

A PRELIMINARY INVESTIGATION OF ADAPTIVE
FUNCTIONING AS A MULTIDIMENSIONAL CONSTRUCT
OF MENTAL HEALTH

Dissertation for the Degree of Ph. D.
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KENNETH EDWIN HALL

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This is to certify that the

thesis entitled

A Preliminary Investigation of Adaptive
Functioning as a Multidimensional Construct
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presented by

Kenneth Edwin Hall

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Couns. Per. Serv.

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Major professor

Date June 7, 1977

ABSTRACT

A PRELIMINARY INVESTIGATION OF ADAPTIVE FUNCTIONING AS A MULTIDIMENSIONAL CONSTRUCT OF MENTAL HEALTH

By

Kenneth Edwin Hall

The focus of the study was on adaptive functioning as a multidimensional construct of mental health. There were three major objectives.

1. To empirically investigate the adaptive functioning construct.
2. To validate an instrument designed to measure a proposed theory of adaptive functioning.
3. To identify differential levels of functioning among individuals on the criteria of General Adaptive Capacity.

A four dimensional theory of adaptive capacity was proposed. The four postulated dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) were consistent with the internal and external themes found in the literature on mental health.

A 205 item instrument (the Survey of Actualization: Adaptation) was constructed to measure the proposed theory. Responses to the inventory were collected from 251 subjects who comprised three

separate samples. Sample one consisted of a group of 102 resident hall advisors. It was assumed that this sample represented a fairly homogeneous, high functioning group. Sample two comprised 120 randomly selected subjects. It was assumed that these subjects represented a heterogeneous group of diverse levels of functioning. Finally, sample three was a cross-validation sample of 29 subjects nominated as high functioning.

Two distinct methods of data analysis were used in the study: factor analysis and multivariate analysis of variance.

An item analysis identified 85 of the 205 items that comprised the inventory as discriminating between high and low scores on each item. The discriminating items were factor analyzed to determine whether the items would form a factor structure consistent with one of the various proposed theories of adaptive functioning described in the study.

A rationale was developed for two through seven rotations using the varimax procedure. The significance of an item factor loading was arbitrarily established at $\pm .40$ or above. A factor was regarded as significant and interpretable if the number of high loadings on that factor accounted for ten per cent of the variance.

A relationship between White's three dimensional theory of adaptive functioning and the three factor solution was found to exist. In addition, aspects of the four dimensional theory proposed for the study were related to the three factor solution.

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Scores from the 69 items that comprised the three factors were weighted to determine the proximity of a response to the a priori score established for an item.

On the basis of examining the reliability estimates (alpha) and the intercorrelations between the three factors, the conclusion was reached that the inventory was probably one large scale with three highly interrelated subsets of that scale.

Multivariate and univariate differences were found among the three groups selected for study across the interpretable factors ($P < .05$ and $P < .017$, respectively). Multiple post hoc comparisons (Scheffé) identified the three samples as comprising two subsets. No significant difference was found between the resident hall advisors sample and the cross-validation sample. However, a significant difference ($P < .006$) was found to exist between the random sample, and both the resident hall advisors group and the cross-validation sample.

An inspection of the distribution of scores for the three samples led to the following conclusions.

1. Subject responses to the inventory did not identify differential levels of functioning within the separate factors (i.e., a subject who scores low on one factor also scored low on the other two factors).
2. The subjects of the random sample were a more heterogeneous group of diverse levels of functioning than the other two samples.
3. The cross-validation sample and the resident hall advisors group were a more homogeneous, high functioning group than the random sample.

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By

Kenneth Edwin Hall

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

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College of Education

1977

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To Joanne who contributed immeasurably to the completion of this study through her understanding, caring, patience, and support.

To Becky and to Chris for their acceptance of being without a father for a year while this study was completed.

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Dr. C. S. Dietzel, Dr. Thomas Fiester, and Dr. Robert VanNoord gave freely of their time in helping edit and score the instrument constructed for the investigation. Their suggestions and help contributed much to the study.

I also wish to thank Dr. Gary North for his assistance in encouraging the resident hall advisor staff to participate in the study.

I want, finally, to thank Dr. Robert Wilson and Dr. David Novicki who served as statistical consultants. Their abilities to assist my understanding of the statistical procedures used in the study were of immeasurable help.

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¹ Arnold H. Bus
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New York: Basic Book

² W. A. Westley
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1958), p. 132.

CHAPTER I

THE PROBLEM

Need for the Study

The investigation of human functioning has been largely limited to the study of mental illness. Some feel that such an emphasis has been warranted because through the study of extreme behavior and mental ill health all knowledge about humans is advanced. The result has been that research directed towards normal individuals has been greatly curtailed. Studies of positive mental health have been criticized as attacking an abstract construct that does not lend itself to valid empirical investigation.¹ Furthermore, many critics assume that mental health is a uni-dimensional concept most simply defined as the absence of pathology. Such a definition is based on two assumptions. First, given the etiology of any particular form of mental illness, the prescription for health has been that one does the opposite to create mental health.² Second, the individual reacts to the environment as a

¹Arnold H. Buss, Psychopathology (New York: John Wiley and Sons, Inc., 1966), p. 6; W. E. Barton, "Viewpoint of a Clinician." In Maria Jahoda (Ed.), Current Concepts of Positive Mental Health (New York: Basic Books, 1958), p. 233.

²W. A. Westley, "Emotionally Healthy Adolescents and their Family Background." In Iago Gladston (Ed.), The Family in Contemporary Society (New York: International Universities Press, 1958), p. 132.

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⁴Heinz Hartmann
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⁵M. B. Smith,
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total organism. Therefore, poor adjustment in one area of life necessarily affects all other areas of personality.³

Advocates of the study of mental health have suggested that even though some aspects of the individual's personality are pathological, such functioning need not be pervasive throughout every aspect of the person's life. These advocates have indicated that the fundamental issue in the study of positive mental health is to develop some empirical correlates of mental health to investigate how abnormal functioning and normal internal development mutually facilitate and hamper each other.⁴ Other proponents have questioned the interdependence of the various characteristics that make up the individual's personality. According to this latter point of view, the problem requires research.⁵

Thus, the critics who are involved in the controversy that surrounds the problem of human adjustment have identified two major points of conflict. First, is there value in the study of a construct such as mental health? Second, if mental health is to be studied, is it in fact a uni-dimensional or multi-dimensional construct?

³K. Goldstein, Human Nature in the Light of Psychopathology (Cambridge: Harvard University Press, 1940), p. 15; C. R. Rogers, Client-Centered Therapy (Boston: Houghton-Mifflin, 1951), p. 510.

⁴Heinz Hartmann, Ego Psychology and the Problem of Adaptation. Translated by David Rapaport. (New York: International University Press, 1958), p. 17; Otto Fenichel, The Psychoanalytic Theory of Neurosis (New York: W. W. Norton & Co., Inc., 1945).

⁵M. B. Smith, "'Mental Health' Reconsidered: A Special Case of the Problem of Values in Psychology," American Psychology, 16 (1961), p. 306.

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⁶Daniel Offer
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(1974), p. 180.

⁷Jahoda, 1955

Offer⁶ responded to the first major point of conflict by stating three explicit advantages to the study of mental health. First, the lack of explicit psychological criteria of what constitutes mental health introduces an unknown bias in research that uses "normal" subjects as a control group. Second, evaluation of community mental health programs requires an explicit understanding of mental health. Implicit conceptions of mental health may be based on error or distortion. Finally, therapeutic goals might be less arbitrary and more in keeping with the clients' needs and expectations if mental health criteria are more explicit.

Jahoda⁷ indirectly discussed the multidimensional quality of mental health. She suggested that the assumption that mental health and mental illness are polar opposites may be unjustified. Over the last thirty years an increasing number of psychologists and psychiatrists have begun speaking of different health potentials in seemingly equally "sick" individuals, as if they were two qualitatively different continua. According to Jahoda there is now ample evidence both theoretically and empirically of the utility of this view. Thus, the study of mental health as a construct and as a multidimensional concept is gaining support.

⁶Daniel Offer and Melvin Sabshin, Normality: Theoretical and Clinical Concepts of Mental Health (New York: Basic Books, 1974), p. 180.

⁷Jahoda, 1958, op. cit., p. 14.

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⁸M. B. Smith, "Positive Mental Health

⁹Smith's Model

¹⁰A. Ellis, "The Psychological Bulletin,"
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pp. 345-351; R. H. Tind
Status," *Educational Ps*

One model for the study of mental health that relates to this study was proposed by Smith.⁸ In his opinion such questions as follow require research: What is the relationship between positive mental health and resistance to mental illness? What is the independence or interdependence among various aspects of positive human functioning? Smith suggested that existing theories of personality fail to provide a suitable framework for answering these questions. He proposed a framework for the development of multiple criteria of mental health that is based on the similarities of various existing conceptualizations of personality.⁹ His model provided a framework for understanding the relationship and interdependence of the various aspects of human functioning.

The examination of mental health as a multidimensional concept has been empirically supported by the results of at least five studies. Three of the studies researched the relationship among various measures of adjustment. The other two studies investigated the differences between a sample of normal subjects and hospitalized psychiatric patients.

The researchers in the first three studies (Ellis, Fiedler, et al., and Tindall)¹⁰ assumed that a high intercorrelation existing

⁸M. B. Smith, "Research Strategies Toward a Conception of Positive Mental Health," American Psychologist, 14 (1959), pp. 679-680.

⁹Smith's Model is outlined in Chapter II, "The Theory."

¹⁰A. Ellis, "The Validity of Personality Questionnaires," Psychological Bulletin, 42 (1946), pp. 385-440; F. E. Fiedler, et al., "Interrelations Among Measures of Personality Adjustment in Nonclinical Populations," Journal of Abnormal Social Psychology, 56 (1958), pp. 345-351; R. H. Tindall, "Relationships Among Indices of Adjustment Status," Educational Psychological Measurement, 15 (1955), pp. 152-162.

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between various measures of adjustment would suggest that poor functioning in one area of an individual's life necessarily affected all areas of life. All of these studies found low or insignificant intercorrelations among the various measures. The results suggest that there is no evidence justifying the assumption that adjustment should be considered a unitary trait.

The two other studies investigated the differences between a sample group of normal subjects and hospitalized psychiatric patients. The investigators hypothesized that significant differences would be found between two groups of subjects among the dimensions of their developmental history and their current adjustment. Schofield and Balian¹¹ found no significant differences between a sample group of normal subjects and a group of hospitalized schizophrenic patients. The two groups were compared with respect to their early history, adjustment, and incidence of "traumatic" experiences. In the second study, Renaud and Estess¹² found no incidence of psychoeurotic or psychosomatic symptomatology among a sample group of normal subjects even though the histories of the subjects contain instances of traumatic events presumed to result in mental illness of others. The results of the two studies raise questions about the validity of conceiving of a simple, and direct

¹¹W. Schofield and L. Balian, "A Comparative Study of the Personal Histories of Schizophrenic and Nonpsychiatric Patients," Journal of Abnormal and Social Psychology, 59 (1959), pp. 216-225.

¹²H. Renaud and F. Estess, "Life Interviews With One Hundred Normal American Males: 'Pathogenecity' of Childhood," American Journal of Orthopsychiatry, 31 (1961), pp. 786-801.

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¹⁴Gordon A
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Smith, op. cit., 19

causal relation between certain events and later development of mental illness.

Thus, the results of the studies suggest that current means of assessing human adjustment do not lend themselves to investigating the various dimensions of abnormal and normal functioning. Furthermore, the results raise some serious empirical questions about human functioning that current theories of personality fail to answer. Can mental health as a construct be empirically investigated? Can such an investigation provide a clearer understanding of the various dimensions of normal functioning within an individual and between individuals? Can the dimensions be operationalized into a valid instrument to measure various aspects of mental health? The present study is an investigation of these questions.

Purpose of the Study

In this study, mental health is regarded as distinct from pathology, and as a multidimensional concept of various criteria. The major problem in establishing a multidimensional definition of mental health is not in proposing new criteria so much as it is in selecting and operationally defining those that have already been proposed.¹³ Several means of classifying mental health have been proposed.¹⁴ A modification of Scott's classification system is employed in this study for the sake of convenience only:

¹³William A. Scott, "Conceptions of Normality," In E. F. Borgatta and W. W. Lambert (Eds.) Handbook of Personality Theory and Research (Chicago: Rand McNally, 1968), p. 976.

¹⁴Gordon Allport, Personality: A Psychological Interpretation (New York: Henry Holt & Co., 1938); Jahoda, op. cit., 1958; M. B. Smith, op. cit., 1959, pp. 673-681.

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2. Healthy Self
3. Competence i
4. Intellectual
5. Emotional an
6. Commitment t
7. Productivity
8. Attitudes To
9. Integration

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1. General Adaptive Capacity
2. Healthy Self-Gratification
3. Competence in Interpersonal Roles
4. Intellectual Capacity
5. Emotional and Motivational Control
6. Commitment to People
7. Productivity and Autonomy
8. Attitudes Toward Self
9. Integration of Self¹⁵

This study will deal specifically with an initial investigation of General Adaptive Capacity as one criterion of mental health.

While there has been theoretical and empirical support for viewing the general concept of mental health as multidimensional, there has been considerable confusion in research studies of mental health. Some of this confusion lies in the specific definition of mental health used in a study. A much greater amount of the confusion, however, lies in the investigator's failure to discriminate the independence or interdependence of various factors that are characteristic of high functioning individuals. Studies designed to measure the same trait achieve different results. A set of characteristics were empirically present in one study, but only partially present in another study. It would appear that these studies were either measuring different traits or they were measuring separate aspects of the same trait. Thus, the questions of particular interest in this study are: To what extent does high functioning in one area of General Adaptive Capacity affect high functioning in other areas? To what extent can an individual who functions at a high level on all of the postulated dimensions of General Adaptive

¹⁵William A. Scott, op. cit., 1968, p. 976.

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Capacity be distinguished from those individuals who fail to function at a high level on one or more of these dimensions?

Statement of the Problem

The present investigation is concerned with developing an objectively scored instrument that measures the adaptability of undergraduate college students to the psychological and physical world in which they live. It is expected that items on this instrument will differentiate the high and low levels of functioning on the criterion of General Adaptive Capacity as defined in this study. Additionally, it is expected that a factor analysis¹⁶ of the items will differentiate between the four major theoretical postulates of accommodation and assimilation to the environment, affective style, and environmental mastery.

Postulated Dimensions

Two of the four dimensions postulated in this study are outer directed (Accommodation and Environmental Mastery) describing the individual's ability both to accurately perceive the external environment free from distortion according to his/her own subjective needs, and to act on the environment in such a way that the individual is able to react as a constructive rather than a destructive force. The other two postulated dimensions are internally oriented (Assimilation and Affective Style): the individual is capable of selecting

¹⁶F. Lazarfield, Mathematical Thinking in the Social Sciences (Glencoe, Ill.: Free Press, 1954).

from the environment
fulfilling with regard
a full awareness and
emotional feelings.

The following
study as designating
capacity of function

I. Inner Directed

A. Affective State

feelings, the

1. Having a

2. Wide range

3. Ownership

4. Approach

5. Distress

B. Assimilation

goals that will

1. Capacity

2. Realistic

attainment

3. Flexibility

4. Satisfaction

5. Behavior

II. Outer Directed

A. Accommodation

of adapting on

from the environment those things that are personally gratifying and fulfilling with regard to his/her own needs; and the individual has a full awareness and/or access to the depth and breadth of his emotional feelings.

The following is a list of research postulates used in this study as designating the characteristics of a person who has the capacity of functioning at a high level of General Adaptive Capacity:

I. Inner Directed

- A. Affective Style. The ability to experience a full range of feelings, thoughts, and reactions.
 1. Having a sense of one's limits
 2. Wide range of feelings
 3. Ownership of behavior and feelings
 4. Approaches anxiety
 5. Distress (anxiety) is maintained within manageable limits
- B. Assimilation. The ability to choose selectively external goals that will satisfy internal needs.
 1. Capacity to formulate ends and implement them
 2. Realistic self-ideals with regard to aspirations and attainments
 3. Flexibility with regard to response-choices
 4. Satisfaction of internal emotional needs
 5. Behavior is successful

II. Outer Directed

- A. Accommodation. The ability to assess the appropriateness of adapting oneself to the external environment based on

the value,

goal.

1. Capacity

2. Satisfac

3. Accurat

4. Capacity

perceiv

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5. Behavior

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2. Satisfaction of external requirements
3. Accurate perception of reality
4. Capacity to maintain a self-image as adequate to the perceived requirements of a new situation or in facing a new problem
5. Behavior is situation appropriate

B. Environmental Mastery. The ability to experience challenges and novelty in the environment.

1. Orientation toward experiences
2. Emotional reactions are situation defined
3. Attack of problems which possess the quality of being beyond one's current level of attainment
4. Regard for new experiences as exciting and rewarding

The Hypotheses

The assumption with which this study is concerned is that on the criterion of General Adaptive Capacity, high and low functioning individuals will relate differently to the environment and manifest unique personality characteristics. It is assumed that an instrument can be devised to measure the General Adaptive Capacity of an individual to the environment. It is further assumed that psychologically meaningful constructs can be translated into items which will form an objective measure of General Adaptive Capacity. Those items with

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sufficient power to discriminate between high and low levels of functioning on the criterion will be factor analyzed.

Statement of the Research Hypotheses

1. Cross-validation of a scale designed to measure General Adaptive Capacity will produce items which discriminate between the high and low levels of functioning of individuals on the criterion of General Adaptive Capacity.
2. A factor analysis of the discriminating items will indicate those which define the major theoretical dimensions of accommodation and assimilation to the environment, affective style, and environmental mastery.

Definition of Terms

Mental Health: Refers to a relatively enduring state wherein the person is well adjusted, has a zest for living, and is attaining self-actualization. "It is a positive state, and not merely the absence of mental illness." Positive mental health is a synonymous term.¹⁷

Self-Actualization: "The processes of developing one's capacities and talents, of understanding and accepting oneself; of harmonizing or integrating one's motives; or the state resulting from these processes."¹⁸

¹⁷Horace English and Eva English, A Comprehensive Dictionary of Psychological and Psychoanalytic Terms (New York: David McKay Co., Inc., 1972), p. 318.

¹⁸Ibid., p. 485.

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¹⁹Ibid., p.

²⁰Ibid., p.

²¹Ibid., p.
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1968), p. 45.

²²Ibid., p.

²³English a

Supernormal: "Exceeding greatly the average or the normal, yet believed to be consistent with natural law."¹⁹

Theory: A general principle supported by data. Theory is more solidly supported by evidence than is a construct.²⁰

Construct: "A property ascribed to at least two objects as a result of scientific observation and comparison; a concept, formally proposed with definition and limits explicitly related to empirical data." A construct is a planfully designed model. According to Rychlak a construct is used for theoretical speculation.²¹

Model: A patterned structure or stylized means of conceptualization which the theoretician uses to order his/her thinking, or to bring it into agreement with an existing line of thought. A model is used to facilitate the generation of ideas or hypotheses. Formulation is a synonymous term.²²

Dimension: "Any characteristic by which an object or event can be positioned in a quantitative series." Attribute, trait and characteristic are essentially synonymous terms, but dimension is a broader concept.²³

¹⁹Ibid., p. 536.

