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THE LIFE EXPERIENCES SURVEY
PRELIMINARY FINDINGS

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THE LIFE EXPERIENCES SURVEY: Preliminary Findings

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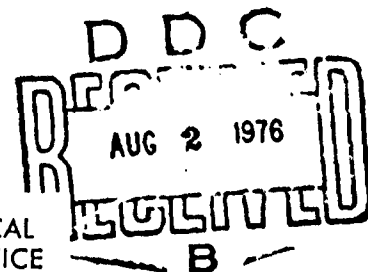
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report describes the development of a measure of life changes, the Life Experiences Survey, and preliminary data related to this assessment instrument are presented. The RES is a 57 item scale that lists numerous events which individuals may experience and call for social readjustment. Subjects are asked to indicate events which they have experienced during the previous year and whether these events were perceived as positive or negative. Additionally, subjects are asked to rate on a 7-point scale the degree of impact these events		

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20. have had on their lives. From these responses it is possible to derive three life change scores: Positive, Negative, and Total. This scale may be contrasted with earlier measures of life stress which failed to distinguish between positive and negative change and did not allow for individualized ratings of desirability of events and degrees of impact.

Preliminary results suggest that the scale displays moderate test-retest reliability when the Total change score is considered. Ratings of Positive change, however, appear to be less reliable. Scores of the LES were found to be related to relevant dependent measures such as anxiety, self-rated coping ability in various situations, and academic performance. Preliminary findings tentatively support the reliability and usefulness of the LES and the value of considering separately Positive and Negative change scores.

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Preface

The research presented in this report is part of an ongoing project supported by ONR contract N0014-75-C-0005, NR 170-804. The project is entitled "Life Stress and Coping Skills in Relation to Performance and Organizational Effectiveness" and is designed to test the hypothesis that individuals already experiencing high levels of stress are less able to cope with additional stressful situations which they encounter. The total research effort includes (1) construction of two measures, a general index of life stress and one specifically concerned with organizational stress, (2) investigation of the relationships between these measures and performance in stressful and nonstressful situations, and (3) development of coping skills programs designed to provide specific groups of individuals with effective stress management techniques. These techniques seem especially necessary for individuals who must function efficiently in chronically high stress positions. Coping skill programs will be developed for several populations including beginning students in the process of adjusting to life at a large university, police officers and perhaps certain military personnel.

This Technical Report presents preliminary information about one aspect of the project's first nine months, the development of the Life Experience Survey (LES), a measure of life stress. As will be shown in the body of the report a need exists for a psychometric index of life stress that goes beyond the methodological limitations of most existing measures. Subsequent reports will describe other phases of the project.

The authors wish to acknowledge the valuable comments and suggestions of Dr. Ronald E. Smith of the University of Washington who has served as a helpful consultant on various aspects of this research. A special note of thanks also goes to Judith Siegel who, as a research assistant on this project, has made numerous valuable contributions to this research.

THE LIFE EXPERIENCES SURVEY: Preliminary Findings

During recent years numerous studies have investigated the relationships among life stress, susceptibility to physical illness, and psychological problems of various types. These studies have been based on the assumption that life changes (whether positive or negative) require adaptation and are stressful to a greater or lesser degree depending on the specific events experienced. It has further been assumed that individuals experiencing marked degrees of change during the recent past are more likely to display physical and psychiatric problems than those experiencing little change.

Several studies have provided tentative support for a relationship between life stress, operationally defined as self-reports of life change, and physical illness. For example, a retrospective study conducted by Rahe and Lind (1971) found a relationship between life stress and sudden cardiac death. Rahe and Paasikivi (1971), Theorell and Rahe (1971), and Edwards (1971) provided retrospective data suggestive of a relationship between life stress and myocardial infarction. Holmes (1970), employing medical students as subjects, demonstrated a relationship between life stress and major and minor health changes and Rahe (1968), studying naval personnel, likewise demonstrated such a relationship. Wyler, Masuda, and Holmes (1971) also presented findings supportive of a relationship between life change and seriousness of chronic illness.

In addition to studies concerned with susceptibility to physical illness, other investigations, designed to explore additional correlates of life change, have also obtained positive results. Harris (1972) found a negative relationship between life stress and academic performance, and Carranza (1972) obtained a negative relationship between life stress and teacher performance. Several

studies have demonstrated a relationship between extent of life change and psychiatric symptomatology (Paykel, Myers, Dienes, Klerman, Linderthal, and Popper, 1967; Dekker and Webb, 1974).

While studies such as those cited seem to provide support for a relationship between life stress and physical and psychological problems, a number of problems remain to be solved. Most of the research to date has been correlational in nature and does not allow inferences of cause-effect relationships. Many studies reported in the literature have been retrospective in nature and in some cases, although significant correlations between life stress and illness have been obtained, the correlations have been quite low (e.g., as low as .11 with naval populations). Additionally, the dependent measures employed in the life stress-physical illness research have in some cases been of questionable value because reports of illness have been substituted for documented diagnoses of illness. Sarason, DeMonchaux, and Hunt (1975) have noted that the measuring instruments employed in most of the life stress studies, due to problems of reliability and assumptions underlying construction of the scales, may not provide the most adequate index of life stress. While it seems likely that some relationship between life stress and physical and psychiatric disorder does exist, methodological problems inherent in the measuring instruments employed in many published studies makes it necessary to interpret the results of previous life change studies with caution.

