is still freshly raked each day. This last week while visiting the grave I discovered that someone else missed him as I do I found a letter lying across the grave that said, Charlie, I love you! and as I read it a gold cahain fell out of

051:2:19

It was alot of hard work but I met alot great girls who also had the same interests of fitness as I did.

When I began work on Feburary 14 (Valentine's Day) it was great because they had a Party Day which occurs on special occasions and holidays. In fact because of this, I was not quite as worried about doing everything perfect but concentrated more on getting acquainted with members, which made them feel at ease with me; Step one accomplished.

Now, I teach the aerobic routines as well as sell membership, products and my service, teach

052:1:35

And they lasted for the whole day with English speaking guides showing the interesting and the best their country has to offer. The state side travels were done which I had a traveling job with a former civilian employee. I have been to several historic sites in Pennsylvania, New Jersey, Mass., seen the local attractions in Michigan, Georgia, South Carolina, New York, Pennsylvania, Ohio, New Jersey, Texas, Mass,. This summer I plan to drive home to Ohio and see my family and relatives. This up comming Christmas I'm hoping to take my first cross county train trip just to break

053:2:33

The reason for this willingness is that I am thinking about going into a business for myself in a not too far future. Time and right schedule are needed to make this happen.

First of all some information, specially some basic knowledge about entrepernure is need. By taking one or two courses in institution it may obtain some knowledge about what business are about. Also, reading on my own some business magazine and periodical may help.

Second is being informed about economical situation people's wants and need for goods and services. Reading some economic books talking and listening to different

055:2:19

So many things to do for my future: prepare for my wedding, buying a home, and doing all the little things for myself that have to be done.

It gives me such a great feeling to think about marrying the one I love and hold so close to my heart. He is one of the kindest people I know. Yet, he is strong and controls situations as they arise. He will be a good, caring husband and will make a great father some day. I am proud of him in every way and I know he will do his best

056:2:19

He had an awful crush on me. He used to write me notes and pull my pig tails all the time. At the time I couldn't stand him, he used to make me so mad. The years went by and we started Jr. High. That's when I had a boyfriend a very nice guy he was Shane hated the idea of me seeing him so he started being mean to my boyfriend and I couldn't understand it. I hadn't known what a crush he had on me. Then, years went by and High School came upon us. We were all

057:2:488

During the last five years of his life he worked as a security guard at night and slept during the day. What money he made (more than he had ever made in his lifetime) he shared with us for food and bills and car upkeep.

Last year on the 10th of August my sister and I took my dad to the doctor because he had been seeing spots before his eyes and he sometimes was completely blind. The doctor informed us he needed an operation to clean out his arteries to his neck. My dad said no. He could not

058:1:22

My father left when I was born so my mother had always played both roles as a parent. Because of this her death was like two people's death in a way.

The adjustment to this has been along and drawn out period. My mother had cancer and just trying to forget how nightmarish things got before she died has been probably the biggest adjustment. Others are things such as coping with insecurity, making a home for myself, not having someone to talk to and even at times rebellion towards God have been other factors in my life. One thing

059:1:20

As I passed through the intersection I got a glimpse and suddenly every possible thought, action, and molecular process either stopped or went into slow motion. I didn't even feel the car crush my leg. All I remember is instantly knowing I was going to be hit, feeling extremely free with nothing touching me, and then suddenly being hit by a baseball bat in the face. A witness later told me the car ran the stop sign speeding, broad sided me, and then I flew into the air 15 feet landed on my face and slid about 30 feet in

060:2:22

This past summer was my first year to play with The Fort Worth Rebels. It was great. I had been recruited at the local ballpark, while I was playing for another team. The team I was playing for was bad. But I loved softball, so I played. But once I started playing for the Rebels everything changed. All of the members played and liked softball as much as I did. We traveled to various cities, large and small. Also we gained a lot of recognition both individually and as a team. People from all over know of our wonderful team.