²⁰Ibid., p. 551.

²¹Ibid., p. 116; and Joseph F. Rychlak, A Philosophy of Science for Personality Theory (Boston: Houghton-Mifflin Company, 1968), p. 45.

²²Ibid., p. 57.

²³English and English, op. cit., p. 153.

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Trait: "Any enduring or persisting character or characteristic of a person by means of which he can be distinguished from another. Inferred personality tendencies or dispositions." Characteristic and attribute are synonymous terms.²⁴

Levels of Functioning: The rating of a person's adaptive capacity. Thus, a "high" level of functioning represents competence in responding or processing information on a particular dimension of adaptive capacity. A "low" level of functioning represents confusion or difficulty in responding on a particular dimension.

Organization of the Study

The over-all plan of the dissertation is as follows: In Chapter II, a review of the research related to this investigation is presented. In Chapter III, the underlying theoretical concepts of the present investigation and the four postulated dimensions of General Adaptive Capacity are outlined. A discussion of the general design of the study, together with consideration of instrumentation, item discrimination and selection, and sample selection is presented in Chapter IV. Analytic procedures used in the multivariate analysis of variance and the factor analysis method are also presented in that chapter. The interpretation and discussion of the analysis of variance and the factors are examined in Chapter V. The summary and recommendations for further research are presented in Chapter VI.

²⁴Ibid., p. 560.

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CHAPTER II

REVIEW OF THE LITERATURE

Overview

Chapter II is divided into six major sections reviewing the scope of mental health research and research studies of adaptive functioning.

An historical perspective on mental health research is presented in section one. Particular emphasis is placed on research of adaptive capacity.

In the second section, various definitions of adaptation and the terms associated with adaptive capacity are reviewed. Also, in this section the relationship between adaptation as it is defined in this study, and other terminology commonly associated with adaptive capacity is delineated.

Four proposed theories of adaptation are reviewed in section three. Two of the proposals are based on empirical research; the other two proposals are drawn from existing theories of personality. The relationship between the four proposals and the theory of adaptive capacity used in this study is also presented.

In sections four and five, a review of seven studies of mental health is presented. The results of four global studies of normality are reviewed in section four. In section five, three studies that found various adaptive styles among normal subjects

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are reviewed. The results from the studies reviewed in sections four and five are related to the four dimensions of adaptive capacity outlined in Chapter III.

In section six, two theories of adaptive functioning based on psychoanalytic theory are presented. Results from two studies based on these theories of adaptive functioning are reviewed. Finally, the results of these two studies are related to the theory of adaptive capacity as it is defined in this study.

Historical Perspective

According to Offer,¹ one of the major problems that has plagued investigators in the behavioral sciences has been the difficulty of making successful predictions about long-term future behavior of an individual. Current research endeavors in the behavioral sciences have, therefore, tended to identify clusters of traits and behavior which describe the variety of healthy or normal populations. In this endeavor adaptive functioning has become regarded as an aspect of mental health.

Until recently, it was assumed that the route to studying adaptive functioning was through the study of deviancy, either

¹Daniel Offer and Melvin Sabshin, Normality: Theoretical and Clinical Concepts of Mental Health (New York: Basic Books, 1974), pp. 164-165.

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⁴Roy R. Grink
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⁵George E. V
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pp. 107-118.

psychopathology² or stressful situations.³ Grinker⁴ and Vaillant⁵ regarded adaptive functioning as synonymous with the defenses used by the individual in relationship with the environment. They assumed that the "healthier" the individual's defenses the better his/her adaptive abilities.

Thus, to many investigators the term adaptation implied that there was something negative to which one had to attend. This view of adaptation was similar to the psychoanalytic theory of defense mechanisms. Defenses were erected to protect the person against internal and external threats. From this perspective the best way to study adaptation was by observing populations which were experiencing stressful reactions in highly conflicted situations.

However, individuals cope with stress in a variety of ways rather than a uniform pattern of response specificity as suggested

²M. Jones, The Therapeutic Community: A New Treatment Method in Psychiatry (New York: Basic Books, 1952).

³D. A. Hamburg and J. E. Adams, "A Perspective on Coping Behavior," A.M.A. Archives of General Psychiatry, 17 (1967), pp. 277-284; Roy Grinker and J. Spiegel, Men Under Stress (Philadelphia: Blakiston), 1948; R. S. Lazarus, et al., "The Psychology of Coping: Issues of Research and Assessment." In G. V. Coelho, D. A. Hamburg, and J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 249-315; I. L. Janis, "Vigilance and Decision Making in Personal Crises." In G. V. Coelho, D. A. Hamburg, and J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 139-175.

⁴Roy R. Grinker, Sr., et al., "A Study of 'Mentally Healthy' Young Males (Homoclitites)," A.M.A. Archives of General Psychiatry, 6 (1964), pp. 405-451.

⁵George E. Vaillant, "Theoretical Hierarchy of Adaptive Ego Mechanisms," A.M.A. Archives of General Psychiatry, 24 (Feb., 1971), pp. 107-118.

by defense mechanism theory. Thus, what causes one person to be unable to cope at a particular time does not necessarily cause the same response to the same situation at a different time. A knowledge of the individual's background reveals what defense mechanisms an individual chooses to combat a particular stress. However, behavioral scientists⁶ have only achieved limited success in the past in predicting who would cope successfully under stressful conditions based solely on knowledge of defense mechanisms.

Hamburg and Adams⁷ raised the question that the range of adaptive responses could be much broader than defense mechanism theory suggested. In recent years behavioral scientists have become increasingly interested in this question. An interest in expanding defense mechanism theory to include a broader range of adaptive responses has been reflected in the work of Vaillant and Kroeber.⁸

Some investigators (e.g., Heath, 1965, 1968; and Offer, 1975)⁹ have viewed adaptation in terms of the fit between person and environment. Adaptation was regarded as the relationship between the stability of the individual's self-structure and the individual's

⁶D. Offer and M. Sabshin, op. cit., 1974.

⁷Hamburg and Adams, op. cit., 1967, pp. 277-278.

⁸Vaillant, op. cit., 1971; Theodore C. Kroeber, "The Coping Functions of the Ego Mechanisms." In Robert W. White (Ed.), The Study of Lives (New York: Atherton Press, 1963), pp. 178-198.

⁹Donald H. Heath, Explorations of Maturity (New York: Appleton-Century-Crofts, 1965); D. H. Heath, Growing Up in College (San Francisco: Jossey-Bass, Inc., 1968); Daniel Offer and Judith Offer, From Teenage to Young Manhood: A Psychological Study (New York: Basic Books, 1975).

ability to meet environmental expectations. This view of adaptation has been criticized as not emphasizing the individual's cognitive skills and capabilities in meeting environmental demands.¹⁰

In a recent publication which resulted from a conference on coping and adaptation, Hamburg, Coelho, and Adams¹¹ emphasized the need to know more about the range of strategies employed in the general population for meeting stressful situations. They were concerned with the observation of adaptive behavior by non-patients from a developmental point of view. They also stressed the need to develop assessment techniques which reliably define the variables of adaptive functioning.

Definitions of Adaptation

An investigation into the dimensions of adaptive capacity requires a clear distinction between adaptation and the various terms associated with it. Some investigators have used terms such as adjustment (e.g., King, 1973; and Glover, 1956),¹² or mental health (e.g., Grinker, 1962)¹³ as synonymous to adaptation. Other

¹⁰David Mechanic, "Social Structure and Personal Adaptation: Some Neglected Dimensions." In G. V. Coelho, D. A. Hamburg, and J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 32-44.

¹¹David A. Hamburg, et al., "Coping and Adaptation: Steps Toward a Synthesis of Biological and Social Perspectives." In G. V. Coelho, D. A. Hamburg, J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 403-440.

¹²S. H. King, Five Lives at Harvard: Personality Change During College (Cambridge: Harvard Univ. Press, 1973); E. Glover, "Medico-Psychological Aspects of Normality." In Edward Glover (Ed.), On the Early Development of Mind (New York: International Universities Press, 1956), pp. 235-251.

¹³Roy R. Grinker, et al., "A Study of 'Mentally Healthy' Young Males (Homoclitcs)," A.M.A. Archives of General Psychiatry, 6 (1962), pp. 405-451.

investigators have used coping (e.g., L. Murphy, 1976; Moriarty and Toussieng, 1975; Hamburg and Adams, 1967; and Lazarus, et al., 1974);¹⁴ Mastery (Sibler, et al., 1962, Hamburg and Adams, 1967)¹⁵ and Defense (Glover, 1956; and Grinker, 1962)¹⁶ as either synonymous to adaptation or as a part of adaptive capacity. Thus, some clarification in terminology needed to be made before an investigation of General Adaptive Capacity could proceed.

Adjustment

According to many researchers (e.g., King, 1973; Offer, 1975; and Heath, 1965),¹⁷ the concept of adjustment has been a much narrower term than adaptation. Adjustment defined the individual's efforts to meet environmental expectations. Little or no emphasis was placed on the individual's efforts to alter the environment to fit the individual's characteristics. White¹⁸ characterized the broader definition of adaptation by stating, "adaptation does not mean either a total triumph over the environment or total surrender

¹⁴Lois Murphy and Alice Moriarty, Vulnerability, Coping, and Growth: from Infancy to Adolescence (New Haven: Yale University Press, 1976); Alice Moriarty and Povl W. Toussieng, "Adolescence in a Time of Transition," Bulletin of the Menninger Clinic, 39 (September, 1975), pp. 391-408; Hamburg and Adams, op. cit., 1967; Lazarus, et al., op. cit., 1974.

¹⁵Earle Silber, et al., "Competent Adolescents Coping with College Decision," A.M.A. Archives of General Psychiatry, 5 (1961), pp. 517-528; Hamburg and Adams, op. cit., 1967.

¹⁶E. Glover, op. cit., 1956; R. Grinker, op. cit., 1962.

¹⁷S. H. King, op. cit., 1973; Offer and Offer, op. cit., 1975; D. H. Heath, op. cit., 1965.

¹⁸R. W. White, "Strategies of Adaptation," Coping and Adaptation, ed. by G. V. Coelho, D. A. Hamburg and J. E. Adams (New York: Basic Books, 1974), pp. 47-69.

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to it, but rather a striving toward acceptable compromise. Adaptation is something that is done by living systems in interaction with their environments." Thus, King¹⁹ offered the following definition of adaptation that included both the individual's adjustment to the environment and the individual's efforts to alter the environment to fit his/her own needs: "Adaptation is a process, a dynamic feedback between organism and environment, wherein both organism and environment may be transformed or changed. The end or steady state toward which the ego strives in this process is gratification and pleasure." Similarly, Heath²⁰ defined adaptation as ". . . to so regulate behavior as to optimize simultaneously both the stability of the self structures and the accommodation to environmental requirements."

Thus, adjustment has been used as a narrower concept than adaptation when referring to the individual's efforts to meet environmental expectations. The broader concept, adaptation, has referred to both the individual's efforts to meet environmental expectations and to the individual's efforts to satisfy his/her own needs.

Mental Health

Typically mental health has been a broader concept than adaptation. Thus, Offer²¹ regarded mental health as a total configuration of an individual's life experience and satisfaction

¹⁹S. H. King, op. cit., 1973, p. 23.

²⁰D. H. Heath, op. cit., 1965, p. 37.

²¹Offer and Offer, op. cit., 1975.

with those experiences. He referred to adaptation as the individual's style of relating to the environment. Similarly, Vaillant²² suggested that adaptive capacity is one measure of mental health. He regarded mental health as a broader concept that includes such variables as intelligence, career and marital adjustment, physical health, and the quality of interpersonal relationships as well as adaptive capacity.

Defense

In psychoanalytic theory²³ the function of defense mechanisms has been to mediate between the id and superego, and to protect the individual from internal and external threat. Ego psychologists²⁴ have confined defenses to instances of adaptation in which a present danger was of central importance. Kroeber²⁵ differentiated between psychoanalytic defense mechanisms and what he called coping mechanisms. The distinction being that the former represented neurotic functioning and the latter represented healthy functioning. Thus, defense mechanisms have been adaptive processes that failed to maintain a balance between the individual to self and the environment. Vaillant²⁶ made a similar distinction between the various psychoanalytic ego

²²G. E. Vaillant, op. cit., 1971.

²³Anna Freud, The Ego Mechanisms of Defense (London: Hogarth Press, 1937).

²⁴R. W. White, op. cit., 1974.

²⁵Theodore C. Kroeber, op. cit., 1963.

²⁶G. E. Vaillant, op. cit., 1971.

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²⁸Robert W. White, "Competence," Psychology

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mechanisms. He regarded defense mechanisms as maladaptive and coping mechanisms as adaptive.

Mastery

Traditionally the concept of mastery has been used in a limitless sense to describe a variety of areas of human functioning. White²⁷ suggested that mastery be used in a limited sense confining it to problems having a certain cognitive or manipulative complexity. Thus, White's²⁸ concept of "Effectance Motivation" has been a synonymous term. Similarly, the concept of "Environmental Mastery" as defined in this study (see Chapter III) was consistent with White's limited definition of mastery.

Coping

Moriarty and Toussieng²⁹ defined coping similar to the definition of adaptation in this study. "Coping . . . emphasizes internal balance and lacks the aspects of concession implied by the term 'adjustment.' Coping, furthermore, implies realistic perception and awareness with a minimum of ideological restrictions and, hence, distortion. Depending on the limitations placed on individuals by inner realities, coping efforts will allow persons to deal appropriately with reality situations without cutting corners or making concessions. This development is possible because

²⁷R. W. White, op. cit., 1974.

²⁸Robert W. White, "Motivation Reconsidered: The Concept of Competence," Psychological Review, 66 (1959), pp. 297-333.

²⁹Moriarty and Toussieng, op. cit., 1975, pp. 395-396.

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³⁰R. W. White

³¹Hamburg and

³²Lazarus, et al.

reality is no longer seen as the enemy, but as a given, a part of the total picture. . . ."

However, coping has typically been used in a limited way to describe responses to unusual or unexpected circumstances. White³⁰ regarded coping as a drastic change within the life of an individual that was inconsistent with familiar ways of behaving. Hamburg and Adams³¹ defined coping as ". . . seeking and utilizing of information under stressful conditions." Similarly, Lazarus³² defined coping as ". . . problem solving efforts made by an individual when the demands he faces have potential outcome of a high degree of relevance for his welfare (i.e., a situation of great jeopardy or promise) and particularly when these demands tax heavily his adaptive resources." Thus, coping has referred to adaptation under difficult situations. Coping styles have referred to an individual's response to stressful situations.

In summary, adjustment has been a narrower concept than adaptation; referring to the individual's efforts to meet environmental requirements. Adaptation has been defined as having two broad components. First, the individual's flexibility in meeting environmental requirements. Second, one's gratification of internal needs. Mental health has been conceived of as a broader concept than adaptation with many variables. Adaptive capacity has been one of

³⁰R. W. White, op. cit., 1974.

³¹Hamburg and Adams, op. cit., 1967, p. 280.

³²Lazarus, et al., op. cit., 1974, pp. 250-251.

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these variables. Finally, the concepts of defense, mastery, and coping have been placed under the more general category of strategies of adaptation.

Theories of Adaptive Capacity

A number of researchers (e.g., Grinker, 1962; Heath, 1965 and 1968; and Offer, 1975)³³ have regarded adaptive capacity as a major variable in the concept of mental health. However, they have failed to delineate the dimensions of this variable. Some investigators (e.g., King, 1973; and L. Murphy, 1976)³⁴ have formulated a theory of adaptive functioning based on longitudinal studies of normal populations. Other researchers (e.g., White, 1974; and Mechanic, 1974)³⁵ have offered a theory of adaptive functioning based on clinical experience and an expansion of existing theories of personality. There has been general agreement among these various researchers that any theory of adaptive capacity must contain at least two components. First, such a theory must allow for the individual's growth and satisfaction of internal needs. Second, a theory of adaptive capacity must provide for the individual's reacting to environmental demands.

In a longitudinal study of Harvard students, King³⁶ concluded that adaptive functioning contains two broad components.

³³R. R. Grinker, op. cit., 1962; D. H. Heath, op. cit., 1965 and 1968; Offer and Offer, op. cit., 1975.

³⁴S. H. King, op. cit., 1973; Murphy and Moriarty, op. cit., 1976.

³⁵R. W. White, op. cit., 1974; D. Mechanic, op. cit., 1974.

³⁶S. H. King, op. cit., 1973, p. 24.

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King labeled the first component efficiency. He regarded this component as an internal and autoplasic factor directed toward the self. The individual who can balance various internal factors (feelings, goals, values, self-concept) without using excessive energy to control guilt and anxiety or resolve internal conflicts, is freer to select alternative ways of dealing with the environment.

The second component, effectiveness, described the degree to which the individual was able to react and adjust to various environmental demands. King regarded this as an external and alloplastic component, directed toward the environment. Effectiveness involved the individual's capacity to meet environmental demands as well as altering the environment to satisfy internal needs without disrupting or causing excessive conflict in the environment.

King³⁷ concluded his discussion of adaptation by stating ". . . adaptation is an interaction process, . . . behavior can be efficient as far as an individual is concerned but ineffective from a social point of view. Thus, a person might be disruptive of group activity or, in contrast, might not become involved or might even withdraw from social activity, yet have little internal tension and considerable stability. The converse can also be true; effective social behavior may occur at the cost of great inner pain and conflict. The most adaptive behavior is both effective and efficient."

L. Murphy³⁸ formulated two global variables related to adaptive capacity in a longitudinal study of young children. The

³⁷Ibid.

³⁸Murphy and Moriarty, op. cit., 1976, pp. 116-122.

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³⁹ Ibid., p.

variables were labeled Coping I and Coping II. Data from observations and psychological tests collected on her subjects over a three year period were correlated with the two global variables. The data that was significantly correlated ($P < .05-.01$) with her two global variables were reported as identifying specific characteristics of adaptive functioning.

Murphy³⁹ defined Coping I as the ". . . capacity to cope with opportunities, challenges, frustrations, threats in the environment." Specific items that correlated highly with Coping I for the best coping girls in Murphy's study were: motor coordination, purposefulness of movements, interest in mastering space, eagerly explores environment in new situations, speed or tempo, and energy level. Items correlating highly with Coping I for the best coping boys were: ability to balance gratification and frustration, clarity of distinction between reality and fantasy, ability to balance gratification and frustration, pleasure in tactile experience, and depth of affect.

Murphy concluded that flexibility of response to the environment was a major factor under Coping I for all her subjects. The best coping boys were able to allow themselves "feminine" qualities without endangering their masculinity. The best coping girls could enjoy their "masculine" qualities in addition to their feminine characteristics.

Coping II was defined in Murphy's study as the capacity to maintain internal integration and equilibrium. The items that

³⁹Ibid., p. 117.

correlated highly with the best coping subjects on this variable were: low impulsiveness, tolerance of negative feelings, freedom from doubt and ambivalence, ability to control external stimulation, high threshold for frustration, tolerance for frustration, competence, task involvement, and liking of self. No distinction was made between boys and girls on the items of this variable.