In considering the results of life stress studies, it is essential to examine carefully the measures of life changes which have been employed and the assumptions underlying their construction. The most widely employed instrument in this area was developed by Holmes and Rahe (1967). This instrument, the Schedule of Recent Experiences (SRE), is a self-administered questionnaire containing a list of 43 events found by the authors to be frequently experienced

by persons prior to the onset of illness. Subjects are asked to check those events that they have experienced during specific periods of time during the recent past (e.g., previous 6 months, previous year). To determine the weights appropriate to specific events, Holmes and Rahe (1967) had subjects rate each of the 43 items with regard to the amount of social readjustment living through the various events required. The item "marriage" was used as an arbitrary standard or anchor point for making ratings, and mean values were obtained for each of the items of the SRE. These were taken to represent the average amount of social readjustment considered necessary in response to various events. These values, termed "life change units," can be summed to obtain a total life stress score.

The SRE is based on the idea that life change per se is stressful regardless of the desirability of the event experienced. Both desirable and undesirable events are combined in determining the life stress score. While studies employing this instrument have provided some suggestive results, several writers have questioned the logic of combining positive and negative events (Brown, 1974; Mechanic, 1975. Sarason, De Monchaux, and Hunt, 1975). It might be the case that undesirable events (e.g., death of a close family member) have a different, and more detrimental effect on individuals than positive events (e.g., outstanding personal achievement). It seems reasonable to consider conceptualizing life stress primarily in terms of events that exert negative impacts.

A recent study by Vinokur and Selzer (1975) has provided data related to this issue. These investigators employed a modified version of the Schedule of Recent Experiences which yielded separate scores for positive and negative life change. Several stress-related dependent variables such as self-ratings of depression, stress and anxiety, and tension were employed.

Measures related to aggression, paranoia, and suicidal proclivity were also obtained. The results of the study provided support for a relationship between life change and these measures, but only when using a measure of undesirable events. Positive change was not systematically related to the dependent measures employed. The authors concluded that:

. . . It seems reasonable to reject the notion that adjustment to change per se is the crucial determinant of life stress and its sequelae. Instead, it appears that the contribution of life events to psychological impairment is mediated by stress that is evoked by some undesirable aspect of the events rather than by change per se (p. 333-334).

The SRE not only fails to take account of the desirability-undesirability dimension, but also does not allow for individualized ratings of the impact of events. Subjects simply indicate those events which they have experienced in the recent past. Values reflecting the average amount of readjustment necessitated by these events (derived from group ratings of events) are then employed to arrive at a total score. It appears likely that individuals may vary considerably in how they are affected by various events and therefore values based on group ratings may not reflect accurately the impact events have had on specific individuals. Problems inherent in applying group derived values to individual cases become especially obvious when it is noted that certain items from the SRE are quite ambiguous. For example, if a subject responds to an item such as "major change in financial status," it is uncertain if the response refers to a major change in a positive or negative direction. While one value (a life change unit of 35) is assigned when subjects report experiencing such a change, one wonders whether this value is equally appropriate to the person who has recently become bankrupt and the individual who has

recently inherited a large sum of money. While SRE life change units provide a quantitative measure of overall life change, they may in some cases not reflect the actual amount of stress experienced in a particular situation. A further limitation of the SRE is that groups differing in such factors as ethnicity differ also in the stress values they assign to the event of marriage (Rosenberg and Dohrenwend, 1975).

Finally, some questions exist concerning the reliability of the SRE. Studies investigating the reliability of the SRE over time have, in general, not yielded high reliability estimates. Reliability coefficients have typically varied from .64 to .74 for resident physicians to around .55 for naval personnel (Sarason, De Monchaux, and Hunt, 1975). These figures suggest that the SRE does not meet the level of reliability one would desire in conventional psychometric measures.

While the Schedule of Recent Experiences represents a valuable initial attempt to quantify and operationalize life stress, it can be improved in several respects. It now seems clear that a measure of life stress should possess several characteristics. First, it should include a list of numerous events commonly experienced by individuals in the population being investigated. Second, it should allow for ratings by respondents themselves of the desirability or undesirability of events rather than arbitrarily designating certain events as being positive or negative. Third, the scale should allow for individualized ratings of the degree of impact of events which have been experienced. Respondents should be able to indicate the extent to which specific events necessitate readjustment on their part rather than the researcher relying on standard values based on ratings of others.

An instrument designed to assess life stress should yield at least three separate life change scores: A measure of Positive and Negative life change,

and a Total change measure. The instrument should display adequate test-retest reliability and demonstrated validity in terms of the ability of the instrument to predict functioning in relevant populations. The present report describes an attempt to construct a measure of life stress according to these guidelines and presents some preliminary evidence.

The Life Experiences Survey

The present instrument, the Life Experiences Survey (LES) is a 57 item self-report measure which allows respondents to indicate events which they have experienced during the past year. This scale is presented in Appendix A.