062:1:20

I heard nothing but good about Texas and I was sure that was where I wanted to go. The difficult part was the grade requirements in which to get in. I was just out of high school and the only way the University would except me was through summer school. I had no time to rest before I hit the big time. Although I was ready to leave home I don't know if I was ready for college. I did fairly well during summer school but I needed a rest. I jumped right into the fall semester and very

063:1:33

My sister, Beth has had problems at work which have had a negative effect on her mental health. Each month seems to bring about more depression and has resulted in habitual, daily, visits to the neighborhood tavern. Shortly after the divorce my sister would call and ask for financial help, which I gave to her because of her children. After many calls later; being told utilities were being cut off, no groceries in the house, car is broken, or no money for gasoline to get to work; I asked her to let me help her with a budget. She and

066:2:19

I was having too much fun partying. Well, my Junior year in High School I decided that I truly loved Terry and I better get him before someone else does, besides I was tired of parting. Terry was very happy to hear me say that I was in Love with him. We started out very slow and gradually worked out. We never argued like other couples. We have never broke up, even through two and half years now. He and I are very much in love and we are planning on getting married in a few years. Terry is very

067:2:25

While all of us were scurrying around picking up paper, bottle caps, bottles and varies types of trash, Happy found a hole that looked as if a clothes line pole was once placed in it, and in the hole he found a piece of paper. So he put his tiny hand in the hole to get the paper out, but when he brought his hand out not only did he have the paper, he also had a tiny green grass snake wrapped around his finger. Since Happy was scared to death, he turned pale white, in fact, he was so

069:2:48

Only when a grandparent gets an audience it is dominated by one person.

When my own child was born, I could not have been more proud of anything in the world. But when I got to hold my precious granddaughter in my arms, when she was less than three hours old, I had not known such joy. Or at least, that's what I thought at the time. Since that day, that precious day, I have seen Elizabeth grow, my joy holds no bounds. I have always had a belief in God, but watching her little hand begin to hold things

070:2:20

All through the chapel was the sound of silent whispers and polite sniffs. When the rings were asked to be produced, Verna drops the ring and it rolls under Gayla's gown. Without too much of a disturbance Gayla lifts her gown and steps back, and the ring is recovered. After the ceremonious I do's are said, pictures were taken and refreshments were served. Gayla and husband now greeted the guests and presents are opened all the guest's requests. Later on, the tradition throwing of the bouquet is held with me as the recipient of that toss. Gayla and Eddie then decided.

072:2:23

My husband said that he thought he was in good shape because they played football together and at that time B B kept himself in good shape by lifting weights & doing whatever exercises the coaches had them to do. On the same day his funeral I talked with his wife and she said that B B had high blood pressure which could have led up to his death. She said that a lot of times she was very argumentative and he would be too. One thing that I put together about his death was his family eating habits. His mother, aunty and

073:2:20

After dinner, we sat around the living room near the Christmas tree and talked. Being in the Air Force makes it difficult to go home often. So we were all catching up on the latest gossip of each of our lives. It always feels good to go home. When it started getting late, my grandparent and my brother and his wife went home. Mom and I hit the sack. I was bushed from the long plane ride. The rest of the week, mom had to go to work I would go to my grandparents and visit with them while mom

074:1:24

No, reason came to me as we walked along the ridge as to why I liked her, but it must have come from the night before.