Mechanic⁴⁰ proposed a theory of adaptive capacity from a social psychological point of view. He suggested that adaptation be viewed as a ". . . relationship between external physical and social demands on the person and his resources to deal with these." Traditionally adaptation has been viewed as one's self-perception in relation to the environment. Mechanic's proposal emphasized the individual's skills in being able to deal with environmental demands.

Mechanic's proposal had three components. First, the person must have the capabilities and skills to deal with the social and environmental demands to which one is exposed. Mechanic referred to these skills as coping capabilities. Coping capabilities involved the ability to react to environmental demands, and to influence and control the demands to which one is exposed. Second, individuals must be motivated to meet the demands that become evident in their environment. One could escape the anxiety of responding to environmental demands by lowering motivation and aspirations. However, this response has had negative consequences for the individual's growth.

⁴⁰D. Mechanic, op. cit., 1974, p. 33.

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⁴¹ R. W. White

Third, individuals must maintain a state of psychological equilibrium. This component emphasized the importance of an unconflicted internal organization. Thus, energies and skills could be directed to meeting external needs rather than resolving internal conflicts.

White⁴¹ also proposed a three component theory of adaptive capacity. His formulation emphasized the individual's cognitive abilities, response to affect, and flexibility of movement.

White labeled his first component information. Individuals must be able to secure accurate information from the environment. Further, the amount of information one has had about the environment serves as a guide to action. Thus, adaptive behavior has required both accurate information and the right amount of information. The second component was the individual's ability to maintain satisfactory internal conditions such as controlling unpleasant affects. White labeled this component internal organization. The control of anxiety to maintain and enhance the individual's internal organization was central to this component. Finally, White suggested that autonomy was a major component of adaptive behavior. The individual must maintain a freedom of movement in order to process environmental information, and to respond in ways consistent with self-perception.

Thus, four theories of adaptive capacity has been proposed. All four emphasized the importance of the fit between environmental expectations and self-perception. They also stressed the importance of the individual's ability to maintain an internal equilibrium free

⁴¹R. W. White, op. cit., 1974.

from internal conflict. White, and, particularly, Murphy's formulations stressed the individual's response to anxiety and affective style as being a major component of adaptive capacity. Finally, Mechanic and, to some extent, White's formulations stressed the individual's skill and capability in mastering tasks proposed by the environment.

In Chapter III of this study a four dimensional theory of adaptive capacity was proposed. The first dimension, Affective Style, attended to the individual's awareness and acceptance of feelings, and the individual's response and management of anxiety. Assimilation, the second dimension, delineated five aspects of the individual's self-structure as they relate to adaptive capacity. Accommodation and Environmental Mastery attended to the individual's perception and response to environmental expectations, and one's skill in responding to the environment. In Tables 2.1 and 2.2 the relationship between the four dimensions of adaptive capacity used in this study and the four theories of adaptation reviewed in this section is illustrated.

Global Studies of Normality

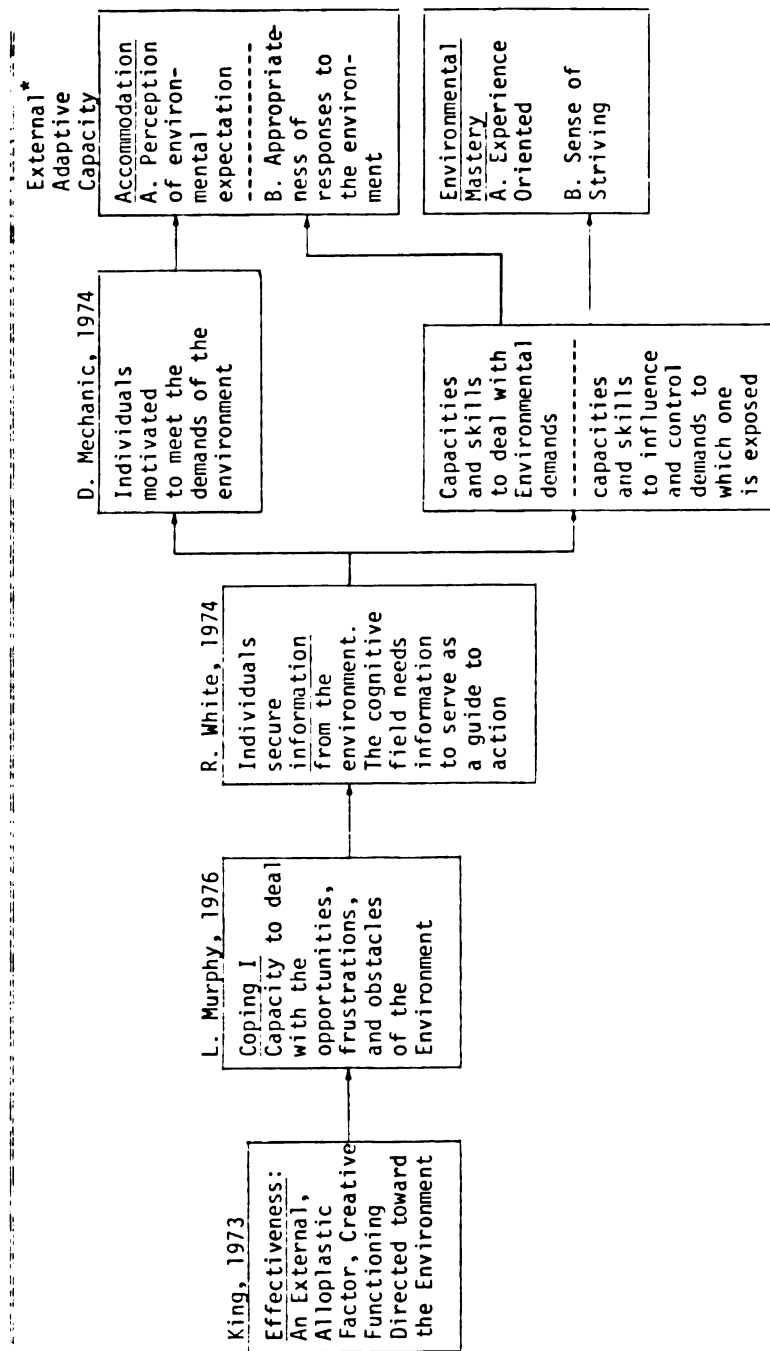
In a review of studies of normality Bonney⁴² suggested that the results reveal some conflicting and contradictory characteristics that are present in well integrated, high functioning people. Bonney suggested that this apparent contradiction arises

⁴²Merl E. Bonney, The Normal Personality (Berkeley, Calif.: McCutchan Publishing Corporation, 1969).

TABLE 2.1.--Relationship Between the External Dimensions of General Adaptive Capacity and Proposed Theories of Adaptation.

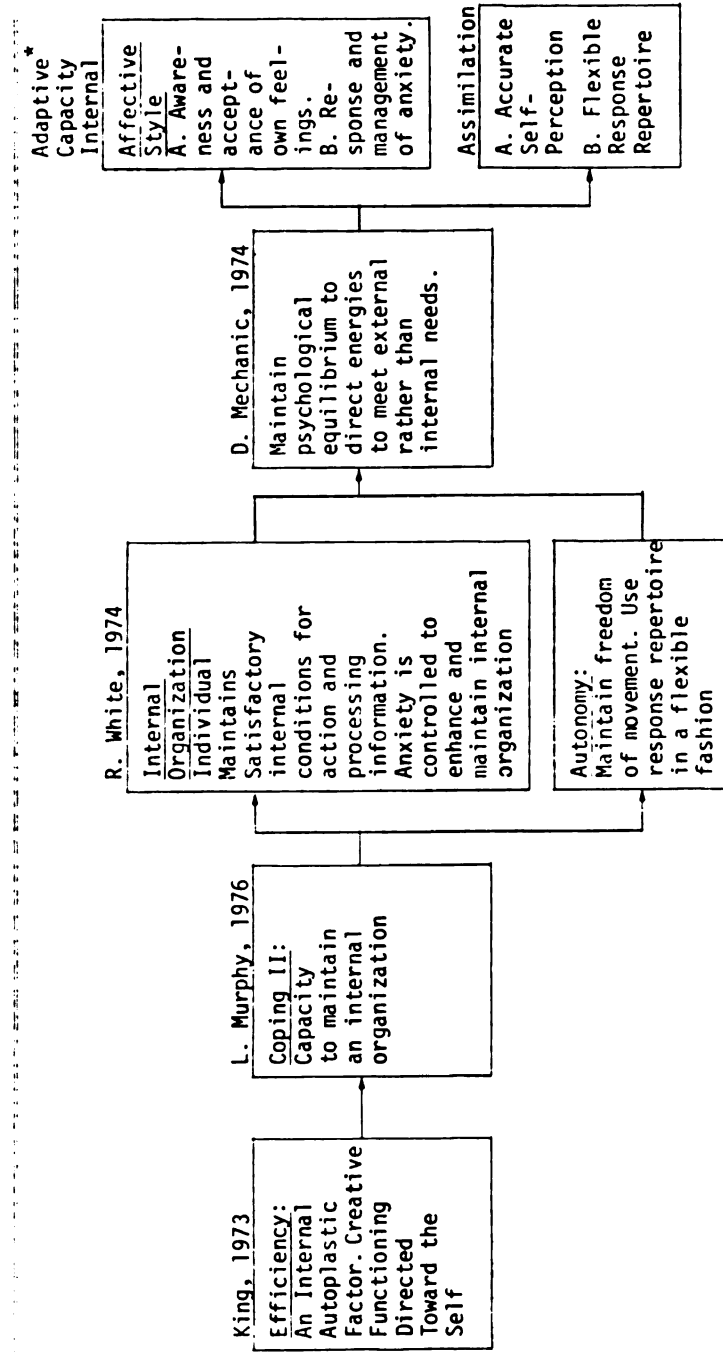
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TABLE 2.1.--Relationship Between the External Dimensions of General Adaptive Capacity and Proposed Theories of Adaptation.



*Proposed constructs for the present investigation.

TABLE 2.2.--Relationship Between the Internal Dimensions of General Adaptive Capacity and Proposed Theories of Adaptation.



* Proposed constructs for the present investigation.

as a result of high functioning people being more responsive to their environment. In the studies reviewed several conflicting characteristics were found to be present in the high functioning people that were absent in the less well integrated individuals such as:

High functioning individuals were motivated to achieve individual excellence and at the same time had a desire to help people.

High functioning individuals had a need to influence others, but also possessed a willingness to be strongly influenced by others.

High functioning individuals possessed the desire to take a leadership role but were also able to accept the role of a follower.

High functioning individuals expressed a desire to learn from others, but also perceive themselves as being able to teach.

High functioning individuals were capable of being spontaneous and expressive of their feelings as well as being able to exercise impulse control.

Bonney⁴³ explained these conflicting characteristics by suggesting that high functioning people were strongly motivated to induce some changes in others as well as possessing sufficient mental and emotional flexibility to be influenced by others. They have managed to achieve a relatively high degree of integration between their own needs and the needs of others. Thus, what appeared to be contradictory characteristics were actually mutually supporting.

The interdependent nature of these characteristics has been supported by other studies. In a study of 72 students at the

⁴³Ibid., pp. 81-82.

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44. R. D. Norman
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pp. 205-235.

45. Lois Murphy
Exploratory Study of
University Press, 1937.

46. E. P. Hollander
Oxford University Press

University of Michigan, Norman⁴⁴ found a high positive correlation between the accuracy of his subjects self insight and their perception of others. In another study, Murphy⁴⁵ studied the nature of social interaction among school children. She found a positive correlation (.40) between scores on aggressive and sympathetic behaviors. Aggressive scores were based on frequency of conflicts with other children. Sympathetic scores were based on observations of such responses as comforting someone who was hurt, and showing warmth and resourcefulness in aiding others out of difficulties.

Hollander⁴⁶ conducted a study on aviation cadets in preflight training. The cadets were asked to nominate men in their unit whom they considered most and least qualified to act as leaders. The results showed a positive correlation (.92) between the scores the men received as most qualified leader and as preferred group member. Thus, those who were desired as leaders were also preferred group members.

It is an assumption of this study that if these apparently contradictory characteristics were examined, that they would divide themselves along the four dimensions of adaptive capacity outlined in Chapter III. Thus, an individual may be introspective and have

⁴⁴R. D. Norman "The Interrelationships Among Acceptance-Rejection, Self-Other Identity, Insight into Self, and Realistic Perception of Others," Journal of Social Psychology, 37 (1953), pp. 205-235.

⁴⁵Lois Murphy, Social Behavior and Child Personality: An Exploratory Study of Some Roots of Sympathy (New York: Columbia University Press, 1937).

⁴⁶E. P. Hollander, Leaders, Groups, and Influence (New York: Oxford University Press, 1964).

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a well developed internal life, but could be egocentric and unable to relate to the environment. Another individual may be allocentric and active in interacting with his/her environment, but this style could be developed at the expense of his/her internal life. This assumption has been somewhat supported by the research of Grinker⁴⁷ and Golden⁴⁸ in their separate studies of normal adolescents. Both these investigators concluded that their subjects had an accurate perception of reality, tended to be good problem solvers, and were action oriented, but these characteristics were developed at the expense of spontaneity, and an active fantasy life. The emotionality of their subjects was also restricted.

This assumption is given additional support by the studies of patterns of adolescent growth by King; Offer; and Moriarty and Tousseing.⁴⁹ The various patterns of growth outlined by these investigators were distinguished along the dimensions of the degree of egocentricism vs allocentricism, and the degree of introspection vs an action orientation of their subjects. The high functioning, well integrated individual, in all of these studies (the Continuous Growth group in Offer's study; the Progressive Maturation group in King's study; and the Sensors in Moriarty and Tousseing study) tended to have "appropriate" degrees of all four dimensions.

⁴⁷R. R. Grinker, op. cit., 1962.

⁴⁸J. Golden, et al., "A Summary Description of Fifty 'Normal' White Males," American Journal of Psychiatry, 119 (1962), pp. 48-56.

⁴⁹S. H. King, op. cit., 1973; Offer and Offer, op. cit., 1975; Moriarity and Toussieng, op. cit., 1975.

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In this section, four studies of normality⁵⁰ are reviewed. The first two studies reported results that suggest normality is achieved at the expense of a rich affective life. The Heath study presented evidence that suggests constricted emotionality need not be the cost of normality. The results from the Silber investigation were supportive of the conclusions in the Heath study. In addition, Silber identified characteristics in his competent adolescents that were consistent with the Environmental Mastery dimension of this study. The following section reviewed three additional studies of normality. The results from these studies identified various adaptive styles among normal subjects.

Golden Study

Golden⁵¹ was interested in selecting a "normal" reference group for the study of psychiatric patients. He selected fifty male subjects for his reference group. The subjects were drawn from a larger sample of adolescents previously selected by Monachesi and Hathaway in an unpublished study of delinquency at the University of Minnesota. The selection of Golden's subjects was based on an absence of pathology as indicated by MMPI scores. Subjects with no score above 55 on their MMPI profile were selected.

Results from the study were based on an unstructured psychiatric interview, psychological testing (MMPI and Mandel Social Adjustment

⁵⁰R. R. Grinker, op. cit., 1962; Golden, et al., op. cit., 1962; D. H. Heath, op. cit., 1965; Silber, et al., op. cit., 1961.

⁵¹J. Golden, et al., op. cit., 1962.

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⁵²Ibid., p.

⁵³Ibid., p.

⁵⁴N. B. Eps
1962, pp. 55-56.

Scale), and the psychiatric history of each subject. Golden was interested in appraising the current mental status, adjustment, and aspirations of his subjects.

Golden⁵² found that 23 (46%) of his subjects were ". . . remarkably stable, dependable, responsible and supportive individuals" with regard to their environmental adaptation and interpersonal relationships. They showed an absence of psychopathological symptoms in need of psychiatric treatment.

Golden characterized his subjects as being content with their lives. Their major focus of interest was on their homes and families. They indicated limited educational and vocational aspirations for themselves and their children. They were found to have little imagination, and limited interests and social activities.

Golden⁵³ concluded his data suggests that normality ". . . as evidenced by a lack of intrapsychic tension; adequate social, economic and familial adaptation; and harmonious integration with other individuals at all levels, necessarily implies a lack of creativity, imagination and spontaneity."

Epstein⁵⁴ in a discussion of the Golden study, suggested that the MMPI is not a valid instrument to measure "normality" or "emotional health." He further suggested that the equation of adjustment to mental health is questionable. In addition, Golden

⁵²Ibid., p. 53.

⁵³Ibid., p. 54.

⁵⁴N. B. Epstein, "Discussion," In J. Golden, et al., op. cit., 1962, pp. 55-56.

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suggested that his subjects were "well adapted." However, he failed to define this term. The adaptational style of his subjects was achieved at the expense of creativity, imagination, and spontaneity. It is an assumption of this study that Golden's subjects represent a limited style of adaptive capacity. It is an additional assumption of this study that mental health is a multi-dimensional concept not sufficiently explained by the absence of pathological symptoms.

Grinker Study

The results of Golden's study were supported by Grinker's⁵⁵ two part investigation of mentally healthy college students ("Homoclitites"). In the first part of Grinker's investigation, he was interested in identifying a group of normal subjects to study their response to physical and psychological stress. He selected 65 male subjects based on their response to a variety of psychological tests (Taylor's Manifest Anxiety Scale, Mandler's Perception of Feeling, Barron's Ego Strength Scale, and Nowlis' Adjective Check List). Only those subjects who scored within the healthy range on the instruments were selected for study.

The results from this part of the study were based on structured and unstructured interviews with each subject. Results from the interviews were significantly correlated with the psychological tests used to select the subjects. However, Grinker did not

⁵⁵Roy R. Grinker, Sr., "A Dynamic Study of the Homoclitite." In Jules Masserman (Ed.), Science and Psychoanalysis (New York: Grune and Stratton, 1963), Vol. 6, pp. 115-134; R. R. Grinker, et al., op. cit., 1962; R. R. Grinker and Werble, op. cit., 1974.

report confidence levels or statistical procedures. Grinker evaluated his subjects on fifteen variables based on their physical health, socioeconomic and developmental background, interpersonal relations, emotionality, and current level of functioning. Only those variables relevant to this study were reviewed.

Impulsivity: Most of Grinker's subjects (88%) demonstrated control over their impulses. They were not rebellious nor did they display antisocial behavior.

Communication with Self: Grinker rated his subjects as low on this trait. They tended not to be introspective and rarely asked themselves "How do I feel." Their tendency was to divert their attention to physical activity when problems came up. The subjects displayed a poor ability for abstract thinking and rarely did they use fantasy in the service of creativity.

Self-Image: The self evaluation of Grinker's subjects was accurate and honest. They viewed both themselves and reality accurately.

Anxiety: No incidence of chronic anxiety was reported by any subject. The students reported experiencing anxiety prior to taking an examination or before entering a competitive game. The anxiety was dissipated either by the defensive response of isolation or through some physical activity.

Similarly, Grinker's subjects coped with feelings of depression and anger through physical activity or by isolating themselves. Two of the subjects were unhappy most of the time and maintained chronic resentments.

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Coping Mechanisms: Grinker's subjects were not good problem solvers. They avoided looking at problems by doing something physical. Emotional stress was experienced more in the area of performance in school and athletics than in interpersonal problems.