The LES has two portions: Section I, designed for all respondents, consists of a list of 47 specific events plus three blank spaces in which subjects can indicate unlisted events they have experienced. Events listed in this section refer to life changes common to individuals in a wide variety of situations. The 10 events listed in Section II, which is designed for subjects who are students relate specifically to changes experienced in the academic environment. In the present research responses to items of Sections I and II were combined in deriving life change scores as the research presented in this report employed college students as subjects.

Events listed in the LES resemble those found in the Holmes and Rahe (1967) scale. A total of 34 items are similar in content. In the construction of the present scale, however, certain items were made more specific. For example, the SRE contains the item "pregnancy" which might be responded to by a female who has become pregnant but which perhaps might not be responded to by a male whose wife or girl friend had become pregnant. The present scale thus lists two separate events: female pregnancy, and male wife's/girl friend's pregnancy. To provide another example of the clarification of item content,

the SRE lists only the item "wife begins or stops work," an item which fails to consider the effects on females of husbands who begin or cease working. The present scale, therefore, lists two items: married male: change in wife's work outside the home (beginning work, ceasing work, changing to new job, etc.), and married female: change in husband's work (loss of job, beginning new job, retirement, etc.). Several other events not included in the Holmes and Rahe scale were included. Examples of these items are: Male: wife/girl friend having abortion; Female: abortion; serious injury or illness of close friend; engagement; breaking up with boy friend/girl friend, etc. Nine of the 10 school related items are unique to the present scale. Finally, certain events listed in the SRE, thought to be of relatively little consequence (e.g., vacation, Christmas, etc.) were not included, and other events were reworded to simplify responding.

The format for responding to the Life Experiences Survey is different from the one used by Holmes and Rahe. Ratings of desirability and impact of events are each individualized. Subjects responding to the LES are asked to indicate those events which they have experienced during the past year (0-6 mos. or 7 mos.-1 yr.) and then are instructed to indicate: (1) whether they viewed the event as being positive or negative at the time the event occurred, and (2) the impact of the particular event on their life. Thus, individualized ratings of desirability of event experienced and impact of events on individual subjects can be obtained with the LES.

The LES yields three life change scores. By summing the ratings of those events designated as positive by the subject, a Positive change score can be obtained. A Negative change score can be derived by summing the ratings of those events experienced as negative by the subject. The sum of these two values serves as a Total change score which represents the total amount of

rated change (desirable and undesirable) experienced by the subject during the past year.

The LES therefore allows for individualized ratings of events which may be commonly experienced in the general population as well as those which may be more specific to the academic environment, and also for the determination of separate values representative of the impacts of both positive and negative events as well as a total life stress score.

For any new test instrument certain kinds of information is necessary. It should be demonstrated that the obtained measures are reasonably stable over time and that measures yielded by the test instrument are related significantly to relevant dependent measures. Further, in the case of self-report measures, it should be demonstrated that measures derived from the instrument do not simply reflect the effects of response sets such as the tendency to present oneself in a socially acceptable light. Therefore, it is also necessary to demonstrate that scores are not highly correlated with factors such as social desirability.

While many important aspects of the LES remain to be investigated, several preliminary empirical studies have been conducted. Some normative data has also been collected. The results of these studies are presented in this report.

STUDY I

The first study was undertaken to obtain information concerning the responses of college students to the Life Experiences Survey, and the possibility of sex differences.

The LES was administered, in class, to students enrolled in Introductory Psychology courses at the University of Washington during the Fall quarter of 1975. A total of 345 completed protocols were obtained and the LES's scored to yield Positive, Negative, and Total change scores. Means and standard de-

viations were derived separately for males (N=174) and females (N=171) for each of the three measures, and sex differences evaluated (responses to sections I and II of the LES were combined in deriving scores). The means and standard deviations for male and female respondents are presented in Table 1. Percentile values for Positive, Negative and Total LES scores for this sample are also presented in Appendix B. Information concerning the percentage of subjects endorsing each of the items on the LES is provided in appendix C.

Table 1
Means and standard deviations for male and female respondents on the Life Experiences Survey

LES Score	Males (N=174)		Females (N=171)		t
	Mean	SD	Mean	SD	
Positive Score	9.75	8.07	9.57	6.66	.23(NS)
Negative Score	6.22	6.28	7.04	7.90	1.06(NS)
Total Score	15.97	11.08	16.61	10.23	.56(NS)

As can be seen in Table 1, there were no significant differences between males and females on any of the three life change measures. This suggests that male and female students do not differ significantly in terms of reported life change as measured by this instrument.

STUDY 2

The second study was designed to assess the test-retest reliability of the LES. The subjects were 34 (22 males and 12 females) volunteers drawn from

Introductory Psychology courses who participated in the study for course credit. These subjects were given the LES on two occasions with a 5-6 week interval between test and retest, and their responses scored for Positive, Negative, and Total change scores. Pearson product-moment correlations were employed to determine the relationship between scores obtained at the two testings.

Reliability coefficients of .19, .83 ($p < .001$) and .64 ($p < .001$) were found for Positive, Negative, and Total change scores, respectively. These results suggest that the reliability of the LES varies as a function of the specific content of items under consideration. While the Negative change score appears sufficiently reliable, and while the Total score displays moderate reliability, the Positive change score shows a marked lack of stability over the 5-6 week time interval considered in this study. These findings have implications concerning the relatively low reliability of life change measures which combine ratings of both positive and negative events in the assessment of life stress. Perhaps the poor reliability is largely a result of the inclusion of ratings of positive change. Further studies employing larger samples and assessing reliability over differing time intervals are needed.