First, before leaving the quaint little town of Beech Grove I had played full court basketball, winning 3 and losing 2, til I had grown very weary. Russell, knowing I would be gone for a few days of vacation, was all fired up to have a good time. So as it generally happens we hit the town. My flight was at 12:45 p.m. and it was now 10:45 p.m. so we went to Kings

075:1:24

After about ten min. the ambulance arrived. Upon arriving the first doctor asked not to operate on me. Luckily Dr. Sewell who was leaving for vacation, got word & agreed to try. On the table they cut my clothes away then cut my stomach to relieve the swelling, then they put me out. Eighteen hours later after all my relatives & friends were there, he told my parent that I had a 20% chance of living the next 78 hours. I awoke the next morning a gentle sat up in bed, the nurse walked in and fainted to the floor

077:1:20

He was right though. I must have been a little looney. Red Flag is no joking matter. For those who don't know what it is, Red Flag involves flying a B-52 Bomber 100 Feet off the ground at speed in excess of 500 knots. The point of the mission is to drop an inert bomb on a target at Nellis bombing range in Nevada. It's at Nellis where the plane will encounter simulated surface to air missiles communications jamming and real F-5 and F-16 fighters. The whole trip can be compared to the mix cycle on a blender. Although the

078:1:23

We left from Ft. Worth to San Antonio where we spent one night there. We had dinner at the La Magarita which was located in the market square. The next morning we headed toward Corpus Cristi where we spent five days. It was very relaxing laying on the beach all day and then coming into town that evening for dinner. From Corpus we traveled up to Port Aransas for two days. In Port Aransas we stayed in the hotel that we stayed in on our honeymoon . From Port Aransas we went to Freeport to visit some friends. We hit the

079:1:22

My reluctance was fueled by the fact that my teachers had only learned this 10 days prior to my first experience and freely admitted that besides a few hours with a trained instructor had basically taught themselves.

They assured me of the safty factors present and advised me to watch them untill I was comfortable with the no harm clause. Little did they know I could be very, very patient when the occasion called for it. My first try was an embarrassing one (but life preserving as I convinced myself). The 2nd try was just as embarrassing by this try

081:2:21

Every other car on the highway was speeding and so was my car. The whole drive home, in fact, was a seventy five mile an hour follow the leader. I wanted to be the leader at one particular time when everyone in the pack was going especially fast. The only way I could be in first, though, was to get in the slow lane and pass the leader who was in the middle lane. A car was in front of me travelling at fifty five, I thought I could make it. I checked behind me to see where the car

082:2:21

I felt ashamed of myself for having this affair and could not shake myself the memories. I deserved to feel guilty because I had sinned but so had he I felt alot of anger towards him were there should have been love and forgiveness. He was baptized into Christ body and was cleansed from his sin. I had been baptized before I had committed the sin and could not be rebaptized, to feel clean again. I asked God to forgive me but I didn't feel clean. Each day I would think and talk about my mistake feeling guiltier than ever.

083:2:18

I still had the corsage he gave me when we went to a banquet in high school. My mother still had pictures of us when we went to Six Flags on my birthday and when he came by our house to show us his new car and take me for a ride. He was so proud of that car and we went everywhere in it always with the top down and the radio up. Its sad for me to realize that this car was how he got killed. I still have the beautiful statue of a cat he gave me

085:1:43

I knew that she was going to die and I told myself that I was prepared for it. However, I was crushed by her death. I really never thought seriously about dying until she died. Believe me, a parents death will remove all thoughts of immortality from your mind. I think of my dying now. I'm still not prepared for death and her dying has only made it more painful. Before she died I would go for days and not have a single thought of her now she's gone I think of her several times a day. The only faint

086:2:19

We had to look good for those attending college boys. We were going to orientation for one reason to learn about our University HA HA to meet boys lots of them nothing serious we just got thru w/that time to play the field. Well, sure as I said that on the first day of orientation I met him he was so cute, so conservative, so smart but more than that he was fun!!!! He had pledge a fraternity already that's pretty impressive when you've been to college. One bad thing was he lived in Dallas. However our relationship was

087:2:19

Am I wearing the right clothes or shoes for this occasion, or am I acting properly in front of these people. Just the little things in life that tell people what kind of person you really are, and if you're the same person on the inside that you appear to be on the outside. So for that reason, I'm making several changes in my life that will help alter my appearance. For example, I'm taking fashion merchandising and designing that will help me learn how to dress properly for certain occasions and also English, which will help me speak properly in

088:1:65

When I was satisfied that I and the Havaihi were ready we set sail for the Hawaiian Islands. I spent over three years sailing to the various Hawaiian Islands after which time I felt that it was time to begin my voyage around the world. The next phase of my voyage took me to Guam, which I used as my base of operations while I visited most of the islands of Microneasia. During this period I fell in love with a lovely Chommarro maiden.