Thus, Grinker characterized his "homoclitcs" as stable and happy. They displayed a lack of intrapsychic tension, adequate adjustment to the environment, and their behavior was goal-directed. However, they were also characterized as having narrow and limited interests, mobility, creativity, and excitement. Grinker⁵⁶ concludes that the cost of the adaptive style of his subjects was a somewhat compulsive and rigid character structure, and a limitation of behavior suitable for a few roles and a limited range of environments.

In the second part of his study, Grinker administered a 700 item questionnaire to 77 male subjects during their freshman year of college. Thirty-four of the students were from his original group of interviewed subjects. Grinker was interested in learning more about his interviewed subjects and comparing them with a non-interviewed sample.

Some global distinctions were found between the interviewed and non-interviewed groups based on their response to the questionnaire. The interviewed group was more verbal and socially oriented than the non-interviewed group. The non-interviewed subjects experienced difficulty with school work, and they exhibited more tension under these circumstances than the interviewed group. The differences were statistically significant ($P < .05-.001$).

⁵⁶R. R. Grinker, op. cit., 1963, pp. 130-131.

Grinker found more specific distinctions between his subjects by dividing them into three groups based on their response to the questionnaire. The three groups were labeled Very Well Adjusted (VWA), Fairly Well Adjusted (FWA), and Marginally Adjusted (MA). Cut off scores for placement in a group was arbitrary and designed to place approximately equal numbers of subjects in each group. Differences between the three groups were calculated on fifteen variables based on responses to the questionnaire. The differences between the VWA group and the MA group were statistically significant ($P < .20-.01$). Only those variables relevant to this study were reviewed.

Self-Image: The VWA group was autonomous and less sensitive about their feelings than the MA group. The VWA group was socially active and described themselves as having many friends. The MA group liked to be left alone and enjoyed solitary activities. The VWA group was more resilient to stress and more sure of themselves in times of crises than the MA group. The MA subjects were dependent on others, but also suspicious and resentful of others. These subjects tended to use fantasy and day dreaming to solve problems.

Emotionality: Anxiety was not experienced as disruptive for the VWA subjects. They could also talk more freely about their feelings than the MA group. The MA group reacted to disapproval and anger by becoming silent and depressed. The VWA subjects were more confident about their emotional adjustment than the MA group.

Goals: The VWA subjects were more achievement and academically oriented than the MA group. The VWA group enjoyed the challenges of

school and were school leaders. They were also more specific about short-range goals than the MA subjects.

Thus, Grinker concluded that his MA subjects want more than the VWA subjects but achieve less. There was a basic incongruity between desire and action, and wish and fulfillment among the MA group. The marginally adjusted subjects were either over controlled or lacked impulse control. By contrast, the VWA subjects were sure of themselves, and the range and limits of their emotionality.

In summary, Grinker concluded that his subjects were generally more alike than different. Particularly his interviewed subjects and the Very Well Adjusted subjects achieved a type of mental health that was limited, but they were well adapted to their environment. However, the type of mental health displayed by his subjects was achieved by a lack of spontaneity and creativity, and limited interests and aspirations. They were also characterized as having stable self-images, as being achievement and goal oriented, and as being able to maintain internal and external anxiety within manageable limits. Heath found similar characteristics among his subjects in a study of maturity. However, Heath's subjects were not characterized as having a constricted emotional life. A factor analysis of Heath's results also identified five interpretable factors. The factors were related to the four dimensional theory of adaptive capacity outlined in Chapter III of this study.

Heath Study

Heath⁵⁷ conducted a cross-sectional study of psychological maturity at Haverford College. He selected for study 48 undergraduate males above the freshman class. He used faculty, administration, and student judges to select his sample. The judges independently selected the twenty-four most mature and the twenty-four least mature students from the student body. The subjects were selected on the basis of a rank ordering of the judges ratings.

Heath⁵⁸ stated that, "The mature or well-organized person is not necessarily the most adjusted person, particularly if such adjustment violates his own needs and self-structure." He defined maturity as ". . . personal, social, and intellectual effectiveness." Immaturity was defined as ". . . ineffective socially, personally, and intellectually."⁵⁹ In addition, he defined adaptation as ". . . to so regulate behavior as to optimize simultaneously both the stability of the self-structure and their accommodation to environmental requirements."⁶⁰ Thus, maturity and adaptive capacity were regarded as synonymous terms in the study.

Heath⁶¹ was interested in answering the following questions: how do the most mature subjects differ from the least mature; what are the characteristics of the mature person; and what are the

⁵⁷D. H. Heath, op. cit., 1965.

⁵⁸Ibid., p. 38.

⁵⁹Ibid., p. 64.

⁶⁰Ibid., p. 37.

⁶¹Ibid., pp. 25-26.

formal properties of the maturity construct? He made the following assumptions in his study: mature people are allocentric as opposed to autocentric; the self-structure of the mature person is well organized; and mature people are autonomous and well integrated. An autocentric person was defined as one who is need dominated and distorts reality to fit one's own needs. An allocentric person was defined as one who internalizes reality and is oriented towards the environment.

Results from this study were based on semi-structured interviews, a self-image questionnaire designed for the study, and psychological tests (Rorschach, TAT, MMPI, and the Bernreuter Personality Inventory). A factor analysis of Heath's statistically significant ($P < .05-.01$) data revealed five interpretable factors.

Factor I: Allocentricism-Autocentricism (12.4% of the variance). The Allocentric pole of this factor was characterized by adaptive responses to the environment. Particular emphasis was placed on adaptive responses to disturbing information. The Autocentric pole was characterized by an incongruent self-image, withdrawal, a tendency toward depression, and poor defense effectiveness. Thus, this factor was related to the dimension of Assimilation defined in Chapter III of this study.

Factor II: Competence-Incompetence (7.3% of the variance). The second factor was characterized by a turning away from internal conflict to an active mastery of the external environment. Persons who scored high on Competence were mature and effective in dealing with the environment, and they were high in verbal and abstract

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reasoning skills. Incompetence was related to a failure to achieve a stable identity, and a failure to participate in social activities. The dimension of Environmental Mastery of this study was related to the second factor of Heath's investigation.

Factor III: Symbolization (internalization) of Experience-Behavioral (externalization) Surgency (6.1% of the variance). The Symbolization of Experience pole of this factor was characterized by intellectualization, self-blaming traits, depression, and fantasized productivity. The Behavioral Surgency pole was characterized by an externalization of one's energy into self-assertive and practical uses of power in the manipulation and direction of others. Thus, factor III was somewhat related to the Accommodation dimension of this study.

Factors IV and V were primarily affectively oriented factors and were related to the Affective Style dimension of this study.

Factor IV: Reflective Control-Affective Instability (6.1% of the variance). This factor was characterized by effective and ineffective control and management of anxiety. Particular emphasis was placed on keeping anxiety from interfering with adaptation.

Factor V: Emotional Receptivity-Intellectual Constriction (4.6% of the variance). Persons high in Emotional Receptivity were sensitive to emotional stimulation and were open to unrefined, primitive impulses. Intellectual Constriction was characterized by inflexible and rigid emotionality.

Heath⁶² criticized his factor analytic procedures as not meeting the required assumptions. He cautioned the reader that his results were not decisive, and his interpretive labels were somewhat arbitrary. However, he concluded that the mature person was not sufficiently explained by a single factor or dimension. He stated that the analysis of his data ". . . has been fruitful for it does suggest that the term 'maturity' is multi-dimensional, (and) that the results cannot be collapsed into one general factor. . . ." He further concluded that the allocentric and competence factors were at least two of the dimensions that comprise the maturity construct.

Specific characteristics were associated with each of Heath's five factors. The characteristics that differentiated the mature (high functioning) sample from the immature (low functioning) sample were statistically significant ($P < .05-.01$).

Allocentric: The mature subjects were oriented toward the external world rather than self-oriented or self-bound. They saw their interests as satisfying their own needs, but these interests were reality centered. By contrast, the self-image of the immature subjects was inaccurate in terms of others perception of them. Similarly, their perception of others was distorted. They described their major concerns as centering around their own insecurities and fears of failure.

Competence: The mature subjects performed better academically than the immature sample. The high rated subjects were the school

⁶²Ibid., pp. 311-314.

leaders and displayed an active involvement in their school experience. They assumed responsibility for things that were personally challenging and found personal satisfaction in being achievement oriented. The low functioning individuals were dependent on others to give direction to their lives. They lacked positive future goals for themselves.

Behavioral Surgency: The immature subjects were more private and less socially oriented than the mature subjects. The low functioning subjects were either compliant to environmental demands or acted out against social norms and values. The mature subjects were competitive and saw environmental demands as challenging, but they viewed these traits as facilitating their own growth.

Reflective Control: The high functioning subjects tended not to be overwhelmed or depressed by internal and external conflicts. They displayed a facility in handling disturbing information that was not characteristic of the immature subjects. The mature subjects could control their impulses or react spontaneously depending on the situation. By contrast, the immature subjects described their own behavior as more erratic, impulsive, and nonsocial.

Emotional Receptivity: Heath described his mature subjects as having an adaptive imagination and being able to regress in service of the ego. They had a free wheeling curiosity about themselves and the world. They enjoyed fantasy, but could distinguish between fantasy and reality. Fantasy and introspection were used to gain a perspective on themselves.

Thus, the characteristics of Heath's high functioning subjects were consistent with the results of Grinker and Golden's studies of mentally healthy subjects. However, Heath's subjects did not achieve their adaptive style at the expense of a rich affective life. Heath also identified five interpretable factors from his data that were consistent with the four dimensional theory of adaptive capacity used in this study. In addition, the characteristics found by Heath to identify his mature subjects was supported by a study by Silber of preselected competent adolescents.

Silber Study

Silber⁶³ conducted a descriptive study of fifteen (6 males and 9 females) high school seniors. He was interested in examining the adaptive behavior of competent adolescents. Specifically, Silber was interested in two questions: what are the developmental tasks confronting adolescents in the transition period between adolescence and adulthood; and how are these tasks attacked?

The subjects selected for study were identified as competent adolescents based on the following criteria: (1) academic work; (2) ability to maintain interpersonal closeness with a peer; and (3) ability to participate in a social group. Subjects were selected who ranked academically in the top half of their class, and who were given the most favorable ratings from eight different teachers. Subjects were rated on their motivation, industry,

⁶³Earle Silber, et al., "Adaptive Behavior in Competent Adolescents," A.M.A. Archives of General Psychiatry, 4 (1961), pp. 354-365; Silber, et al., op. cit., 5 (1961).

initiative, influence and leadership, responsibility, concern for others, and emotional stability. The subjects selected for study were followed from their last year of high school through the first year of college. Results from the study were based on semi-structured psychiatric interviews conducted over the two year period.

Silber identified five specific tasks his subjects needed to accomplish in the transition period between high school and college: (1) separation from parents, siblings and close friends; (2) greater autonomy with regard to making important decisions, assuming responsibility for oneself and regulating one's own behavior; (3) establishing new friendships; (4) pressures (internal and external) toward greater intimacy and adult sexuality; (5) dealing with new intellectual challenges.

Competence in attacking the tasks was identified by; the effectiveness with which each task was accomplished; and the cost to the individual of this effectiveness.

Silber characterized his subjects as showing no overt anxiety about their intellectual abilities. They could establish and maintain close peer relationships. Their relationships were not exploitive, but were based on shared interests. The subjects were actively involved in organized social groups and/or with a personal group of friends. During the semi-structured interviews the subjects displayed a minimal amount of defensiveness. They also expressed both positive and negative affects.

Silber presented his results in three broad areas of functioning. First, the personality attributes which facilitated involvement and mastery of a new situation. Second, the ego operations involved in developing and maintaining the self-image of his subjects as adequate to the perceived requirements of a new situation. Third, the manner in which his subjects maintained distressful affective states within manageable limits. The results represent a composite of processes operating in his subjects.

Mastery of New Situations: Silber's subjects tended to reach out for new experiences. They had a positive attitude toward newness, and they sought stimulation rather than avoiding it. They tended to be activity oriented when faced with a new challenge. Their activity was purposeful in meeting the challenge. Finally, they found pleasure in mastering problems and learning new things. They tended to attack problems beyond their current level of attainment. Generally, the behavior of Silber's subjects was exploratory and experimental in character.

Maintain a Self-Image as Adequate: The subjects displayed a variety of ways of developing and maintaining an image of themselves as adequate to the perceived requirements of a new situations. By referring to analogous past experiences, they would try to predict concerns that would arise in new situations. They referred to their present self-image as evolving in desired directions. They experienced themselves as being ready for a new situation. They sought out information about a new situation, thus, reducing the ambiguity of what would be expected of them. They used role rehearsal in

anticipation of the roles they would be expected to play. In preparing for the unknown, they could lower their level of aspiration. Thus, they could do poorer than what they expected and still survive. Finally, they would selectively perceive positive elements in a new situation, and they tended to identify with a group of people who were involved in the same situation.

Maintaining Distress Within Manageable Limits: Silber's subjects saw college as an anxiety provoking situation, but they used a variety of mechanisms to keep their anxiety within manageable limits. They found support in the fact that other people were anxious about going to college too. They saw worrying as useful in recognizing potential difficulties and as a way to combat over confidence. In addition, they would try to anticipate future concerns and prepare for them before they occurred. Finally, they used fantasy to identify various ways of handling future problems.

Thus, Silber preselected college bound competent adolescents to study their transition between high school and college. He assumed that movement into adulthood and adapting to a new environment was dependent upon his subjects accomplishing specific tasks. He concluded that his subjects accomplished the transition by maintaining an adequate self-image; successfully mastering their new environment; and by maintaining their anxiety within manageable limits.

Summary

In summary, in this section four studies of normality were reviewed. The subjects in these studies were variously identified

as mentally healthy, mature, or competent. The investigators identified some similar characteristics associated with their high functioning individuals. The subjects from all four studies were reality oriented (allocentric); they possessed a stable and accurate self-image; they were achievement oriented; their behavior was goal-directed; and they were not overwhelmed by either internal or external demands and tension.

However, the subjects in the Grinker and Golden studies were characterized as having limited interests and aspirations, and a limited emotional life. Grinker concluded that the stability of his subjects was dependent upon environmental circumstances, and that their "mental health" was achieved at the expense of these areas of functioning. By contrast, Heath's mature subjects and Silber's competent adolescents were not limited in interests, aspirations, or emotional expressiveness. Thus, Heath and Silber concluded that the adaptive capacity of their subjects was not achieved by denying parts of themselves or their experience. In addition, a factor analysis of Heath's data revealed five interpretable factors and clusters of characteristics associated with his mature subjects. The results of Heath's factor analysis was supportive of the theory of adaptive capacity outlined in Chapter III of this study.

In Table 2.3 the relationship between the four dimensions of adaptive capacity used in this study and the characteristics that identified high functioning people in the four studies reviewed in this section is illustrated. The relationship was plotted on

TABLE 2.3. --Relationship Between Global Studies of Normality and Levels of Functioning on Adaptive Capacity.

Proposed Constructs of Adaptive Capacity	Grinker Homoclitites n=65 (p<.05)	Golden Mentally Healthy n=50	Heath Mature (p<.05) n=24	Silber Competent n=15
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Affective Style:

TABLE 2.3.--Relationship Between Global Studies of Normality and Levels of Functioning on Adaptive Capacity.

Proposed Constructs of Adaptive Capacity	Grinker Homoclitites n=65 ($p < .05$)	Golden Mentally Healthy n=50	Heath Mature n=24 ($p < .05$)	Silber n=15 Competent
<u>Affective Style:</u>				
A. Awareness and acceptance of own feelings	Low	Low	High	Not Applicable
B. Response and management of anxiety	High	High	High	High
<u>Assimilation:</u>				
A. Accurate self-perception	High	High	High	Not Applicable
B. Flexible response repertoire	Medium	Medium	High	High
<u>Accommodation:</u>				
A. Perception of environmental expectations	High	High	High	High
B. Appropriateness of responses to the environment	High	High	High	Not Applicable
<u>Environmental Mastery:</u>				
A. Experience oriented	High	High	High	High
B. Sense of striving	Medium	Medium	High	High

the basis of level of functioning on each of the dimensions of adaptive capacity. Thus, a "low" rating represented confusion or difficulty in functioning on the dimension. A "high" rating represented competence in functioning on the dimension. A "medium" rating represented limited functioning on the dimension.

The somewhat conflicting results reported in these studies are explained in the following section. Three studies were reviewed that identified differing adaptive styles among normal subjects.

Patterns of Growth

It was suggested earlier in this study (see Chapter I) that traditional theories of human functioning have been too limited to explain positive mental health. These theories have been primarily based on data gathered from individuals who displayed disturbed functioning. An inherent assumption of these theories has been that healthy functioning is the absence of disturbed functioning.

Some investigators (e.g., M. B. Smith, 1959; Jahoda, 1958; Scott, 1968)⁶⁴ have proposed models of mental health that are extensions of existing personality theories. These investigators have viewed mental health as a multi-dimensional concept not sufficiently explained by the absence of pathological symptoms.

⁶⁴M. B. Smith, "Research Strategies Toward a Conception of Positive Mental Health," American Psychologist, 14 (1959), pp. 673-681; Marie Jahoda, Current Concepts of Positive Mental Health (New York: Basic Books, 1958); William A. Scott, "Conceptions of Normality." In E. F. Borgatta and W. W. Lambert (Eds.), Handbook of Personality Theory and Research (Chicago: Rand McNally, 1968), pp. 974-1006.

Other researchers (e.g., Moriarty and Toussieng, 1975; King, 1971, 1973; and Offer, 1975)⁶⁵ have questioned the "crisis model" of adolescent development proposed by Erikson⁶⁶ and A. Freud.⁶⁷ Offer⁶⁸ summarized the position of these researchers by stating, "The adaptive mechanisms of adolescent development appear more varied when sources of data are not limited (to studies of pathological populations). Integrative processes are more silent than the disintegrative, and hence harder to study. Thus, these are the aspects of personality development that tend to be neglected but that are characteristic of normative development."

Similarly, Grinker⁶⁹ has stated, "It is tempting to view mental health and illness as a continuum using traditional ways of thinking. It is far more sophisticated to analyze the reciprocal and sequential relations among multiple variables to obtain typologies with probabilistic boundaries."

⁶⁵ Moriarty and Toussieng, op. cit., 1975; S. H. King, "Coping Mechanisms in Adolescence," Psychiatric Anal. I, 3 (1971), pp. 10-46; S. H. King, "Coping and Growth in Adolescence," Seminars in Psychiatry, Vol. 4, No. 4 (Nov., 1972), pp. 355-366. S. H. King, op. cit., 1973; Offer and Offer, op. cit., 1975.

⁶⁶ Erik Erikson, Childhood and Society (New York: W. W. Norton, 1963).

⁶⁷ Anna Freud, "Adolescence as a Developmental Disturbance." In Gerald Caplan and S. Lebovici (Eds.), Adolescence: Psychosocial Perspectives (New York: Basic Books, 1969), pp. 5-10.

⁶⁸ Offer and Offer, op. cit., 1975, p. 160.

⁶⁹ R. Grinker, op. cit., p. 133.