STUDY 3

To the extent that the Life Experiences Survey measures life stress, it should be possible to demonstrate that its scores are related to relevant dependent measures. An analysis of the pattern of relationships between the three LES life change scores and these dependent measures should provide information concerning whether life change is more usefully conceptualized in terms of negative life change or life change per se. In this study, the relationship between LES scores, self-ratings of anxiety, and stress coping ability, academic performance, and reports of physician contact were examined.

The relationship between LES scale scores and social desirability was also examined.

Method

Subjects

The subjects were 100 male and female college student volunteers drawn from Introductory Personality courses at the University of Washington during Fall quarter, 1975. An approximately equal number of males and females were employed in the sample. The mean age of the total sample was 20.4 years.

Procedure

The subjects were administered the Life Experiences Survey, the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), and a self-rating scale designed to assess coping ability in a variety of situations. This scale required respondents to rate on a 7-point scale the degree to which they felt capable of coping with a wide variety of situations (e.g., stress situations in general, test taking situations, public speaking situations, social situations involving the opposite sex, social situations involving the same sex, and university life in general). In each case a rating of 1 indicated poor coping ability while a rating of 7 indicated good coping ability. (This scale is presented in Appendix D.) Subjects also filled out a questionnaire pertaining to their physical health during the previous six-month period. It elicited information concerning physician contact during this time period.

Grade point averages for the quarter were obtained for 75 of these subjects. All subjects were administered a short form (10 items) of the Marlowe-Crowne Social Desirability Scale developed by Strahan and Garbasi (1972).

The LES protocols of the subjects were scored for Positive, Negative, and Total change. Pearson product-moment correlations were computed to

examine the relationships among the three LES change scores and the various dependent measures.

Results and Discussion

Correlations between LES scores and State-Trait anxiety measures are presented in Table 2.

Table 2

Correlations between LES Change Scores and State-Trait Anxiety Measures

LES Score	Anxiety Score	
	State Anxiety	Trait Anxiety
Total change score	.34*	.25*
Positive change score	.01	.06
Negative change score	.43**	.20*

*Significant at .01 level

**Significant at .001 level

Inspection of these correlations shows that both Total and Negative change scores correlate significantly with state and trait anxiety while the Positive change score is not significantly related to either anxiety measure. Correlations between the Total and Negative change scores and these two anxiety measures did not differ significantly. Positive and Negative change scores were found to differ significantly in terms of their correlation with state anxiety ($p < .01$). Although negative change scores were found to be significantly correlated with trait anxiety while positive change scores were not, the difference between these correlations was not significant.

Correlations between LES scores and self-ratings of coping ability are presented in Table 3.

Table 3

Correlations between LES Scores and Self-Ratings of Coping Ability

LES Score	Self-Rating Scale					
	1	2	3	4	5	6
Total change	.01	-.02	-.18	.16	.12	.06
Positive change	.20*	.13	-.05	.28**	.20**	.09
Negative change	-.06	-.14	-.21*	.01	-.05	.05

Note: 1 = stress situations in general 2 = test taking situations
 3 = public speaking situations 4 = social situations (opposite sex)
 5 = social situations (same sex) 6 = university life in general

*Significant at the .05 level

**Significant at the .01 level

As may be seen in Table 3, only in a few cases were significant correlations obtained between LES scores and self-ratings of coping ability. These correlations suggest that the Negative change score is negatively correlated with self-rated ability to cope adequately with public speaking situations, while the Positive change score is correlated in the positive direction with ratings of the ability to cope with stressful situations in general and the ability to deal with social situations involving the same and opposite sex. In no case were Positive and Negative change scores correlated with the same dependent measure. These results suggest the need to consider positive and negative change separately and that both Positive and Negative change scores may be useful predictors in some cases. Each of these scores may be related significantly to coping ability in certain situations, but they may not relate to coping ability in the same manner. Negative change

appears related to poorer coping ability whereas positive change seems to be associated with greater ability to cope.

With regard to the relationship between LES change scores and academic performance, highly significant results were obtained. This analysis involved a total of 75 of the original 100 subjects in the present sample for whom quarterly grade point averages could be obtained. Pearson product-moment correlations between LES scores and GPA yielded a correlation of $-.37$ ($p < .001$) between Negative change scores and GPA, a correlation of $-.20$ (NS) between Positive change scores and GPA, and a correlation of $-.38$ ($p < .001$) for Total change scores. Although the Total and Negative change scores were found to be significantly related to GPA while the Positive change score was not, the differences between these correlations were not statistically significant.

The relationship between LES scores and self reports of physician contact within the past 6 months was also examined because much of the life stress literature has pertained to the relationship between life change and physical illness. A correlation between the LES Total change score and report of physician contact during the previous 6 months was found to be $-.09$. The correlation between Positive change and physician contact was $.03$. The correlation between Negative change and physician contact was $.15$. This value did not, however, reach significance.