She sailed with me for almost three years while we were in Microneasia. We were married

090:1:20

I also knew that I wouldn't be going off to some major 4-year University but to good ole Tarrant County Junior College. Well I'm into my second year here at TCJC and I have a grade point average of a 2.711, my values are somewhat changed and my attitude about school is changed you see, back in high school I never thought that I would even have the opportunity to go to Texas Christian University I really can't comprehend the fact that I may get a two-year scholarship there. Let me tell you right now. Wheither I am

092:1:46

The three of us were in the same car, when another car struck our car in the rear, as we were stopped at a school crossing. That collision changed our entire life, since I was in the hospital for almost a month, and then I had to have back therapy for nearly five months. My back is still bothering me, since I am not able at this point to do the things that I used to. I am beginning to feel a little better, but only God and time can tell what the final results will be. I feel confident

094:1:19

She is twenty-two years of age she stands a beautiful five feet three inches tall, at about one hundred and ten pounds. She graduated from Baylor University majoring in Business Marketing, with some background in computers. Christie is perfect in my eyes, her hair is naturally feathered back, she does not have to wear make-up to be beautiful and her hazal colored eyes make me melt to the ground when she looks at me. Christie is a one in a million lady. Any man who has her for a wife will truly be a lucky man. I hope

095:1:20

While studying flying I've learned how to use math that I've learned in school, how to talk and use different pronunciations, and how to think ahead of time. With using algebra in flying by interposition I respect algebra more and can relate to other forms of math. When using radios I pronounce words in a different terminology, by that I mean I drag out more less the words and use different syllables in speaking. What the whole thought of flying boils down to is relaxation. Relaxation is the main reason I fly, the thought of going from one point to

096:1:20

My mother and I still live in the same house we did when he died, but the house and the pool are my responsibilities. It seems to me that I do things around the house to help out that other kids would not even think of doing. The place where I am employed, my dad help get started going some years back through some contract from the military and other places. These company is privately owned and operated and know are paying for my college tuition. My dad was a Electrical Engineer for a company in Fort Worth. I see

097:2:18

Some friends and I were to me a group of gentlemen at a bar and then go to a movie. Kevin, my compatible guy, was with this crowd. We all met at he bar and had some drinks and Kevin and I began talking about everything from his life to mine. As time progressed it had come to our attention that we missed our movie. So, kevin asked me over to his house and I accepted. When we got there I expected the usual plopys a guy makes but he didn't. For the next three hours, Kevin and I talked

098:2:18

I was so shocked because most of my friends were getting used cars and some weren't getting a car.

After I passed my driving test. I started shopping for a car. It wasn't hard for me to choose one but it took my parents a while to decide on the right one. Then a few months later I got my new car just in time for summer.

I think that the reason I was so excited was because I had been waiting all my life to be able to drive and have my own car. I guess all that long

100:2:18

When the boys brought me a bouquet of orange carnations I felt so good I had to do well in this meet because I had so much support. When it was finally time to do my routine I saluted the judge and approached to apparatus. I did not even check the tension wires or setting because my coach said I was ready. About half way through my routine I noticed the bars were moving. As I was about to attempt a difficult move I saw someone grab the wires. I later learned he was the coach of our rival team.