Moriarty and Toussieng, King, and Offer⁷⁰ designed separate studies to investigate the issues raised by Offer and Grinker. These three studies investigated the variety of adaptive mechanisms used by samples of normal adolescents and young adults. The results of these three studies suggested four conclusions about the nature of personality development and adaptive functioning. First, adolescents have a greater and more varied capacity to adapt than has been previously considered. Second, there are alternate models to adolescent development in addition to Erikson's "crisis model." Third, mental health appears more varied and, hence, multi-dimensional when normal subjects are studied. Finally, adaptive style among normal subjects sometimes is achieved at the expense of at least one area of human functioning. These conclusions were consistent with the assumptions of this study.

Moriarty and Toussieng Study

Moriarty and Toussieng⁷¹ selected for their longitudinal study fifty-four adolescents ranging in age from 15 to 22. The subjects were selected from the Escalona and Leitch study⁷² of childhood development. Moriarty and Toussieng were interested in determining the range of coping (adaptive) styles used by their

⁷⁰Moriarty and Toussieng, op. cit., 1975; S. H. King, op. cit., 1973; Offer and Offer, op. cit., 1975.

⁷¹Moriarty and Toussieng, op. cit., 1975.

⁷²Sibylle Escalona, et al., "Early Phases of Personality Development: A Non-Normative Study of Infant Behavior," Monographs of the Society for Research in Child Development, Vol. 17, Series 54, No. 1, 1952.

subjects. Results of the study were based on interview and test data from the Escalona and Leitch study. The researchers also interviewed each of the subjects.

Moriarty and Toussieng concluded that the coping (adaptive) styles of their subjects ranged from constricting one's senses to fit traditional standards to reexamining all standards and values on the basis of one's senses and reality testing.

Their subjects were statistically divided into two groups based on their coping (adaptive) styles. Twenty-eight per cent of the sample were classified as Censors. They were characterized as being committed to traditional standards and values. This group was subdivided into two groups. The Obedient Traditionalists who were described as being passive in their response to their environment. The second sub-grouping, the Ideological Conservatives, were characterized as being assertive in reacting to their environment. They actively choose and defended traditional standards and values.

The second group of subjects were called Sensors (72% of the sample). They were characterized as continually reexamining and reevaluating existing values and standards. They sought new sensory experiences and developed values consistent with those experiences. This group was also sub-divided into two groups. The Cautious Modifiers were characterized as open to new experiences but cautious in acting on their perceptions. They tended to withdraw or seek support from the environment when under stress. The Passionate Renewers continually explored and experimented. They developed new value systems and discarded old ones with a kind of

"reckless abandon." They displayed little or no fear of being overwhelmed by what they did not understand. They could allow their thoughts and feelings a free rein in an effort to understand reality.

The Censors were generally more dependent on their environment than the Sensors. They needed more support from their environment. They exhibited internal control of their feelings and impulses, and exercised control over external stimuli. Adjustment was achieved through emulating the behavior of an adult model representing traditional cultural values.

The Sensors were not altogether free from traditional values, but they put more emphasis on their own awareness and perceptions than on cultural values. They tended to change their behavior to fit situations. The openness to experiences of this group did not necessarily led to the establishment of a firm identity or to a clear internal organization.

Moriarty and Toussieng reported some sex differences among their subjects. Censor females were likely to be Obedient Traditionalists; i.e., they were more passive and submissive than the males who were Censors. However, more females than males were in both Sensor groups. Thus, females who choose to develop their own value systems were not necessarily more passive than the males.

Moriarty and Toussieng discounted a direct relationship between coping (adaptive) style and mental health. They found "mentally healthy" and "less mentally healthy" subjects in both the Censor and the Sensor group. They reported that the differences

between their groups were statistically significant. However, confidence levels or statistical procedures were not reported.

Thus, Moriarty and Toussieng's subjects adopted an adaptive style that was achieved at the expense of some other area of human functioning. The Sensors were experience oriented and they had an active emotional life. However, the style occasionally got them in trouble with their environment, and it was achieved at the expense of a clear internal organization. The emotionality of the Censors was constricted and they were somewhat dominated by traditional environmental standards. However, a clear self-image was also characteristic of the Censors.

King Study

King⁷³ conducted a four year longitudinal investigation of Harvard students. He selected a 25% random sample of two freshman classes for study. The subjects were given a battery of psychological tests (Rorschach and TAT) and questionnaires over their four years in college. A subsample of fifty students were selected for intensive study through semi-structured interviews. There were no statistically significant differences between the results obtained from the subsample and the random sample.

King was interested in determining the patterns of personality development and change his subjects exhibited over their four years in college.

⁷³S. H. King, op. cit., 1971, 1972, and 1973.

King concluded that his subjects exhibited four different styles of adapting to their college experience: Progressive Maturation, Delayed Maturation, Crisis and Reintegration, and Deterioration. Five per cent of his sample were in this last group. The largest percentage of his subjects were in the first group. King reported that the differences between his groups were statistically significant. However, confidence levels and statistical procedures were not reported.

King also identified six variables representing change in what he regarded as his best adapted subjects. There was a statistically significant ($P < .05-.01$) difference on the variables for his best adapted subjects. The six areas of change were primarily observed in his Progressive Maturation group.

The first variable identified by King was in object relations. By graduation, many of the students had achieved rewarding relationships with their peers. They had also resolved areas of conflict with their parents. Second, there was a general increase in self esteem. The best adapted students developed a sense of competence in themselves and a feeling of being able to effect their environment. Third, the students experienced a stabilization of mood. The subjects were less at the mercy of their moods and feelings by their senior year.

The fourth variable representing change was interests. King's best adapted subjects did not change their interests, however, there was a general synthesis of interests consistent with the needs and values of the students. Fifth, by the senior year,

the subjects displayed an increase in goal-directed activity. They showed a rise in level of aspiration during their four years in college. They also emphasized a life style that allowed personal freedom in moral decisions. Finally, there was change in the area of ego control. King's best adapted subjects developed a greater tolerance for anxiety and an increase in range of affect over the four years in college. They also exhibited a voluntary control over their impulses as well as a freeing of impulse expression.

Thus, King's Progressive Maturation group exhibited change in their adaptive capacity. They developed strong self images. They had a continuity between past and present. The sense of continuity permitted the subjects to use past experiences to resolve present concerns. They maintained appropriate impulse control and a general stabilizing of mood over the four years. Their behavior was goal directed, and their vocational aspirations and interests were consistent with their goals.

King⁷⁴ suggested that the Progressive Maturation group may actually represent two subgroups. ". . . the modal or average, and the highly competent. The former cope successfully but are not dreamers or exciting innovators, and their fantasy life is limited. The highly competent are more likely to be innovators, leaders, and generally more exciting people. Both subgroups are well integrated in personality functioning but different in a creative sense." Thus, the "modal or average" subjects are more

⁷⁴S. H. King, op. cit., 1972, p. 364.

like Grinker's "homoclitics" or Golden's subjects (see previous section). They were characterized by a lack of spontaneity and a constricted emotional life.

The Delayed Maturation group were characterized by a discontinuity between past and present. They were confused about themselves and lacked the solid identity that was characteristic of the first group. They did not adapt consistently to their environment and, at times, were at the mercy of environmental demands. They represented the traditional crisis model of adolescent development.

The Crisis and Reintegration group were regarded as psychiatrically impaired and limited in their adaptive capacity. They were characterized as having negative self-images. They viewed themselves as inferior and vulnerable. They demonstrated a pattern of some disintegration during a crisis followed by temporary reintegration. The expression of affect was characterized as either over controlled or under controlled for these subjects.

The Deterioration group was characterized as exhibiting serious psychological disturbance in the areas of emotional and cognitive functioning.

Thus, King identified four adaptive styles in his subjects. The Progressive Maturation group (King's best adapted subjects) were characterized as being experience oriented, having a good self-image, and at peace with their environment. King suggested that they actually represented two subgroups. The modal adolescents were characterized by a constricted emotionality and a lack of

spontaneity. Their adaptive style was achieved at the expense of a rich affective life. The competent adolescents were characterized as being spontaneous and creative. Their adaptive style was not achieved by limiting their emotional expressiveness.

The other three groups were limited in their adaptive capabilities. The Delayed Maturation group were characterized as having confused self-images. They were at the mercy of environmental demands. The Crisis and Reintegration group were characterized as having negative self-images. They also had difficulty with impulse control. The Deterioration group (5% of King's sample) were regarded as psychiatrically disturbed.

Offer Study

Offer⁷⁵ conducted an eight year longitudinal study on adolescent development. He was interested in understanding the psychological functioning of the "modal" adolescent over time. He was particularly concerned with the ability of his subjects to adapt to internal and external demands.

The selection of his subjects was based on responses to the Self-Image Questionnaire designed to measure adolescent

⁷⁵Daniel Offer, and Melvin Sabshin, "The Psychiatrist and The Normal Adolescent," A.M.A. Archives of General Psychiatry, Vol. 9, No. 5 (1963), pp. 427-432; Daniel Offer, et al., "Clinical Evaluations of Normal Adolescents," American Journal of Psychiatry, Vol. 121, No. 9 (1965), pp. 864-872; Daniel Offer, "Normal Adolescents: Interview Strategy and Selected Results," A.M.A. Archives of General Psychiatry, 17 (1967), pp. 285-290; Daniel Offer and Kenneth Howard, "An Empirical Analysis of the Offer Self-Image Questionnaire for Adolescents," A.M.A. Archives of General Psychiatry, 27 (1972), pp. 529-523; Offer and Offer, op. cit., 1975.

functioning. Offer eliminated from his group of subjects those students who represented extremes of either psychopathology or superior adjustment. Thus, he selected for study 73 male subjects representing average or "modal" adolescents. The subjects were selected from two freshman classes of a midwestern high school.

Offer collected data on his subjects over the eight year period of the study. The results were based on semi-structured psychiatric interviews; self-rating reports of the subjects; interviews with the parents of the subjects; teacher ratings; and psychological testing (Rorschach and TAT). The data was condensed into 55 variables; the variables were factor analyzed into ten factors. A typal analysis was conducted on each subject based on the results of the factor analysis. Validation of the typal analysis was conducted through a comparison of these results with the Rorschach evaluations.

Offer concluded that his subjects represented three styles of psychological functioning. Differences between the styles of the subgroups were statistically significant ($P < .02$).

The first style or subgrouping represented 23% of his sample. Offer labeled them the Continuous Growth group. They were characterized as being able to use both reason and emotion to adapt to internal and external stimuli. They were acceptant of cultural values and norms, but displayed an independence of thought and action not characteristic of the other two groups.

The second subgroup was labeled the Surgent Growth group (35% of the sample). This group suppressed their emotionality.

They could adapt well to expected internal and external demands, but they had difficulty responding to the unexpected. They were less introspective than the other two groups.

The third subgrouping, representing 21% of the sample, were labeled the Tumultuous Growth group. According to Offer, the characteristics of this group were consistent with the crisis model of adolescent growth and development. They displayed recurrent self-doubts and were in continuous conflict with their environment. They displayed a wide range of affects, but they had difficulty controlling their impulses and postponing gratification. They had more difficulty academically and were generally poorer students than the subjects of the other two groups.

Twenty-one per cent of Offer's sample did not fall into any of the subgroups. They were also not sufficiently similar to each other to form a fourth subgroup. They were described by Offer as being closest to the Continuous and Surgent Growth groups.

Thus, the subjects in the three subgroups were distinguished from each other on several dimensions. The Continuous Growth group displayed a wide range of affects and had an active fantasy life, but they could distinguish between reality and fantasy. They could respond to the environment based on what was called for. They were also characterized as having appropriate impulse control. They could postpone immediate gratification in an effort to work toward long range goals. They were action oriented particularly in times of stress; i.e., they did something about problems.

By contrast, both the Surgent Growth group and the Tumultuous Growth group were more dependent on the environment. The Surgent group identified with authority figures. This dependence on authority was apparently achieved at the expense of a rich emotional life and a lack of spontaneity. The Tumultuous group depended on their peers for support. They had an unclearly defined self-image that frequently brought them into conflict with their environment. Like the Continuous group, they had an active emotional life, but did not possess the controls over their impulses that was characteristic of the Continuous group. They were also introspective as was the Continuous group. However, they worried about their problems rather than doing something about them.

Thus, the three groups differ in their affective life, response and perception of reality, and the strength of their self-image. Offer⁷⁶ rejected the notion that one group is more mentally healthy than the other groups. He has suggested that the three groups represent differing adaptive styles.

In addition, Offer⁷⁷ has suggested that there is a consistency of adaptive style through out the life of an individual. He stated, "For most individuals, we believe that the psychological system developed in order to cope with crisis, stress and the exigencies of everyday life will remain relatively constant through the life span. No published longitudinal or follow-up studies have

⁷⁶D. Offer, op. cit., 1974, p. 157.

⁷⁷Offer and Offer, op. cit., 1975, pp. 181-182.

isolated major changes in defenses utilized, strength of interpersonal relationships, nature of coping strategies, or even levels of adaptation of adolescents and young adults as outstanding features of these maturational periods. . . . The changes that do take place lie in the sophistication of the adaptations, the increased intellectual abilities, the shift of focus to nonfamily, social and sexual relationships, a better defined sexual and vocational identity, and the internalization of parental controls."

In the Offer study,⁷⁸ the stability of adaptive style was statistically significant ($P < .05-.01$) for his subjects. The stability score was obtained over a five year span of time using Rorschach protocols. Moriarty and Toussieng⁷⁹ suggested a similar conclusion in their study. However, they did not report statistically data to support their conclusion.

In the King study⁸⁰ King identified six variables of change that were statistically significant for most of his subjects. The six areas of change were reported for his Progressive Maturation group. Apparently these changes were not observed in his other three groups. It may be that Offer would regard the areas of change reported by King as representing a sophistication of adaptive style.

Summary

The three studies reviewed in this section reported results illustrating the variety of adaptive styles found among normal

⁷⁸Ibid., pp. 139-143.

⁷⁹Moriarty and Toussieng, op. cit., 1975, p. 403.

⁸⁰S. H. King, op. cit., 1973, pp. 191-192.

subjects. Moriarty and Toussieng's study suggested that adaptive style was achieved at the expense of some area of human functioning. The Sensors lacked a stable internal organization; while the Censors had a constricted emotional life. By contrast, King and Offer found that some of their subjects (the Progressive Maturation group and the Continuous Growth group) achieved an adaptive style that was not limiting in some area of functioning. The descriptions of their adaptive styles were consistent with Heath and Silber's mature and competent adolescents. However, King suggested that his Progressive Maturation group represented two subgroups. The Modal or average subgroup was characterized by a limited fantasy life and constricted emotionality. Thus, their adaptive style was consistent with Grinker's "homoclitics" and Golden's "mentally healthy" subjects. The adaptive style of Offer's Surgent Growth group was also consistent with Grinker and Golden's subjects.

In Table 2.4 the relationship between the four dimensions of adaptive capacity used in this study and the various adaptive styles reported in the three studies reviewed in this section is illustrated. The relationship was plotted on the basis of level of functioning on each of the dimensions of adaptive capacity. Thus, a "low" rating represented confusion or difficulty in functioning on the dimension. A "high" rating represented competence in functioning on the dimension. A "medium" rating represented limited functioning on the dimension.

In the following section two studies of adaptive functioning based on psychoanalytic theory are reviewed. The results were

TABLE 2.4.--Relationship Between Patterns of Growth and Levels of Functioning on Adaptive Capacity.

Proposed Constructs of Adaptive Capacity	Censors*		Sensors*		Progressive**		Delayed**	Crisis**	Continuous***	Surgent***	Tumultuous***
	Obediant Tradition	Ideal. Conserv.	Cautious Modifiers	Passionate Renewers	Creative	Modal					
Affective Style:											
A. Awareness and acceptance of own feeling	Low	Low	High	High	High	Low	Medium	Variable	High	Medium	Variable
B. Response and management of anxiety	Low	Low	Medium	High	High	High	Medium	Low	High	Medium to Low	Low
Assimilation:											
A. Accurate self-perception	Medium to Low	High to Medium	High to Medium	High to Medium	High	High	Medium	Low	High	High to Medium	Medium to Low
B. Flexible response repertoire	Medium to Low	Medium	Medium	High	High	Medium	Medium	Low	High	Medium	High to Medium
Accommodation:											
A. Perception of environmental expectations	High	High to Medium	High	High	High	High	Medium	Low	High	High	Medium
B. Appropriateness of responses to the environment	High	Medium	High	Medium	High	High	Medium	Low	High	High	Medium
Environmental Mastery:											
A. Experience oriented	Low	Medium	High	High	High	Medium	Medium	Low	High	Medium	Medium
B. Sense of striving	Low	Medium	Medium	High	High	Medium	Medium	Low	High	Medium	Low

*Mortality and Toussieng n = 54

**King n = 50 (p<.01-.05)

***Offer n = 73 (p<.02)

suggestive of the limitations of using existing personality theory to measure adaptive functioning.

Ego Mechanisms

Two researchers⁸¹ were interested in the relationship between the psychoanalytic ego mechanisms of defense⁸² and adaptive life styles. Both investigators identified the constellation of ego mechanisms used by their subjects and the adaptive or maladaptive consequences of these mechanisms.

Vaillant Study

Vaillant⁸³ proposed a hierarchy of ego mechanisms. He regarded ego mechanisms at the bottom of his hierarchy as maladaptive. These mechanisms were inflexible, mechanistic, and led to avoidance of conflict and unnecessary regression. Adaptive ego mechanisms were at the upper end of his hierarchy. These mechanisms were flexible, minimized regression, and led to conflict resolution. He distinguished between defensive (maladaptive) and coping (adaptive) ego mechanisms by dividing eighteen ego mechanisms into four classes: Narcissistic, Immature, Neurotic, and Mature (see Table 2.5). Classification of these mechanisms was on a scale

⁸¹G. E. Vaillant, op. cit., 1971; George Vaillant, "Natural History of Male Psychologic Health: The Adult Life Cycle from 18-50," Seminars in Psychiatry, Vol. 4, No. 4 (1972, pp. 415-427; George Vaillant, "Natural History of Male Psychological Health: Empirical Dimensions of Mental Health," A.M.A. Archives of General Psychiatry, 32 (1975), pp. 420-426; T. C. Kroeber, op. cit., 1963.

⁸²A. Freud, op. cit., 1937.

⁸³G. E. Vaillant, op. cit., 1971.