It is possible that individuals who score high on the social desirability dimension might fail to report the occurrence of events perceived to be undesirable and persons scoring lower on the social desirability dimension might more readily report the occurrence of such events. The relationship between LES scores and social desirability was investigated to provide information concerning this issue. The correlations between social desirability scores and Positive, Negative, and Total change scores of the Life Experiences Survey were determined,

as were correlations between social desirability and the total number of positive and negative events reported (irrespective of ratings of impact.) The results of these analyses are presented in Table 4.

Table 4
Correlations between Social Desirability Scores and Responses to the
Life Experiences Survey

	LES Variable	
	Change Score	Total Number of Items Endorsed
Positive	-.02	-.24*
Negative	.04	.03
Total	.01	-.09

*Significant at .05 level

It would appear that none of the three change scores of the Life Experiences Survey are correlated with social desirability scores. Although a significant negative relationship between the total number of positive events reported and the social desirability was found, it is the three change scores (derived by summing impact ratings of events) that is of major concern in the present research. These change scores appear to be unrelated to social desirability.

In general this study showed that LES life change scores were significantly related to self-rated anxiety and coping skills and to academic performance. The LES change scores were not influenced to any great extent by the tendency to respond in a socially desirable manner. This study also provides some information concerning the utility of considering positive and negative change separately as compared with conceptualizing life stress in terms of total change (positive and negative).

STUDY 4

The final study in this preliminary series of investigations dealt with the sensitivity of the LES to instructional manipulation. Its major purpose was to determine whether subjects' responses to the scale would vary as a function of the type of information presented to them prior to responding to the scales.

Method

Subjects

The subjects were 20 male and female students enrolled in Introductory Personality courses at the University of Washington during Winter quarter, 1976. All subjects volunteered to participate in the study for course credit.

Procedure

The subjects were assigned at random to one of two different testing conditions. In the first condition, subjects were simply given the Life Experiences Survey and a sheet of instructions which briefly described the nature of the instrument, and asked the subject to complete the scale. The instructions indicated that data were being collected for research purposes and that all responses would be considered confidential (Research instructions).

In the second condition, subjects were also given the Life Experiences Survey and a sheet of instructions. In this case, however, the accompanying instructions stated that the LES was a scale designed to assess events which persons often experience and which bring about changes in the lives of persons who experience them. It was indicated that the extent of life change had in previous studies been found to be related to impaired physical and psychological functioning. It was further suggested that the LES was designed to identify those individuals most likely to develop problems in the future (Anxiety-provoking instructions).

After collecting the completed LES protocols, the subjects in the anxiety-provoking instructions condition were appropriately debriefed. The LES protocols of all subjects were then scored to yield Positive, Negative, and Total change scores and t tests of significance were employed to test for differences between scores of subjects in the two conditions.

Results and Discussion

One of the subjects in the Research instructions group failed to produce a usable LES protocol and was thus eliminated from the analysis. Results are therefore based on responses of 19 subjects. Significant differences were found between the two conditions when Positive change scores were considered. Mean Positive change scores for groups receiving Research and Anxiety-provoking instructions were 15.44 and 7.10, respectively ($t = 2.32$; $p < .05$). Significant differences were likewise found when the LES total change score was considered. Total change scores for the Research instruction group and the Anxiety-provoking instructions group were 26.78 and 14.30 ($t = 3.65$; $p < .01$). No significant differences were found between these groups when Negative change scores were considered. (Research instruction group $\bar{X} = 11.0$, Anxiety-provoking instructions group $\bar{X} = 7.2$; $t = 1.50$ NS.)

The results suggest that subjects' awareness of the possible significance of their responses and/or their awareness that their LES performance might single them out for special consideration may have had a significant effect on responses, at least as far as the reporting of Positive and Total life change is concerned. These findings indicate that it may be important to consider subject's perception of the testing situation in evaluating the meaning of responses to life stress questionnaires.

Conclusions

This series of studies was designed to begin the development of an improved measure of life stress, one that would be useful in identifying individuals who might display impaired functioning in a variety of situations. This measure was constructed so as to allow for individualized ratings of the desirability and impact of events, and so that the degree and impact of positive and negative change could be assessed separately. In contrast to earlier measures of life change, which were based on the notion that life change per se is stressful, construction of the present scale was guided by the assumption that life stress might best be conceptualized in terms of negative change. The present scale provided an instrument suitable for assessing separate effects of positive and negative life change.

The data derived from the series of studies reported here provide preliminary normative data concerning LES scores in a college population. They suggest that males and females do not differ in terms of reported life change as assessed by this scale. In terms of reliability, the results suggest that the Total change score is moderately stable over time and that the Negative change score is quite reliable over a five to six week time interval. The reliability of Positive change score, however, was found to be considerably lower.

With regard to factors affecting scores on the LES, the tendency of respondents to respond in a socially desirable direction does not seem to be an important factor. Results of an instructional manipulation study do, however, suggest that the subjects' perception of the test-taking situation has a significant effect on responding.

The results of the studies suggest the usefulness of the Life Experiences Survey, especially the Negative change score. The fact that in some cases the Negative change score was found to be a better predictor of performance than

the Positive change score, together with the fact that in some cases Positive and Negative change scores were correlated in opposite directions and with different variable, argue for considering positive and negative change separately. Further research is necessary to determine whether life stress is most usefully conceptualized in terms of negative change or total change.