101:2:33

My middle child plays saxophone and my oldest plays trombone. All the children are familiar with the piano, and my oldest boy the trombone player, can hear a song and sit down and figure out how to play it on the piano, trombone or cornet. As the children are now going into high school they are developing their own tastes in music. I'm not really thrilled with my daughters favorites, but I won't interfere with it nor will I make her turn down her radio just because I don't really like it. My children seem to have a lot of

102:2:20

Grandmother was the tipcal grandparent with fresh cookies and cakes for us on our stay. What she didn't have, all we had to do was ask and she would buy. A short mingle gray hair lady with eyes as big as quaters and feet small but quick as a whip. No nothing ever got passed her not one thang. In the back yard stood several trees where I as a child learn the tricks of three claiming and ant dodging. There were fig tree, pear tree, peach tree and of course in Texas a pecan tree. We had the best

103:2:39

I thought I was prepared for the event, I had no idea how much it would change my life. The changes have ranged from emotions to resolutions to a physical change of address. The emotional changes are still taking place of course, because she is not dead only pronounced dying of cancer. Because of what I have seen happen to her and other family members, I've made many resolutions about my own death and life. The hardest part of this event has been my having to give up my family to care for her. It is something I want to

105:2:24

All the other men, except my brother, have expected me to wait on them. Terry is very considerate because he realizes that going to school, and working a full time job is hard. Our work schedule fits our personalities and relationship perfectly. I work days and he works nights. This gives each of us the time we need to be by ourselves, and it keeps us from getting bored with each other. The days we have off together are usually filled with quality time. We share common interest with just enough uncommon ones to keep each other from losing our

106:1:20

We were delayed for 8 hours before the plane was ready to fly. They feed us breakfast at the airport. We didn't leave DFW until 3:00 in the afternoon. I don't really know how long the trip was over there but, there was a lot of pretty sites below us. The sun was great and the weather beautiful. About the third day we were there I stuck something through my foot and was unable to walk that good. I didn't get to go on all the tours everyone did because I couldn't walk that good. As it turns out I still

107:2:19

He looked gorgeous that night. His ebony hair, beautiful brown eyes and soft brown complexion all intrigued me. When he asked me to dance and gently led me on to the dance floor I felt that my legs had turned to noodles. His charm was that of a prince's and soon I felt that I was in a trance. He told me of the far away place he had come from and I soon became lost in his deep brown eyes. We danced and talked until it was time for me to leave. He leaned over and kissed me tenderly

108:2:20

The driver was going around the curve when she hit the curb, and the truck flipped. The next thing I remember was waking up to pain. I was put on an ambulance and told I was hurt bad. When we got to the emergency room the nurses exrayed me and got me as comfortable as I could be. Then the results came, I had a broken neck and a shattered pelvis. For two and a half months I laid in traction regretting getting in the back of a truck. I was lucky though, I broke my neck in the right

109:1:38

I then realized how many people never live to retire. During my work experience with the Bell Telephone system and Texas Instruments more men died before retirement than actually retired. Heart attack, stroke, and cancer appeared to be the prevalent causes of premature death. Motivated by fear, I decided to retire at age thirty-eight. Death is most certainly inevitable and I decided to take my part first. Statistically, an American male lives to age seventy. At the present time, normal retirement age is sixty-five. Choosing the almighty dollar is not worth a return of only five retirement years

110:1:19

This job helps me to be more independant and also helps me to budget my money. Another thing about the job that I feel is improtant to me is not having to ask my parents for money whenever I needed something. Its not that they couldn't afford to give me money its just I would feel guilty for asking them for the money. I also think by working and going to school it lets my parents know that I can handle my responsibilities and therefore they put more trust into me. guess what I am trying to say is

113:2:37

It was a strange experience knowing something bad was fixing to happen. All of a sudden a huge explosion hit the game booth we had just left. The noise we heard and could still hear coming from above was the Sky lift cable breaking and the cars were falling off one by one and falling through canapee's below. I could see wood and glass shattering, mass of people screaming, running and falling over each other trying to get away. I turned to grab my son and realized everyone around me was gone. The lady running the booth and I were