TABLE 2.5.--Vaillant's Hierarchy of Adaptive Ego Mechanisms.*

I Narcissistic	II Immature	III Neurotic	IV Mature
<u>Delusional Projection:</u> Delusions about reality; Inaccurate perception of self and others; No wish fulfillment; Internal feelings projected on others. <u>Denial:</u> Use of fantasy in place of relationships; Denial of external but not internal reality. <u>Distortion:</u> Reshape external reality to suit internal needs; Denial of responsibility for own behavior.	<u>Projection:</u> Putting own feelings on others. <u>Schizoid Fantasy:</u> Fantasy serves to meet internal needs; conflict resolution in fantasy. <u>Hypochondriasis:</u> Convert emotional to physical illness. <u>Passive Aggressive:</u> Indirect expression of hostility and anger. <u>Acting Out:</u> No impulse control; Direct expression of un- conscious wishes.	<u>Intellectualization:</u> Thinking about instinctual wishes but failure to act on them; Paying attention to irrelevant details. <u>Repression:</u> Naiveness; Forgetting <u>Displacement:</u> Redirect feelings to a less catheted object; Phobias. <u>Dissociation:</u> Distortion of self (identity) to avoid distress; <u>Reaction Formation:</u> Display of Affect or behavior that is oppose to unacceptable impulse.	<u>Sublimation:</u> Expression of feelings (e.g., hostility and anger) through games and hobbies; Instincts are channelled rather than dammed up or diverted. <u>Suppression:</u> Conscious or semi- conscious decision to postpone paying attention to a conflict or impulse. <u>Humor:</u> Use of humor to express unpleasant feelings and reduce anxiety. <u>Anticipation:</u> Planning for the future; Creative use of worry; Goal- directed behavior. <u>Altruism:</u> Interest in service to others.

*George E. Vaillant, "Theoretical Hierarchy of Adaptive Ego Mechanisms," A.M.A. Archives of General Psychiatry, 24 (Feb., 1971), pp. 116-118.

ranging from most maladaptive to most adaptive. The most maladaptive ego mechanisms would be used to reshape external reality to suit internal needs; deny responsibility for behavior and feelings; and distort perception of self and others. The most adaptive ego mechanisms would be used to channel instincts and feelings into acceptable modes of expression; postpone gratification and decision making; and permit accurate perception of self and external reality.

Vaillant conducted a three part longitudinal study to test his theoretical hierarchy. His study had three specific purposes; first, to investigate the stability of mental health over time; second, to identify the antecedents of mental health; and third, to distinguish between the adaptive styles of his mentally healthy and unhealthy subjects. Adaptive style was defined as the constellation of ego mechanisms used by a subject. Vaillant selected 94 male subjects for his study. The subjects were previously selected in the Hooton and Heath⁸⁴ study of adjustment in college students.

The results of the first two parts of Vaillant's study were based on independent raters judging the mental health of each subject. Each rater used one of three scales to measure mental health: adjustment to work and marriage; clinically defined psychiatric illness; and maturity of ego mechanisms based on Vaillant's theoretical hierarchy. Vaillant found a high correlation ($r=.65$) between the three measures of mental health. He also found a significant difference ($p<.001$) between the ego

⁸⁴Ernest Hooton, Young Man, You Are Normal (New York: G. P. Putnam and Sons, 1945); Clark W. Heath, et al., What People Are: A Study of Normal Young Men (Cambridge: Harvard University Press, 1946).

mechanisms used by his most healthy and least healthy subjects. Vaillant concluded that maturity of adaptive style provided a valid measure of mental health.

Vaillant randomly selected thirty of his subjects for the last part of his study. He was interested in identifying the specific ego mechanisms used by each of these subjects. Behavioral vignettes of these subjects' responses to a variety of situations had been gathered over a thirty year period. Each vignette was identified as representing one of the four classes of ego mechanisms. Vaillant found a significant ($P < .001$) difference between the ego mechanisms used by his subjects.

The subjects who were identified as least healthy used immature and neurotic ego mechanisms. They developed an adaptive style that distorted or reshaped reality to fit their own needs; they used fantasy to meet their needs; and they either converted emotionality to physical illness or had little or no impulse control.

Those subjects who were judged to be most healthy developed adaptive styles using mature or neurotic ego mechanisms. They channelled aggressive feelings into physical activities rather than damming them up; they could make conscious or preconscious decisions to postpone paying attention to uncomfortable feelings; and they used humor to express unpleasant feelings and reduce anxiety.

Some subjects in both groups made use of neurotic ego mechanisms in their adaptive style. These subjects had difficulty

with direct expression of some feelings (e.g., hostility and anger). They would redirect these feelings to less emotionally charged objects. They would intellectualize some instinctual wishes but fail to act on these wishes. Their perception of the external world was, at times, naive, and they would distort self-perception in times of stress.

Vaillant concluded that the neurotic classification of ego mechanisms could not distinguish between adaptive and maladaptive styles of functioning. Another explanation for these results is that Vaillant's hierarchy of ego mechanisms does not provide a fine enough discrimination between the various components of adaptive capacity. Some support for this latter explanation was provided by Kroeber's study.

Kroeber Study

Kroeber⁸⁵ proposed an extension of the psychoanalytic concept of ego mechanisms to include behaviors relevant to mentally healthy, effective people. The traditional function of ego mechanisms has been defensive in nature. Thus, ego mechanisms attended to something negative within the individual. They served to control or redirect unacceptable behavior and feelings. Kroeber suggested that ego mechanisms also have an adaptive (coping) function. The adaptive function provides a means of processing behavior and feelings without distorting either internal or external reality.

⁸⁵T. C. Kroeber, op. cit., 1963.

Thus, Kroeber⁸⁶ defined this duality in function of ego mechanisms. He regarded coping mechanisms as not conflict-free, but ". . . neurosis-free, autonomous in the sense that they are open to internal and external reality; Defense mechanisms connote defense against something and imply distortions of available information."

He⁸⁷ further delineated the character of ego behavior into their respective coping and defensive functions:

<u>Defensive</u>	<u>Coping</u>
Rigid, compelled, channelled, perhaps conditional.	Flexible, purposive, involving choice.
Pushed from the past.	Pulled toward the future.
Distorts present situation.	Oriented to reality requirements of present situations.
Primary process thinking; involves unconscious elements.	Secondary process thinking, involves conscious and preconscious elements.
Magical thinking necessary to remove disturbing affects.	Monitors the experiences of disturbing affects. Deals with necessities of the individual.
Indirect satisfaction of impulses.	Direct satisfaction of impulses.

Kroeber used this model of ego behavior to describe the coping and defensive function of ten ego mechanisms (see Table 2.6). He indicated that these ten ego mechanisms represent three broad areas of human functioning. The first three (discrimination,

⁸⁶Ibid., p. 184.

⁸⁷Ibid., pp. 183-184.

TABLE 2.6.--Kroeber's* Division of Ten Ego Mechanisms into Coping and Defensive Functions.

Ego Mechanisms	Defense	Coping
<u>Discrimination</u> : separate ideas from feelings; feelings from feelings; ideas from ideas.	<u>Isolation</u> : to sever feelings from ideas that emotionally belong together.	<u>Objectivity</u> : intentional separation of ideas and/or feelings to achieve an objective evaluations.
<u>Detachment</u> : ability to let mind roam freely; speculate, analyze and create without restriction.	<u>Intellectualization</u> : retreat from world of affect and impulse to world of words and abstraction.	<u>Intellectuality</u> : in affect laden situations one can think. Thoughts can be given free rein.
<u>Means-End Symbolization</u> : can entertain alternative choices, analyze experiences, anticipate outcomes.	<u>Rationalization</u> : explains behavior but is imprecise or omits crucial aspects.	<u>Logical Analysis</u> : ability to logically analyze all situations.
<u>Selective Awareness</u> : ability to focus attention.	<u>Denial</u> : refusal to painful thoughts or feelings.	<u>Concentration</u> : can selectively attend or not to thoughts or feelings.
<u>Sensitivity</u> : apprehension of others; unexpressed feelings or ideas.	<u>Projection</u> : attributes own feelings to others.	<u>Empathy</u> : takes account of others feelings
<u>Delayed Response</u> : can hold up making a decision due to lack of clarity.	<u>Doubt and Indecision</u> : inability to resolve ambiguity.	<u>Tolerance of Ambiguity</u> : ability to cope with cognitive and affective complexity and dissonance.
<u>Time Reversal</u> : can recapture experiences, feelings, attitudes.	<u>Regression</u> : evasive, ingratiating, age-inappropriate behavior.	<u>Playfulness</u> : flexibility, regression in service of the ego.
<u>Impulse Diversion</u> : modify aim or object of impulse.	<u>Displacement</u> : repress unacceptable impulses.	<u>Sublimation</u> : behavior is tempered; finds alternate channels that are socially acceptable.
<u>Impulse Transformation</u> : appropriate energy from an impulse through symbolization as its opposite.	<u>Reaction Formation</u> : permanent alteration of behavior. Transform impulses and affects into their opposites.	<u>Substitution</u> : the appropriation of energy from primitive impulses in a secure manner so that tempered and domesticated opposites are evident.
<u>Impulse Restraint</u> : ability to control impulse by inhibiting expression.	<u>Repression</u> : total inhibition of some affects and/or ideas.	<u>Suppression</u> : impulses are held in abeyance and controlled until the proper time and place.

* Ibid., pp. 185-189.

detachment, and means-end symbolization) deal almost exclusively with cognitive functioning. The last three (impulse diversion, impulse transformation, impulse restraint) have to do with affective style and impulse control. The middle four (selective awareness, sensitivity, delayed response, and time reversal) contain elements of perception, apperception, and time factors. This grouping is roughly equivalent to the four dimensional theory of adaptive capacity proposed in this study (see Table 2.7). Kroeber suggested that a measure of mental health could be derived from his division of ego mechanisms. This measure would be provided by: (1) the frequency and effectiveness of both coping and defensive mechanisms; (2) the relative use of coping and defensive mechanisms; and (3) a qualitative description of preferred mechanisms.

Kroeber conducted a two part study to test his model of ego mechanisms. He was interested in determining the extent and differential presence of defense and coping ego mechanisms in his subjects. He selected 72 (33 female and 39 male) subjects from the Oakland Growth Study⁸⁸ for his investigation. The Oakland Growth Study was a longitudinal investigation of adolescent and adult development.

Interview data gathered from the Block study was appraised by two independent raters in the first part of Kroeber's study. The raters judged the presence and extent of coping and defensive

⁸⁸Jack Block and Norma Haan, Lives Through Time (Berkeley: Bancroft Books, 1971).

TABLE 2.7.--Postulated Relationship Between Kroeber's Category of Ego Mechanisms and the Dimensions of Adaptive Capacity.

Kroeber's Ego Mechanisms	Dimensions of Adaptive Capacity*
<u>Impulse Control:</u> Impulse Diversion; Impulse Transformation; Impulse Restraint.	<u>Affective Style:</u> A. Awareness and Acceptance of Own Feelings. B. Response and Management of Anxiety.
<u>Perception:</u> Selective Awareness; Sensitivity; Delayed Response; Time Reversal.	<u>Assimilation:</u> A. Accurate Self-Percep- tion. B. Flexible Response Repertoire.
<u>Cognitive Functioning:</u> Discrimination; Detachment; Means-End Symbol- ization	<u>Accommodation:</u> A. Perception of Environ- mental Expectations. B. Appropriateness of Responses to the Environment.
	<u>Environmental Mastery:</u> A. Experience Oriented. B. Sense of Striving.

Note: There is not a direct, one to one, relationship between Kroeber's classification system and the postulated dimensions of adaptive capacity used in this study. Kroeber's classification system is primarily internally oriented. He does not allow for the reciprocal relationship between the person and the environment. In his system, Kroeber viewed the environment as essentially hostile to meeting the needs of the individual.

*Proposed constructs for the present investigation.

ego mechanisms in each subject (inter-rater reliability ranged from $P < .005$ -.001 for men; and $P < .060$ -.001 for women on a chi square test of significance; 78% to 89% of the raters judgments fell within two points of each other on a five point scale).

The Rorschach test was administered to each subject for the second part of his study. Kroeber used the ratings from the interview data to predict defensive or coping behavior in the Rorschach test situation. Rorschach protocols were scored by three independent judges. Thirty-two scorings were checked for inter-rater reliability. Nine scores were unreliable; fifteen gave product moment correlations between .54 to .99; the remaining eight protocol scores yielded chi square probability levels from .060-.001. Kroeber concluded that the reliability of the Rorschach scores was questionable. However, he had proposed forty-two hypotheses testing the relationship between ratings of interview data and the response to the Rorschach test. Twenty-two of these hypotheses were statistically significant ($P < .05$ -.001 - chi square). Generalizing from Kroeber's results are questionable since he has not replicated his study.

Kroeber concluded that the differential function of ego mechanisms could be identified from interview and test data. Thus, ego mechanisms do serve a dual function. They can be adaptive when used as a coping mechanism; or they can be maladaptive when used as a defense mechanism. The psychoanalytic model of ego mechanisms has attended to only one of these functions. Kroeber's study provides some support for an expansion of the psychoanalytic model to include adaptive functioning.

The two models of ego mechanisms reviewed above were not comprehensive formulations of adaptive functioning. Vaillant's theoretical hierarchy attended to the individual's satisfaction of environmental demands. He assumed that the individual was adapting if he/she responded appropriately to environmental demands. Kroeber's classification of ego mechanisms was primarily internally oriented. He attended to the individual's satisfaction of his/her own needs. He viewed the environment as essentially hostile to meeting those needs. Both researchers failed to attend to the reciprocal relationship between the person and the environment.

Summary

Researchers in the field of normality have generally regarded the concept of mental health as multidimensional. Adaptive functioning has been identified as one of the variables of the mental health concept. In addition, a definition of adaptive capacity has been regarded as attending to the reciprocal relationship between the person and the environment. Researchers have agreed that a theory of adaptive capacity must contain at least two components. First, such a theory must allow for the individual's growth and satisfaction of internal needs. Second, a theory of adaptive capacity must provide for the individual's reacting to environmental demands. A synthesis of four proposed theories of adaptation was found to be consistent with the four dimensional theory of adaptive capacity outlined in Chapter III of the present study.

Nine studies of normal and adaptive functioning were reviewed. This review emphasized similarities and differences found among preselected normal subjects. The following points are particularly relevant to the present investigation.

1. Two studies (Vaillant and Kroeber) of adaptive functioning based on psychoanalytic theory were reviewed. The results were suggestive of the limitations of using existing personality theory to measure adaptive functioning. Vaillant and Kroeber's models of ego mechanisms were not comprehensive formulations of adaptive functioning. Vaillant's theoretical hierarchy attended to the individual's satisfaction of environmental demands. He assumed that the individual was adapting if he/she responded appropriately to environmental demands. Kroeber's classification of ego mechanisms was primarily internally oriented. He attended to the individual's satisfaction of his/her own needs. He viewed the environment as essentially hostile to meeting those needs. Both researchers failed to attend to the reciprocal relationship between the person and the environment.

2. The need to identify the characteristics or clusters of characteristics associated with adaptive functioning has been supported by Offer's research. Coelho, Hamburg, and Adams have stressed the need to develop assessment techniques which reliably define the variables of adaptive capacity. The use of existing assessment techniques to measure normality has been criticized as not adequately distinguishing between the various dimensions of the mental health construct.

3. Heath's factor analysis of his statistically significant data revealed five interpretable factors. Although his factor analytic procedures were questionable, he concluded that adaptive functioning was not sufficiently explained by a single factor or dimension. He further concluded that the allocentric and competence factors were at least two of the dimensions that comprise the adaptive capacity construct. These results were partially supportive of the theory of adaptive capacity outlined in the next chapter of the present investigation.

4. Investigators (e.g., Golden, Grinker, Heath, and Silber) have identified adaptive characteristics associated with preselected mentally healthy subjects. The subjects from four separate studies were characterized as: reality oriented (allocentric); possessing a stable and accurate self-image; oriented toward achievement; displaying goal-directed behavior; and not being overwhelmed by either internal or external demands and tension. These characteristics were descriptive of the four dimensional theory of adaptive capacity used in the present study. Each characteristic was consistent with one of the four dimensions defined in Chapter III.

5. Golden and Grinker concluded that the "mental health" of their subjects was achieved at the expense of some area of adaptive functioning. By contrast, Heath and Silber concluded that the "mental health" of their subjects was not achieved by limited functioning in some area of adaptive capacity.

Three other investigators (Moriarty and Toussieng, King, and Offer) found a variety of adaptive styles among preselected normal subjects. Moriarty and Toussieng concluded that adaptive style was achieved at the expense of some area of human functioning. The Sensors lacked a stable internal organization; while the Censors had a constricted emotional life. By contrast, King and Offer found that some of their subjects (the Progressive Maturation group and the Continuous Growth group) achieved an adaptive style that was not limiting in some area of functioning. The descriptions of the adaptive styles of Offer and King's subjects was consistent with Heath and Silber's mature and competent adolescents. However, King suggested that his Progressive Maturation group represented two subgroups. The "modal" or average subgroup was characterized by a limited fantasy life and constricted emotionality. Thus, their adaptive style was consistent with Grinker's "homoclitcs" and Golden's "mentally healthy" subjects. The adaptive style of Offer's Surgent Growth group was also consistent with Grinker and Golden's subjects.

Thus, it would appear that some high functioning individuals can achieve an adaptive style without limiting their adaptive capacity. However, the adaptive capacity of other individuals is achieved at the expense of some area of human functioning.

The underlying theoretical concepts of the present investigation and the four postulated dimensions of General Adaptive Capacity are outlined in the chapter which follows.

CHAPTER III

THE THEORY

Introduction

Numerous criteria of what constitutes mental health have been proposed. The lists contain concepts that essentially agree and overlap. Disagreement arises over the weight a particular aspect of positive mental health should carry. Some writers have offered explicit global ratings (e.g., Maslow and Barron), but have failed to discriminate the effects of one's failure to operate optimally on any one of the criteria proposed.¹ Others have proposed multiple criteria, but imply certain criteria carry greater weight than others (e.g., accurate perception and self-knowledge, Jahoda; moral values, meaningful commitment, and social responsibility, Allport).² A search for consensual agreement among the various conceptions of mental health has not been successful. Thus, the task of operationally defining a construct, such as General Adaptive Capacity, becomes a difficult endeavor.

¹A. H. Maslow, Motivation and Personality (New York: Harper, 1954); Frank Barron, Creativity and Psychological Health (New York: D. Van Nostrand Co., Inc., 1963).

²Maria Jahoda, "Toward a Social Psychology of Mental Health," In M. J. E. Senn (Ed.) Symposium on the Healthy Personality (Josiah Macy Jr. Foundation, 1950), pp. 211-220; Gordon Allport, "Personality Normal and Abnormal," Personality and Social Encounter (Boston: Beacon, 1960), pp. 155-168.

The definition of a construct must meet two criteria:

1. The definition must be sufficiently comprehensive to encompass the construct.
2. The definition must be specific enough to lend itself to empirical validation.³

To meet the comprehensive criteria listed above, a definition of General Adaptive Capacity as a construct must provide for the individual's growth and satisfaction of internal needs. The definition must also provide for establishing the individual's relationship with the environment. To meet the specificity criteria, however the definition is elaborated, it must be sufficiently specific to be testable.

Models of Mental Health

Four models of mental health were reviewed as a means of establishing the theory of General Adaptive Capacity used in this study. The four models reviewed were proposed by Scott, Jahoda, Allport, and Smith.⁴ From this review, Scott's explicit conceptualization of General Adaptive Capacity was identified; the other formulations were broader in scope to include the more general

³Joseph F. Rychlak, "The Multiple Function of Theory," A Philosophy of Science for Personality Theory (Boston: Houghton-Mifflin Co., 1968), pp. 42-72.