It would appear that except for the Positive change score, the Life Experiences Survey displays adequate reliability. The results reported warrant its use in research related to life change, particularly when the assessment of negative change is involved.

Future research related to the adequacy of the LES should proceed in several directions. Additional studies of test-retest reliability are needed, particularly with larger samples, so as to assess definitively the stability of life change scores over different time intervals. The low reliability of the positive change score found in the first reliability study is especially intriguing since one might argue that the failure to obtain high correlations between Positive change scores and dependent measures of the type used in the present research may be a function of the lack of reliability of the Positive change measure rather than the fact that positive change is not stressful. Additional studies investigating the relationship between LES scores and various stress related dependent variables and additional personality measures are also needed, as are studies assessing the influence of situational and test taking variables on responses to the LES.

Research along these lines is under way as a contribution to the major focus of the project, the development of training programs that enable persons to cope with stress in more adaptive ways. The research reported here is relevant to this aim because a stress coping skills program may play a significant role in strengthening persons' abilities to withstand the effects of high

chronic levels of life stress as measured by instruments such as the LES. Studies are in progress in which the differential effects of training in stress coping on persons with various histories of recent stressful experiences will be determined.

REFERENCES

- Brown, G.W. Meaning, measurement, and stress of life events. In B.S.
- Dohrenwend and B.P. Dohrenwend (Eds.). Stressful Life Events: Their Nature and Effects. New York, John Wiley, 1974, 217-243.
- Carranza, E. A study of the impact of life changes on high-school teacher performance in the Lansing school district as measured by the Holmes and Rahe Schedule of Recent Experiences. Unpublished doctoral dissertation, Michigan State University, 1972.
- Dekker, D.J., and Webb, J.T. Relationships of the social readjustment rating scale to psychiatric patient status, anxiety, and social desirability. Journal of Psychosomatic Research, 1974, 18, 125-130.
- Edwards, M.K. Life crisis and myocardial infarction. Unpublished master's thesis, University of Washington, 1971.
- Harris, P.W. The relationship of life change to academic performance among selected college freshmen at varying levels of college readiness. Unpublished doctoral dissertation, East Texas State University, 1972.
- Holmes, T.H., and Rahe, R.H. The social readjustment rating scale. Journal of Psychosomatic Research, 1967, 11, 213-218.
- Mechanic, D. Some problems in the measurement of stress and social readjustment. Journal of Human Stress, 1975, 1, 43-49.
- Paykel, E.S., Myers, J.V., Kienelt, H.W., Clemman, G.L., Linderthal, T.J., and Pepper, M.P. Life events and depression. Archives of General Psychiatry, 1969, 21, 753.
- Rahe, R.H., and Lind, E. Psychosocial factors and sudden cardiac death: A pilot study. Journal of Psychosomatic Research, 1971, 15, 19-24.
- Rahe, R.H. and Paasikivi, J. Psychosocial factors and myocardial infarction. II: An outpatient study in Sweden. Journal of Psychosomatic Research, 1971, 15, 33-40.

- Rosenberg, J.E.J., and Dohenwend, B.S. Effects of experience and ethnicity on ratings of life events as stressors. Journal of Health and Social Behavior, 1975, 16, 127-129.
- Sarason, I.G. De Monchaux, C., and Hunt, T. Methodological issues in the assessment of life stress. In Emotions--Their Parameters and Measurement, L. Levi (Ed.). New York: Rover Press, 1975.
- Spielberger, C.E., Gorsuch, R.L., and Lushene, R.E. Manual for the State-Trait Anxiety Inventory. Palo Alto, Calif.: Consulting Psychologist Press, 1970.
- Strahan, R., and Gerbasi, K.C. Short homogeneous versions of the Marlowe-Crowne Social Desirability Scale. Journal of Clinical Psychology, 1972, 28, 191-193.
- Theorell, T., and Rahe, R.H. Psychosocial factors and myocardial infarction. I: An inpatient study in Sweden. Journal of Psychosomatic Research, 1971, 15, 25-31.
- Vinokur, A., and Selzer, M.L. Desirable versus undesirable life events: Their relationship to stress and mental distress. Journal of Personality and Social Psychology, 1975, 32, 329-337.
- Wyler, A.R., Masuda, M., and Holmes, T.H. Magnitude of life events and seriousness of illness. Psychosomatic Medicine, 1971, 33, 115-122.

Appendix A

The Life Experiences Survey

Name _____ Phone _____

Age _____ Educational Status _____

Sex _____

Marital Status _____

Instructions

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

SECTION I

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
1. Marriage			-3	-2	-1	0	+1	+2	+3
2. Detention in jail or comparable institution			-3	-2	-1	0	+1	+2	+3
3. Death of spouse			-3	-2	-1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)			-3	-2	-1	0	+1	+2	+3
5. Death of close family member									
a. mother			-3	-2	-1	0	+1	+2	+3
b. father			-3	-2	-1	0	+1	+2	+3
c. brother			-3	-2	-1	0	+1	+2	+3
d. sister			-3	-2	-1	0	+1	+2	+3
e. grandmother			-3	-2	-1	0	+1	+2	+3
f. grandfather			-3	-2	-1	0	+1	+2	+3
g. other(specify)			-3	-2	-1	0	+1	+2	+3
6. Major change in eating habits (much more or much less food intake)			-3	-2	-1	0	+1	+2	+3
7. Foreclosure on mortgage or loan			-3	-2	-1	0	+1	+2	+3
8. Death of close friend			-3	-2	-1	0	+1	+2	+3
9. Outstanding personal achievement			-3	-2	-1	0	+1	+2	+3