114:2:20

I am so afraid this may happen to me. Although to me, my friends seemed so much in love and happy together, something obviously went wrong. I knew a couple who dated all through high school and married soon after graduating. But it was only six months after they were married that they got a divorce. I do not understand it. Why would a couple who knew each other so well and seemed so happy be unable to live happily married? It may be ironic but I think I will be much happier simply dating the same guy all my

115:1:26

I was stunned by being in the surrounding, but once the culture shock wore off, I started to like it a little. My dorm consisted of 16 boys, 8 beds on one side of the room & right on the other with lockers 7 feet tall running down the middle of the room as a divider. Here I learned what life was about & how it is in a orphanage, I can definitely tell you it was a learning experience that I'll never forget. I made the best out of bad situation & as I grew older it occurred on

116:1:20

When there, we proceeded to do spinouts on the stand. This was tremendous fun, but unfortunately the pictures we took of this did not come out.

The rest of our stay was very fun. There is a restaurant and bar called Backyard Lois on the island which I frequented every night. This was a very classy place. It was an open air restaurant and bar with a dance floor extended over the bay. I spent many nights dancing, drinking, getting drunk and carousing.

After returning home I discovered that I had taken a sizeable portion of the beach back with

118:1:25

So one day, I guess in April, I went to the old barn to just look around. Something caught my eye in the hay loft so I stop and waited. Soon a large bird flew out and up over the barn and disappeared. I continued to wait it returned and I saw that it was an owl. The owl also carried with it a large field mouse squeezed between it's claws. I guess, there was only one owl I couldn't determine if there were more. I never climbed into the loft because I figured there was a nest with young

119:1:29

Christianity has made me and my wife much closer, because we both have a common goal, and as we strive to meet our goal we become more alike. My ability to raise children has increased because the bible gives me good solid guidance in that area. I now have purpose to my life, rather than living from day to day. Success means happiness, rather than what I'm worth in money, since I got saved.

I'm certainly not trying to incenuate that I have no problems or that I'm perfect. A person wouldn't have to look very hard to find fault

120:1:23

I look for her all over the store and where do I find her? In the babies department of course. Another example, five months ago I was the one whom her attention was focused on. She always prepare a meal when I get home, buy me a new cloths, since I don't like buying any cloths and be super nice to me, but now oh boy. From the forgotten one. When I came home from work I find her eating and nothing left for me. I say " Honey, don't you think you eat to much." She says "but I'm eating

122:2:25

Upon getting off work at ten o'clock p.m., I lingered and spoke with my supervisor for a while. During this time a call was dispatched of a major accident. My supervisor allowed me to ride with him to the accident. It seemed so exciting at first. All of the Policemen, fire engines. However, excitement was soon replaced by grief and fear. As I watched my co-workers and friends survey and work the accident as Policeman I realized something about the special accident would always haunt me. I recall asking my Sergant if the man in the car was my

123:2:28

The coffee soaked through her pajamas and because they were the one-piece variety they could not be removed quickly enough. The heat was held in and the foot received a severe burn.

The burn tissue started between her toes and continued up to the ankle. The scarring was serious enough for the physician treating her to suggest plastic surgery.

To think that that much damage can be caused by a single cup of coffee left carelessly on the floor. But then most serious accidents at home are the ones that seem harmless. It is also quite common for accidents

125:1:35

To go from over five hundred a week salary to worker's compensation was a very difficult adjustment to make for my entire family.