⁴W. A. Scott, "Conceptions of Normality," In E. F. Borgatta and W. W. Lambert (Eds.) Handbook of Personality Theory and Research (Chicago: Rand McNally, 1968), pp. 974-1006; Maria Jahoda, Current Concepts of Positive Mental Health (New York: Basic Books, 1968); Allport, op. cit., 1960; M. B. Smith, "Research Strategies Toward a Conception of Positive Mental Health," American Psychologist, 14 (1959), pp. 673-681.

concept of mental health

given to the two concepts

Scott and Jahoda

a review of existing literature

in mental health.

health based on clinical

reality.

Scott⁵ defines

specific characteristics

1. Adaptation

2. Flexibility

3. Mastery

4. Capacity

5. Capacity

6. Success

7. Modification

favorable

Scott's formulation

but was not comprehensive

to the external environment

individual's growth and

Jahoda⁶ defines

health with severe

individual should

⁵W. A. Scott

⁶Maria Jahoda

concept of mental health. In reviewing the models, attention was given to the two criteria of a construct listed above.

Scott and Jahoda proposed models of mental health based on a review of existing theories and empirical evidence from research in mental health. Allport and Smith proposed models of mental health based on clinical practice and existing theories of personality.

Scott⁵ delineated adaptive capacity into the following specific characteristics:

1. Adaptability
2. Flexibility
3. Mastery of the environment
4. Capacity to meet and deal with a changing world
5. Capacity to formulate ends and implement them
6. Successful behavior
7. Modifiability of behavior, according to its favorable consequences

Scott's formulation met the specificity criteria of a construct, but was not comprehensive. He delineated the individual's adaptation to the external environment, but failed to account for the individual's growth and satisfaction of internal needs.

Jahoda⁶ identified six approaches to the concept of mental health with several related characteristics the high functioning individual should possess:

⁵W. A. Scott, op. cit., 1968, p. 976.

⁶Maria Jahoda, op. cit., 1958, pp. 22-64.

1. Attitudinal
 - a. Acc
 - b. Cor
 - c. Fe
 - d. Ser
2. Growth
 - a. Mot
 - b. Inv
 - c. Sel
3. Integrative
 - a. Bal
 - b. A u
 - c. Res
4. Autonomy
 - a. Rec
 - b. Inc
5. Perception
 - a. Per
 - b. Em
6. Environmental
 - a. Ab
 - b. Ad
 - c. Ad
 - d. Ef
 - e. Ca
 - f. Ef

Jahoda provided a
 the two criteria of
 some of the diffic
 Adaptive Capacity.
 and satisfaction of
 individual's relations
 met both criteria
 specific. However
 the dimensions we
 of concept of self
 mastery appears
 teristics.

1. Attitudes toward Self
 - a. Accessibility of the self to consciousness
 - b. Correctness of the self-concept
 - c. Feelings about the self-concept
 - d. Sense of identity
2. Growth, Development, or Self-actualization
 - a. Motivational processes
 - b. Investment in living
 - c. Self-concept
3. Integration
 - a. Balance of psychic forces
 - b. A unifying outlook on life
 - c. Resistance to stress
4. Autonomy
 - a. Regulation of behavior from within
 - b. Independent behavior
5. Perception of Reality
 - a. Perception free from need-distortion
 - b. Empathy or social sensitivity
6. Environmental Mastery
 - a. Ability to love
 - b. Adequacy in love, work, and play
 - c. Adequacy in interpersonal relations
 - d. Efficiency in meeting situational requirements
 - e. Capacity for adaptation and adjustment
 - f. Efficiency in problem-solving

Jahoda provided a global definition of mental health that satisfied the two criteria of a construct. The six approaches also resolved some of the difficulties in arriving at a definition of General Adaptive Capacity. The first four relate to the individual's growth and satisfaction of internal needs; the last two relate to the individual's relationship to the environment. Thus, Jahoda's formulation met both criteria of a construct. It was comprehensive and it was specific. However, her proposal had at least two problems. First, the dimensions were not discrete. For example, the characteristic of concept of self appears in two dimensions. Secondly, environmental mastery appears to be a miscellaneous dimension of diverse characteristics.

Allport⁷ summarized Halmos' two principles of normality as a balance between growth as an individual and cohesion with society in developing his model of positive mental health. The two principles agreed with Jahoda's summary of the elements of positive mental health. The principles also provided a clearer distinction between the two dimensions needed to define General Adaptive Capacity.

Allport⁸ listed the following criteria as aspects of positive mental health:

1. Ego Extension--capacity to take an interest in more than one's body and material possession.
2. Self-Objectification--ability to relate feeling tone of present experience to past experience.
3. Unifying Philosophy of Life--a frame of reference that gives meaning and a sense of responsibility to one's major activities.
4. Capacity for a Warm, Profound Relating of One's Self to Others--extroversion of the libido.
5. Possession of Realistic Skills, Abilities and Perceptions--coping mechanisms.
6. Compassionate Regard for all Living Creatures--includes a disposition to participate in common activities to improve the human condition.

Allport's model suggested various characteristics that a high functioning person should possess. However, these characteristics lacked sufficient delineation for empirical validation. Thus, Allport's model failed to meet the specificity criteria of a definition of a construct.

⁷Allport, op. cit., 1968, p. 976.

⁸Ibid., pp. 161-164.

The problem of discrete dimensions was somewhat resolved in Smith's development of a multiple criteria approach to the study of positive mental health. Smith⁹ reviewed various conceptualizations of personality and summarized their similarities. He concluded that most views of personality conceive of two functional systems within the personality of the individual--an internal and an external system. The internal system has properties that relate specifically to the individual's self-concept. The external system has properties that relate specifically to the individual's relationship to the environment. Smith suggested the following formulation:

1. Internal System (Self-Concept)
 - a. Self Attitudes
 - b. Integration
2. External System (Relationship to the Environment)
 - a. Perception of Reality
 - b. Environmental Mastery

Thus, Smith's model offered discrete dimensions. Each dimension had the potential theoretically of carrying equal weight in understanding the problems of human adjustment. What remained was the delineation of these four dimensions into specific characteristics that relate to General Adaptive Capacity.

General Adaptive Capacity

Two recurring themes have persisted in the literature on positive mental health. The first was inner directed and referred

⁹M. B. Smith, op. cit., 1959, pp. 680-681.

specifically to the needs and feelings the individual had about the self. The second was outer directed and referred specifically to how the individual relates to his environment and his perception of reality. These two themes were delineated into various dimensions of what constitutes positive mental health or the mentally healthy individual.

Investigators in the area of mental health have emphasized these two themes as a measure of adaptive functioning. Investigators interested in the self-concept emphasized the individual's self-image or self-esteem as a measure of General Adaptive Capacity.¹⁰ The individual's emotional tone,¹¹ and his ability to satisfy internal needs¹² were regarded as major dimensions of adaptive functioning.

Ego psychologists¹³ have regarded the individual's ability to fit or adjust to the environment as a measure of General Adaptive Capacity. The individual's perception of reality,¹⁴ and mastery of

¹⁰Jahoda, op. cit., 1958, pp. 24-30.

¹¹Allport, op. cit., 1960.

¹²L. S. Kubie, "The Fundamental Nature of the Distinction Between Normality and Neurosis," Psychoanalytic Quarterly, 23 (1954), pp. 187-188.

¹³S. H. King, Five Lives at Harvard: Personality Change During College (Cambridge, Mass.: Harvard Univ. Press, 1973), pp. 20-26; H. Hartmann, Ego Psychology and the Problem of Adaptation (New York: International Univ. Press, 1958).

¹⁴Jahoda, op. cit., 1958, pp. 49-53.

the environment¹⁵ were emphasized as major dimensions of adaptive functioning.

Various investigators (e.g., Piaget, Helson, and Heath)¹⁶ have suggested an obvious relationship between the work of the ego psychologists and the self theorists. They indicated that adaptation is affected by the reaction of the person to the environment as well as by the action of the environment on the individual. Heath¹⁷ provided a descriptive definition of adaptation that integrates the two areas of emphasis in personality research: "To adapt is to so regulate behavior as to optimize simultaneously both the stability of the self-structure and their accommodation to environmental requirements." This definition was consistent with the two recurring themes of inner and outer directedness found in mental health literature.

Thus, the problem of adapting oneself to the environment as a criterion of positive mental health was divided into four dimensions along the lines of the inner and outer directed themes. As an operational definition of General Adaptive Capacity, these four dimensions satisfied the criteria of comprehensiveness of a construct.

¹⁵R. White, "Motivation Reconsidered: The Concept of Competence," Psychological Review, 66 (1959), pp. 297-333.

¹⁶J. Piaget, The Origins of Intelligence (New York: International Univ. Press, 1952); H. Helson, Adaptation Level Theory (New York: Harper and Row, 1964); D. H. Heath, Explorations of Maturity (New York: Appleton-Century-Crofts, 1965), pp. 317-323.

¹⁷D. H. Heath, op. cit., 1965, p. 37.

The following is a descriptive definition of each dimension used in this study:

- I. Inner Directed
 - A. Affective Style--The ability to experience a full range of feelings, thoughts, and reactions.
 - B. Assimilation--The ability to selectively choose external goals that will satisfy internal needs.
- II. Outer Directed
 - A. Accommodation--The ability to assess the appropriateness of adapting oneself to the external environment based on the value, cost, and energy spent in attaining a desired goal.
 - B. Environmental Mastery--The ability to experience challenges and novelty in the environment.

Specific characteristics associated with each dimension listed above have been elaborated by a number of writers. To satisfy the criteria of specificity of a construct the following characteristics were used in this study:

- I. Inner-Directed
 - A. Affective Style
 - 1. Having a Sense of One's Limits
 - 2. Wide range of feelings
 - 3. Ownership of Behavior and Feelings
 - 4. Approaches Anxiety
 - 5. Distress (anxiety) is Maintained within Manageable Limits
 - B. Assimilation
 - 1. Capacity to Formulate Ends and Implement Them
 - 2. Realistic Self-Ideals with Regard to Aspirations and Attainments
 - 3. Flexibility with Regard to Response-Choices
 - 4. Satisfaction of Internal Needs
 - 5. Behavior is Successful
- II. Outer-Directed
 - A. Accommodation
 - 1. Capacity to Meet and Deal with a Changing World
 - 2. Satisfaction of External Requirements
 - 3. Accurate Perception of Reality
 - 4. Capacity to Maintain a Self-Image as Adequate to the Perceived Requirements of a New Situation or in Facing a New Problem
 - 5. Behavior is Situation Appropriate

B. Environmental Mastery

1. Orientation Toward Experiences
2. Emotional Reactions are Situation Defined
3. Attack of Problems which Possess the Quality of Being Beyond One's Current Level of Attainment
4. Regard for New Experiences as Exciting and Rewarding

Various writers have emphasised each of these characteristics as being an important element in the adaptive functioning of the individual.

Inner Directed Dimensions

The first two dimensions of General Adaptive Capacity are inner directed and relate primarily to what Jahoda¹⁸ referred to as Attitudes Toward the Self. In the literature on positive mental health, one area of self-attitudes has been described by the emotional life of the individual. Implied in the elaboration of this term was that one has a sense of awareness and understanding of feelings about the self. In the present study this area of self-attitudes was referred to as Affective Style.

The second area of self-attitudes was described by such terms as self-consciousness, self-centeredness, and self-assertion. Implied in the elaboration of these terms was that one strives to achieve self-gratification and satisfaction of internal needs. This area of self-attitudes was referred to as Assimilation in this study.

Affective Style.--The first inner directed dimension of General Adaptive Capacity referred to the emotionality of the individual. One aspect of emotionality was characterized by

¹⁸Jahoda, op. cit., 1958, p. 24.

the individual's awareness and acceptance of his/her feelings. A second aspect of emotionality concerned the individual's response and management of anxiety.

Gordon Allport,¹⁹ is discussing the characteristic of "Self-Objectification," referred to the detachment of mentally healthy individuals when they survey their wishes and desires in relation to their abilities; their opinion of themselves in relation to the opinion others have of them. Cattell²⁰ saw mentally healthy individuals as being able to distinguish what they would like to be from what they are. The ideal self tends to merge with the real self. They have the ability to distinguish between reality, and feelings and desires.²¹

McLaughlin²² discussed the mentally healthy individual as being ". . . aware of his feelings, knows toward what and whom these are directed; he does not have to distort them, but can entertain them even when painful. . . ." Ernest Jones²³ referred to the psychologically healthy mind as being one in which the full capacities of the individual are available for use.

¹⁹Gordon Allport, Personality: A Psychological Interpretation (New York: Henry Holt & Co., 1938), pp. 165-196.

²⁰R. B. Cattell, Personality: A Systematic Theoretical and Factual Study (New York: McGraw, 1950), pp. 656-657.

²¹James T. McLaughlin, "Normality and Psychosomatic Illness," Mental Hygiene, 34 (1950), p. 21.

²²Ibid.

²³Ernest Jones, "The Concept of the Normal Mind," International Journal of Psychoanalysis, 23 (1942), pp. 7-8.

Both Mayman, in speaking about the self-determining attitude of the individual, and Allport,²⁴ in discussing the objectivity of self-perception, referred to the mentally healthy individual as not disowning any major feelings, impulses, capacities or goals in the interest of inner harmony.

Thus, the relationship of the individual's emotionality to his/her adaptive functioning emphasized two areas of affective development: objective self-perception, and ownership of behavior and feelings.

The three characteristics in this study associated with the individual's awareness and acceptance of his/her feelings were:

1. Having a sense of one's limits;
2. Wide range of feelings;
3. Ownership of behavior and feelings.

The problem of anxiety has been a much disputed area concerning what constitutes a symptom and what constitutes a criterion of pathology.²⁵ However, there was agreement among a number of writers as to how anxiety relates to mental health and adaptive functioning.

²⁴M. Mayman, The Diagnosis of Mental Health. Unpublished. (Menninger Foundation, 1955). As quoted in Maria Jahoda, Current Concepts of Positive Mental Health (New York: Basic Books, 1959), pp. 34-35; and Allport, op. cit., 1938, p. 168.

²⁵S. Freud, The Problem of Anxiety (New York: Norton, 1936); O. H. Mowrer, "'Sin,' the Lesser of Two Evils," American Psychologist, 15 (1960), pp. 301-304; N. E. Miller and J. Dollard, Social Learning and Limitation (New Haven: Yale Univ. Press, 1941); Jahoda, op. cit., 1958, p. 42.

Eaton²⁶ suggested that mentally healthy individuals do not have an absence of anxiety, but react to their anxiety differently. Avoidance of anxious feelings or anxiety provoking situations results in limiting the adaptive functioning of individuals. Mentally healthy individuals do not shy away from anxiety but approach it. Individuals who experience and own their own anxiety allow themselves to have access to their own internal life. "The anxiety approacher is not only able to label accurately that he is anxious. He is also able to differentiate and to discriminate that he can continue to think, to feel, and so on. Vital, internal processes are not cut off or made unavailable by the undifferentiated label, 'I'm anxious.'"²⁷

Well-adjusted individuals maintain optimal emotionality. They are neither constricted nor overwhelmed by their own reactions. According to Jones,²⁸ normal behavior has been synonymous with the ability to handle anxiety. Allport²⁹ referred to the tolerance for frustration as one characteristic that distinguishes mentally healthy individuals from others. McLaughlin³⁰ suggested that the mentally healthy person can endure frustration and the postponement of satisfaction.

²⁶Joseph W. Eaton, "The Assessment of Mental Health," American Journal of Psychiatry, 108 (1951), p. 83.

²⁷Bill Kell and William Meuller, Coping With Conflict (New York: Appleton-Century-Crofts, 1972), p. 207.

²⁸E. Jones, op. cit., 1942, p. 3.

²⁹Allport, op. cit., 1960, p. 166.

³⁰McLaughlin, op. cit., 1950.

Thus, investigators emphasized two additional areas of affective development as a measure of adaptive functioning. First, the individual's response to his/her own anxiety. Second, the individual's management of his/her own anxiety.

The two characteristics in this study associated with the individual's response and management of anxiety were: (1) Approaches anxiety; and (2) Distress (anxiety) is maintained within manageable limits.

Thus, Affective Style was an inner directed dimension of General Adaptive Capacity that referred to the individual's sense of awareness and understanding of feelings about the self. This dimension was defined in the present study as: The ability to experience a full range of feelings, thoughts, and reactions.

Specific characteristics associated with this dimension were:

(1) Having a sense of one's limits; (2) Wide range of feelings; (3) Ownership of behavior and feelings; (4) Approaches anxiety; and (5) Distress (anxiety) is maintained within manageable limits.

High Functioning Individuals on the dimension of Affective Style have access to their internal feelings. They do not avoid dealing with their feelings because they are uncomfortable. They approach things that are anxiety provoking rather than simply avoiding the anxiety. They have a high tolerance of ambiguity and use worrying creatively as a means of resolving concerns. They have a tendency to focus on the solution to problems rather than their cause.

Low Functioning Individuals on the dimension of Affective Style have difficulty distinguishing between their own feelings and the feelings of others. Ambiguity and anxiety provoking situations are difficult to deal with. The tendency is to avoid situations that are ambiguous or provoke anxiety. They have a tendency to focus on the cause of problems rather than their solution. They worry about self in a non-productive way that results in complicating their concerns rather than resolving them.

Assimilation.--The second inner directed dimension of General Adaptive Capacity referred to the individual's efforts to satisfy his/her internal needs. Piaget³¹ defined assimilation as the active component of adaptation implying that the environment is made to provide the satisfaction one wants. This dimension was characterized by two aspects of the individuals relationship to the environment. First, the individual's ability to formulate goals and aspirations consistent with the self. Second, the individual's ability to receive from the environment that which is enhancing to the self.

The nature of assimilatory activity has been integrally connected to the stability and accuracy of the self-structure. Werner³² suggested that the consequence of a poorly organized self-structure was passive response to the environment.

³¹Piaget, op. cit., 1952.

³²H. Werner, "The Concept of Development from a Comparative and Organismic Point of View," In D. B. Harris (Ed.) The Concept of Development: An Issue in the Study of Human Behavior (Minneapolis: Univ. Minn. Press, 1957), pp. 126-127.

Individuals whose self-structure was stable and accurate were less stimulus bound and less impelled by their own affective states. A consequence of this freedom was the clearer understanding of goals, the possibility of employing substitute means and alternative ends. Hence, there was a greater capacity for delays and planned action. Individuals were better able to exercise choice in responding to a situation.³³

Thus, individuals whose self-structure was well organized were characterized by the capacity to formulate ends and implement them, and their aspirations were consistent with the perception of self.

The idea of flexibility of response-choices suggested by Werner was further elaborated by Jahoda.³⁴ She regarded mental health as being a "kind of resilience (flexibility) of character or ego strength permitting an individual, as nearly as possible, to find in his world these elements he needs to satisfy his basic impulses in a way that is acceptable to his fellows or, failing this, to find a suitable sublimation of them. . . ." Kubie³⁵ appeared to agree with the importance of flexibility to the development of mental health. "The essence of normality is flexibility, in contrast to the freezing of behavior into patterns of unalterability that characterizes every manifestation of the neurotic process, whether in impulses, purposes, acts, thoughts, or feelings."

³³Ibid.

³⁴Jahoda, op. cit., 1958, p. 42.

³⁵Kubie, op. cit., 1954, p. 187.