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	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
10. Minor law violations (traffic tickets, disturbing the peace, etc.)			-3	-2	-1	0	+1	+2	+3
11. <u>Male</u> Wife's/girlfriend's pregnancy			-3	-2	-1	0	+1	+2	+3
12. <u>Female</u> Pregnancy			-3	-2	-1	0	+1	+2	+3
13. Changed work situation(different work responsibility, major change in working conditions, working hours, etc.)			-3	-2	-1	0	+1	+2	+3
14. New job			-3	-2	-1	0	+1	+2	+3
15. Serious illness or injury of close family member:									
a. father			-3	-2	-1	0	+1	+2	+3
b. mother			-3	-2	-1	0	+1	+2	+3
c. sister			-3	-2	-1	0	+1	+2	+3
d. brother			-3	-2	-1	0	+1	+2	+3
e. grandfather			-3	-2	-1	0	+1	+2	+3
f. grandmother			-3	-2	-1	0	+1	+2	+3
g. other(specify)			-3	-2	-1	0	+1	+2	+3
16. Sexual difficulties			-3	-2	-1	0	+1	+2	+3
17. Trouble with employer(in danger of losing job, being suspended, demoted, etc)			-3	-2	-1	0	+1	+2	+3
18. Trouble with in-laws			-3	-2	-1	0	+1	+2	+3
19. Major change in financial status(a lot better off or a lot worse off)			-3	-2	-1	0	+1	+2	+3
20. Major change in closeness of family members(increased or decreased closeness)			-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member(through birth, adoption, family member moving in, etc.)			-3	-2	-1	0	+1	+2	+3
22. Change of residence			-3	-2	-1	0	+1	+2	+3
23. Marital separation from mate(due to conflict)			-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance)			-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation with mate			-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments with spouse(a lot more or a lot less arguments)			-3	-2	-1	0	+1	+2	+3
27. <u>Married male</u> Change in wife's work outside the home(beginning work, ceasing work, changing to new job, etc.)									

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	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
28. <u>Married female</u> Change in husband's work (loss of job, beginning new job, re- tirement, etc.)			-3	-2	-1	0	+1	+2	+3
29. Major change in usual type and/or amount of recreation			-3	-2	-1	0	+1	+2	+3
30. Borrowing more than \$10,000(buying home, business, etc.)			-3	-2	-1	0	+1	+2	+3
31. Borrowing less than \$10,000(buying car, TV, getting school loan, etc.)			-3	-2	-1	0	+1	+2	+3
32. Being fired from job.			-3	-2	-1	0	+1	+2	+3
33. <u>Male</u> Wife/girlfriend having abortion			-3	-2	-1	0	+1	+2	+3
34. <u>Female</u> Having abortion			-3	-2	-1	0	+1	+2	+3
35. Major personal illness or injury			-3	-2	-1	0	+1	+2	+3
36. Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation)			-3	-2	-1	0	+1	+2	+3
37. Major change in living conditions of family(building new home, remodeling, deterioration of home, neighborhood, etc.)			-3	-2	-1	0	+1	+2	+3
38. Divorce			-3	-2	-1	0	+1	+2	+3
39. Serious injury or illness of close friend			-3	-2	-1	0	+1	+2	+3
40. Retirement from work			-3	-2	-1	0	+1	+2	+3
41. Son or daughter leaving home(due to marriage, college, etc.)			-3	-2	-1	0	+1	+2	+3
42. Ending of formal schooling			-3	-2	-1	0	+1	+2	+3
43. Separation from spouse(due to work, travel, etc.)			-3	-2	-1	0	+1	+2	+3
44. Engagement			-3	-2	-1	0	+1	+2	+3
45. Breaking up with boyfriend/girlfriend			-3	-2	-1	0	+1	+2	+3
46. Leaving home for the first time			-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend			-3	-2	-1	0	+1	+2	+3
<u>Other recent experiences which have had an impact on your life. List and rate.</u>									
48. _____			-3	-2	-1	0	+1	+2	+3
49. _____			-3	-2	-1	0	+1	+2	+3
50. _____			-3	-2	-1	0	+1	+2	+3

Section II Student Only

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
51. Beginning a new schooling experience at a higher academic level(college, graduate school, professional school, etc)			-3	-2	-1	0	+1	+2	+3
52. Changing to a new school at same academic level(undergraduate, graduate, etc.)			-3	-2	-1	0	+1	+2	+3
53. Academic probation			-3	-2	-1	0	+1	+2	+3
54. Being dismissed from dormitory or other residence			-3	-2	-1	0	+1	+2	+3
55. Failing an important exam			-3	-2	-1	0	+1	+2	+3
56. Changing a major			-3	-2	-1	0	+1	+2	+3
57. Failing a course			-3	-2	-1	0	+1	+2	+3
58. Dropping a course			-3	-2	-1	0	+1	+2	+3
59. Joining a fraternity/sorority			-3	-2	-1	0	+1	+2	+3
60. Financial problems concerning school (in danger of not having sufficient money to continue			-3	-2	-1	0	+1	+2	+3