The only reason that the results of my injury was serious is because, I could become temporarily totally disabled, for over a year now. Since this happened I have enormous physical and mental pressure placed on me to learn how to avoid new injuries to my neck, and how to cope with my wife coming to work to help support us and learning to reconise my being upset due to my nerves or if the children are

127:1:60

With money earned riding a horse and working on ranches, I bought my first cow. From that time on, even in high school and college my interest was in cattle. My source of income has been from buying cattle for other people and producing cattle. Since we lived on a ranch that we bought, my wife, daughter, and son were involved in the business. We had tough times and good times, but since the whole family was working together, we enjoyed this sometimes romanticized business. Even our recreation centered round the livestock industry. I do not by cattle for

155:1:32

As time went on I started realizing that these people were getting the better jobs. I had always worked the manual type jobs and they were taking a toll on me physically. The need for a change in life was becoming evident. I now wanted to go back to school to get a college degree. Now as a parent and almost graduating student I now realize how important a good education is. I tell my two young sons how important it is and hope they take my advice in the future. I truly believe you are never too old to

156:1:42

This is the first time in my life, I've gone to school during the summer. Since being enrolled at Tarrant County Junior College, Northwest, I've taken four courses this summer: Reading, Psychology, and English Composition I and II. I thoroughly enjoyed all courses and have high regards for the instructors. Even though I am somewhat older than most of my classmates, but we all had a great rapport and developed a relationship friendship.

In the fall semester I'll be taking two more courses, but I'll miss some of my old friends because they have gone on to other colleges throughout

159:1:44

One of the important and interesting things that has happened in my life was the day I registered for my first course in Automotive classes at TCJC (NW). This happened in the year 1981 in January. Automotive classes are always interesting due to the fact that all classes are hands on type of training.

I have finished all my Automotive classes and have completed all required electives plus three more that were not required before graduation.

I may start a new degree plan in the fall of 1985 to continue my education at Tarrant County Junior College

160:2:43

These preparations had to be completed in six to eight weeks before the trip could be accomplished.

When the time arrived for our journey, our family traveled by train for ten hours before arriving in West Berlin. The train made many stops during the trip which was at night. At each stop we observed soldiers armed with automatic weapons and accompanied by guard dogs. This was to prevent anyone getting on or off the train without authorization.

During our stay we visited sites of destruction as well as the vast modern city rebuilt since World War II.

161:2:19

I was so proud of that little boy, he was the best baby I've ever seen. Well, on the day of the contest he was presented with 2 trophies, one on 1st place in his age division and another in 3rd place Duke. That was one of the most happiest & proudest days of my life. That little boy was beautiful. He has blond hair and blue eyes and everyone fell in love with him. I love him very much. Clinton is my favorite out of all my nieces & nephews. And to this day I'm still very proud of him

APPENDIX I

Function Words

FUNCTION WORDS AS DEFINED BY FERNALD

Prepositions

abaft	beneath	like	saving
aboard	beside	mid	since
about	besides	midst	through
above	between	mong	throughout
across	betwixt	mongst	till
after	beyond	near	to
against	but	notwithstanding	touching
along	by	of	towards
amid	concerning	off	under
amidst	considering	on	underneath
among	despite	out	until
amongst	down	outside	unto
around	during	over	up
aslant	ere	overthwart	upon
at	except	past	via
athwart	excepting	pending	with
barring	for	per	within
bating	from	regarding	without
before	in	respecting	
behind	inside	round	

below into save

Conjunctions

also	nor	what	whereinsoever
although	or	when	whereinto
and	provided	whence	whereof
as	seeing	where	whereto
because	so	whereas	whereupon
both	still	wherewith	wherewith
either	than	whereby	wherewithall
forasmuch	that	wherever	whether
however	then	where'er	while
if	therefore	wherefore	whilst
lest	though	wherefore	whither
neither	unless	wherein	whithersoever
nevertheless			

Relative or Conjunctive Adverbs

hence	however	thenceforward	whensoever
henceforth	now	whence	whither
henceforward	thence	whencesoever	why
how	thenceforward	whenever	

Relative Pronouns

who	which	whoseso	whossoever
whom	whoso	whosoever	whichsoever
whose	shomso	whomsoever	whatsoever
whoever	whosoever	whichever	whatever
whomever			

(Fernald, 1904)