Appendix B

Percentile Ranks for Life Experience Survey Scores (N=345)

<u>Raw Scores</u>	<u>Total Change</u>	<u>Positive Change</u>	<u>Negative Change</u>	<u>Raw Scores</u>
0				0
1		2	15	1
2	1	7	22	2
3	3	14	33	3
4	5	20	42	4
5	9	26	49	5
6	13	33	54	6
7	17	38	60	7
8	19	45	67	8
9	24	52	72	9
10	28	61	74	10
11	31	64	79	11
12	36	69	81	12
13	43	70	85	13
14	47	73	87	14
15	52	78	89	15
16	56	80	90	16
17	60	82	90	17
18	62	85	92	18
19	65	86	93	19
20	68	89	94	20
21	71	91	95	21
22	74	93	96	22
23	77	94	96	23
24	78	94	96	24
25	81	95	96	25
26	83	96	96	26
27	85	96	97	27
28	86	97	97	28
29	87	97	97	29
30	88	97	97	30
31	89	98	97	31
32	90	98	97	32

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<u>Raw Scores</u>	<u>Total Change</u>	<u>Positive Change</u>	<u>Negative Change</u>	<u>Raw Scores</u>
33	92	98	98	33
34	93	98	98	34
35	93	98	98	35
36	94	98	98	36
37	94	98	98	37
38	94	98	98	38
39	95	98	98	39
40	95	98	98	40
41	95	99	98	41
42	96	99	98	42
43	96	99	98	43
44	96	99	98	44
45	96	99	98	45
46	97	99	98	46
47	97	99	98	47
48	98	99	98	48
49	99	99	98	49
50	98	99	98	50
51	98	100	98	51
52	98		98	52
53	98		98	53
54	98		98	54
55	98		98	55
56	98		99	56
57	99		100	57
58	99			58
59	99			59
60	99			60
61	100			61

Appendix C

Percentage of Subjects Responding to Each of the Items of the Life Experiences Survey (N=345)

<u>Item</u>	<u>% Responding</u>	<u>Item</u>	<u>% Responding</u>
1. Marriage	01	23. Marital separation	01
2. Jail	02	24. Change in church activity	22
3. Death of spouse	01	25. Marital reconciliation	01
4. Change of sleeping habits	39	26. Change in number of arguments with spouse	02
5. a. Death of Mother	01	27. Change in wife's work	00
b. Death of Father	02	28. Change in husband's work	01
c. Death of Brother	01	29. Change in recreation	35
d. Death of Sister	01	30. Borrow more than \$10,000	01
e. Death of Grandmother	12	31. Borrow less than \$10,000	08
f. Death of Grandfather	12	32. Being fired from job	01
g. Death of other	06	33. Wife/girlfriend abortion	02
6. Change in eating habits	34	34. Abortion	01
7. Foreclosure on mortgage or loan	01	35. Major personal illness	09
8. Death of close friend	14	36. Changed social activities	48
9. Outstanding personal achievement	37	37. Changed living conditions	13
10. Minor law violation	35	38. Divorce	02
11. Wife/girlfriend pregnant	03	39. Serious illness of close friend	08
12. Pregnancy	03	40. Retirement from work	01
13. Changed work situation	48	41. Son or daughter leaving home	01
14. New job	34	42. End of formal schooling	05
15. a. Serious illness of Father	05	43. Separation from spouse	01
b. Serious illness of Mother	04	44. Engagement	03
c. Serious illness of Sister	01	45. Breaking up with boyfriend or girlfriend	27
d. Serious illness of Brother	01	46. Leaving home first time	36
e. Serious illness of Grandfather	04	47. Reconciliation with boyfriend or girlfriend	13
f. Serious illness of Grandmother	04	51. Begin new schooling experience	75
g. Serious illness of other	03	52. Change to new school	01
16. Sexual deficiency	16	53. Academic probation	03
17. Trouble with employee	05	54. Dismissal from residence	01
18. Trouble with injury	03	55. Fail important exam	11
19. Changed financial status	28	56. Change major	09
20. Changed closeness of family members	31	57. Fail course	07
21. New family member	10	58. Drop course	21
22. Change in residence	51	59. Join fraternity sorority	25
		60. Financial problems (school)	18

Appendix D

Scale for Assessing Self-Rated Coping Ability

On the following scales please indicate the extent to which you feel capable of successfully coping with the following situations at the present time.

1. Stressful situations in general

not at 1 2 3 4 5 6 7 extremely
all (circle one) well

2. Test taking situations

not at 1 2 3 4 5 6 7 extremely
all (circle one) well

3. Public speaking situations

not at 1 2 3 4 5 6 7 extremely
all (circle one) well

4. Social situations (Opposite sex)

not at 1 2 3 4 5 6 7 extremely
all (circle one) well

5. Social situations (Same sex)

not at 1 2 3 4 5 6 7 extremely
all (circle one) well

6. University life in general

not at 1 2 3 4 5 6 7 extremely
all (circle one) well