Thus, a third characteristic of adaptive functioning on the dimension of assimilation was flexibility of responses to the environment.

Other writers also stressed the importance of the self-structure to assimilatory activity. Both Piaget and Heath³⁶ stressed the importance of discriminating the self from the external world as a necessary prerequisite to achieving gratification of internal needs and behavior designed to meet those needs.

Piaget³⁷ suggested that a great deal of mental development (in this case, development of the self-structure) depends upon individuals having an "object concept." Such a concept requires individuals to understand that the world is made up of objects having substance and permanence. The development of an object concept is necessary to arrive at fundamental distinctions between the self and the external world.

Heath³⁸ indicated that assimilation is a modification of environmental information to fit the self-structure of the individual. Along a similar vein Hartmann³⁹ referred to adaptation as being a reciprocal relationship between the organism and its environment. The individual with a poorly developed object concept is in a state of confusion as to the reciprocal nature of that relationship.

³⁶Piaget, op. cit., 1952; D. H. Heath, op. cit., 1965.

³⁷Piaget, op. cit., 1952.

³⁸D. H. Heath, op. cit., 1965, p. 20.

³⁹Hartmann, op. cit., 1958, pp. 23-24.

Hence, the individual has difficulty distinguishing between information that is gratifying to internal needs and information that is designed to meet environmental expectations.

Two final characteristics of adaptive functioning on the dimension of assimilation were: satisfaction of internal needs, and the achievement of a sense of success through behavior.

Thus, Assimilation was an inner directed dimension of General Adaptive Capacity that referred to the individual's striving for self-gratification and satisfaction of internal needs. The dimension was defined as: The ability to choose external goals that will satisfy internal needs. Specific characteristics associated with the dimension were: (1) Capacity to formulate ends and implement them; (2) Realistic self-ideals with regard to aspirations and attainments; (3) Flexibility with regard to response-choices; (4) Satisfaction of internal needs; and (5) Behavior is successful.

High Functioning Individuals on the dimension of Assimilation have confidence in their own identity. They choose to strive for goals that are consistent with the perception of self. Their perceptions of their capabilities and of self are accurate. They have a sense of accomplishing tasks that are satisfying to internal needs.

Low Functioning Individuals on the dimension of Assimilation lack a clear sense of self identity, i.e., the self-image is diffuse. Behaviors and goals are based on satisfying the needs of others or on a distortion of internal needs. The perception of self is inaccurate resulting in dissatisfaction of internal needs.

Outer Directed Dimensions

The last two dimensions of General Adaptive Capacity were **outer directed**. They were related to the individual's efforts to **meet environmental expectations**, and to achieve a sense of mastery **in interacting with the environment**. Central to these two dimensions **was** that the individual understands and accepts the fact that one **lives in a world of differences**. Reality is not necessarily hostile **to the needs of the individual**. Aspects of reality have as equal a **potential of supporting and satisfying individual needs** as it does **of thwarting them**. The positive aspects of the environment can **serve as a source of pleasurable challenge and stimulation for the individual**.

The ability of the individual to meet environmental **expectations** was referred to as Accommodation in this study. The second **outer directed dimension**, Environmental Mastery referred to the **individual's striving to achieve a sense of competence and success**.

Accommodation.--Piaget⁴⁰ defined accommodation as the **passive** component of adaptation implying that one learns to like **whatever** the environment has to offer. Central to the dimension was **the** individual's perception of environmental expectations, and the **appropriateness** of one's responses to the environment.

Wendall Johnson⁴¹ suggested that mentally healthy **individuals** understand the fact that they do not live in a static world.

⁴⁰Piaget, op. cit., 1952.

⁴¹Wendall Johnson, People in Quandaries (New York: Harper, 1946), p. 24.

The world and what is called reality is always changing. "No other fact so unrelentingly shapes and reshapes our lives as this: that reality, in the broadest sense, continually changes; once we grasp clearly what has been 'known' for centuries and what is, in fact, the central theme of modern science, that no two things are identical and that no one thing is ever twice the same, that everywhere is change, flux, process, we understand that we must live in a world of differences. . . ."

Individuals not only understand differences in their environment, but they accept them. Thus, mentally healthy individuals possess social sensitivity or empathy for the environment.⁴² Allport referred to this empathic regard for the environment as "Self-Extension"⁴³ or "A Compassionate Regard for all Living Creatures."⁴⁴

A third aspect of environmental perception was dependent upon the accuracy of perception. Mentally healthy individuals test reality for its degree of correspondence to their wishes or fears. Thus, accurate perception of reality is free from distortion of internal needs. "Mentally healthy perception means a process of viewing the world so that one is able to take in matters one wishes were different, without distorting them to fit these wishes--that is, without inventing cues not actually existing."⁴⁵

⁴²N. N. Foote and L. S. Cottrell Jr., Identity and Interpersonal Competence (Chicago: Univ. of Chicago Press, 1955), p. 55.

⁴³Allport, op. cit., 1938, p. 213.

⁴⁴Allport, op. cit., 1960, p. 162.

⁴⁵Jahoda, op. cit., 1958, p. 51.

Thus, the relationship of the individual's capacity to meet environmental expectations to one's adaptive functioning emphasized his/her acceptance of the environment, and his/her perception of the environment.

The three characteristics associated with individual perception of environmental expectations were: (1) Capacity to meet and deal with a changing world; (2) Satisfaction of external requirements; and (3) Accurate perception of reality.

The second central issue in defining the dimension of Accommodation was the appropriateness of the individual's response to the environment. Response appropriateness fragments into concern for the individual's self-image and the accurate matching of one's behavior to the situation.

The self-image of mentally healthy individuals is not fragile. They are capable of entering a new situation while maintaining an image of themselves as adequate. They are not overwhelmed by a new situation even if it is potentially threatening, and possesses the quality of failure for them.⁴⁶

Individuals tend to behave in ways that are consistent with their self-image. The behavior of low functioning individuals is based on a distortion of situational requirements. Thus, their behavior is designed to maintain or enhance their self-image. The self-image of high functioning individuals is not solely dependent upon their response to a situation. Thus, their perception of the

⁴⁶Earle Silber, et al., "Adaptive Behavior in Competent Adolescents," A.M.A. Archives of General Psychiatry, 5 (1961), pp. 362-363.

requirements of a situation is not based on distortion. Their behavior is designed to meet situational requirements.⁴⁷

The two characteristics associated with the appropriateness of response to the environment were: (1) Capacity to maintain a self-image as adequate to the perceived requirements of a new situation; and (2) Behavior is situation appropriate.

Thus, Accommodation was an outer directed dimension of General Adaptive Capacity that referred to the individual's perception of the environment, and to the appropriateness of one's response to the environment. The dimension was defined as: The ability to assess the appropriateness of adapting oneself to the external environment based on the value, cost, and energy spent on attaining a desired goal. Specific characteristics associated with the dimension were: (1) Capacity to meet and deal with a changing world; (2) Satisfaction of external requirements; (3) Accurate perception of reality; (4) Capacity to maintain a self-image as adequate to the perceived requirements of a new situation or in facing a new problem; and, (5) Behavior is situation appropriate.

High Functioning Individuals on the dimension of Accommodation have an accurate perception of the environment. Their

⁴⁷Piaget's concept of adaptation is actually a synthesis or proper balance of the active and the passive components (Assimilation and Accommodation) in the individual's relationship with his environment. The synthesis between these two dimensions is also implied in Heath's descriptive definition of adaptation (see page 90). Thus indiscriminate meeting of situational requirements is as adaptively inappropriate as distorting situational requirements to enhance the self-image.

behavior is flexible and situation appropriate. Their emotional focus is on external experiences.

Low Functioning Individuals on the dimension of Accommodation distort reality and misinterpret environmental expectations. Their emotional focus is on internal experiences. Their behavior is rigid and frequently inappropriate.

Environmental Mastery.--The second outer directed dimension of General Adaptive Capacity referred to individual achievement in the area of environmental mastery. Robert White⁴⁸ used the term "effectance motivation" to describe the dimension. He defined effectance motivation as ". . . the affective and cognitive pleasure derived from learning and mastery of the environment." Central to the dimension was the individual's orientation toward experiences, and one's ability to solve problems.

In discussing adaptational processes of the individual to the environment, Hartmann⁴⁹ stated that the negative emphasis of reality-adaptation results in the individual's activity oriented toward denial or avoidance of aspects of the environment in which difficulties are encountered. Consequently, this negative emphasis results in ego restriction and an avoidance of experiences that could resolve areas of concern. The positive correlate to reality-adaptation resides in the individual's search for a favorable environment, and resolution of developmental difficulties. The

⁴⁸R. White, "Motivation Reconsidered: The Concept of Competence," Psychological Review, 66 (1959), p. 323.

⁴⁹Hartmann, op. cit., 1958, pp. 19-20.

positive emphasis results in the individual's activity oriented toward experiences whether or not the experiences involve areas of personal difficulty. The individual's activity in the latter case is seen as an effort to find a positive relationship between the self and the environment through mastery of reality.

Mentally healthy individuals are oriented toward experiences. They do not avoid new experiences but seek them out. Experiences are not sought out merely for their own sake, but as a means of interacting effectively with the environment. Thus, they strive to interact effectively with the environment through an experiential process of exploratory and investigatory activity. White⁵⁰ referred to this interaction as a striving for competence. Hendrick⁵¹ proposed an "exploratory drive" or an "instinct to master" that is characterized as "an inborn drive to do and to learn how to do." The instinct to master enables individuals to control and alter their environment. White⁵² suggested that individuals derive satisfaction from not only understanding the environment, but as a result of their activities they produce an effect on the environment.

Thus, the individual's orientation toward experiences was conceived as an effort to find a positive relationship between the

⁵⁰White, op. cit., 1959.

⁵¹I. Hendrick, "The Discussion of the 'Instinct to Master,'" Psychoanalytic Quarterly, 12 (1943), p. 565.

⁵²White, op. cit., 1959.

self and the environment; and as the individual's effort to have an impact on the environment.

Jahoda⁵³ perceived environmental mastery as a problem-solving process rather than an end goal. Various problems and concerns in living are encountered in the life-space of the individual. Resolution of the areas of concern proceed through various stages that are accompanied by a variety of feelings. The feelings that accompany each problem-solving stage can serve as an incentive for proceeding to subsequent stages, or for abandoning the area of difficulty depending on the individual's reactions to the feelings. Feelings of frustration that overwhelm the individual lead to discouragement and abandoning an area of concern. Jahoda referred to this process as maintaining the appropriate feeling tone in problem-solving.

White⁵⁴ agreed with Jahoda's formulation of environmental mastery as being a process. He suggested that environmental mastery involves the individual's attack of problems that are beyond one's current level of attainment. Erickson's⁵⁵ concept of developmental stages was supportive of White's ideas. The growing child progresses through various stages of development from infancy to adulthood. Mastery during one developmental stage advances the child forward to new stages of mastery. White⁵⁶ suggested that this process of

⁵³Jahoda, op. cit., 1958, p. 64.

⁵⁴White, op. cit., 1959, p. 320.

⁵⁵E. Erickson, Childhood and Society (New York: Norton, 1952).

⁵⁶White, op. cit., 1959, pp. 321-324.

learning and mastery continues through adulthood. Through the process the individual achieves a sense of competence in environmental mastery. The sense of competence is motivated from a need to experience newness and novelty in the environment; and from a need to explore and investigate. Thus, mentally healthy individuals constantly strive to achieve mastery over some aspect of the environment that is beyond their current level of attainment. A similar idea has been proposed by various writers (e.g., the concept of self-actualization, Goldstein, 1940; Maslow, 1954; and the concept of the need for power, Sullivan, 1953).⁵⁷

Thus, Environmental Mastery was an outer directed dimension of General Adaptive Capacity that referred to the individual's orientation toward experiences and the sense of success and competence the individual achieves through problem-solving. The dimension was defined as: The ability to experience challenges and novelty in the environment. Specific characteristics associated with this dimension were: (1) Orientation toward experiences; (2) Regard for new experiences as being exciting and rewarding; (3) Emotional reactions are situation defined; and (4) Attack of problems which possess the quality of being beyond one's current level of attainment.

High Functioning Individuals on the dimension of Environmental Mastery are experience and goal oriented. Novelty and new experiences

⁵⁷K. Goldstein, Human Nature in the Light of Psychopathology (Cambridge, Mass.: Harvard Univ. Press, 1940); Maslow, op. cit., 1954; H. S. Sullivan, The Interpersonal Theory of Psychiatry (New York: Norton, 1953).

are enjoyed for their own sake as well as for the sake of satisfying environmental requirements. The feeling of competence and a sense of striving are motivated in their own right by the individual rather than motivated by forces outside of the individual.

Low Functioning Individuals on the dimension of Environmental Mastery have a tendency to be reactive to the environment. New experiences have the quality of being threatening and are avoided. Personal goals are absent or are unclearly formulated.

Summary

Researchers in the field of mental health have emphasized one of two major themes as a measure of adaptive functioning. The self theorists have emphasized an inner directed theme. They have regarded the individual's self-image or self-esteem to be of prime concern in understanding the problems of human adjustment. The ego psychologists have emphasized an outer directed theme. They have regarded the individual's ability to fit or adjust to the environment as being of major importance in understanding the mental health of the individual.

Those who have adhered to a unitary view of mental health have regarded these two theoretical positions as simply being different ways of attending to the same construct. The multidimensional view of mental health has regarded these two positions as speaking of two functionally different systems. Proponents of the multidimensional view have suggested that self-esteem and environmental adjustment are clearly related. However, an understanding of human adjustment requires investigating how these two systems mutually facilitate and hamper each other.

Mental health was regarded as a multidimensional concept in this study. An investigation into General Adaptive Capacity as a criterion of mental health was the theme of this study. General Adaptive Capacity was operationally defined as consisting of various characteristics that cluster around four postulated dimensions of adaptive functioning. This definition was consistent with the inner and outer directed themes found in the literature on mental health. Table 3.1 summarizes the high and low levels of functioning of the individual on each postulated dimension.

It was an assumption of this study that the characteristics subsumed under each dimension were descriptive of the adaptive functioning of a person on that dimension. This assumption has been supported by mental health theory and research.

Two of the four dimensions of General Adaptive Capacity were assumed to be inner directed. These dimensions attended to attitudes about the self or the individual's self-image. The first inner directed dimension, Affective Style, concerned the relationship of the individual's emotionality to one's adaptive functioning. Assimilation, the second inner directed dimension, stressed the importance of the individual's ability to satisfy internal needs to his/her adaptive functioning.

The two outer directed dimensions of General Adaptive Capacity emphasized the individual's ability to fit or adjust to the environment. The first outer directed dimension, Accommodation, concerned the individual's ability to meet environmental expectations as an aspect of adaptive functioning. Environmental Mastery, the

TABLE 3.1.--Summary of Personality Characteristics Associated with General Adaptive Capacity.

Low Functioning Level	Postulated Dimension	High Functioning Level
Awareness of internal feelings is vague and unclear. Anxiety is avoided. Focus on cause of problems. Worries about self in a non-productive way. Low tolerance of ambiguity.	Affective Style (Internal)	Clear sense of a wide range of internal feelings. Anxiety is approached. Focus on solution to problems. Creative use of worrying. High tolerance of ambiguity.
Internal needs are not satisfied. External goal choice is based on distortion of internal needs. Absence of response flexibility. Perception of self is inaccurate.	Assimilation (Internal)	Internal needs satisfactorily met and consistent with external goal choice. Flexible response to environment. Perception of self is accurate.
Perception of environment is inaccurate. Behavior is rigid and frequently inappropriate. Emotional focus on internal experience.	Accommodation (External)	Perception of environment is accurate. Behavior is flexible and situation appropriate. Emotional focus on external experience.
New experiences are avoided. Goals are absent or unclear. Tendency to be reactive.	Environmental Mastery (External)	Experience and goal oriented. Tendency toward activity and a sense of striving.

second outer directed dimension, stressed the importance of the individual's striving for competence and success to his/her adaptive functioning.

It was an assumption of this study that a scale designed to measure General Adaptive Capacity would yield items which discriminate between the high and low levels of functioning. It was further assumed that a factor analysis of the discriminating items would indicate those items which define the four postulated dimensions of General Adaptive Capacity. Analysis of the salient items of each factor would distinguish the levels of functioning for the individuals selected for study.

The design and procedure of the present investigation are detailed in the chapter which follows.

CHAPTER IV

DESIGN AND METHODOLOGY

In the five major sections which follow, a description is presented of the research procedures of the present preliminary investigation of General Adaptive Capacity as a multidimensional construct of mental health.

The development of an instrument (the Survey of Actualization: Adaptation), designed to measure the proposed theory of General Adaptive Capacity, is reviewed in section one.

In section two, the procedure for identifying and selecting the three samples used in the study is outlined.

The method of collecting data for the study is reviewed in the third section.

In section four, the basic assumptions underlying the study are identified. In addition, the four major research hypotheses of the study are stated.

The two basic methods of analyzing the data are outlined in section five.

Instrumentation

A basic component of the study was the construction of an inventory to measure the proposed theory of General Adaptive Capacity. The purpose of the inventory was to measure the four significant

dimensions outlined in the theory. Since no comprehensive instrument was found to measure the areas of interest, it was necessary to construct one. Item selection was based on the following two sources: (1) Items were extracted and edited from various scales of omnibus personality inventories. (2) Items were selected or derived from the empirical findings of studies of normality. The items selected and written for the inventory reflected the four dimensional theory of adaptive functioning (see Chapter III). Where possible, attempts were made to phrase items that would connote a positive orientation toward mental health rather than a negative orientation toward pathology. The instrument developed for this purpose was named the Survey of Actualization: Adaptation (SAA).¹

The primary tests from which items were chosen were the Omnibus Personality Inventory, Minnesota Multiphasic Personality Inventory, and the California Personality Inventory.² The majority of items were derived from the research results of Heath, Golden, Grinker, Silber, and Offer³ (see Chapter II for a review of these studies).

¹The Survey of Actualization: Adaptation is hereafter referred to as the SAA.

²Paul Heist, George Yonge, T. R. McConnell, and Harold Webster, Omnibus Personality Inventory Manual (New York: Psychological Corporation, 1967); S. R. Hathaway, J. C. McKinley, Manual for the MMPI (New York: Psychological Corporation, 1967); H. G. Gough, California Psychological Inventory Manual (Palo Alto, California: Consulting Psychologists Press, 1957).

³Donald H. Heath, Explorations of Maturity (New York: Appleton-Century-Crofts, 1965); D. H. Heath, Growing Up in College (San Francisco: Jossey-Bass, Inc., 1968); J. Golden, et al., "Summary Description of Fifty 'Normal' White Males," American

A pool of test items was constructed and scaled to a four-point Likert scale: (1) Never, (2) Sometimes, (3) Frequently, (4) Always. The rationale of a four-point scale was as follows: (1) an even number of response choices requires a person to take a position; (2) a four-point scale gives an individual flexibility in response style not found in simple true-false tests. Three persons, a clinical psychologist and two counseling psychologists, read all items. Those items marked as unclear or difficult to understand were either rewritten for clarification or dropped from the item pool. The three readers also scored each item in the predicted direction of a high functioning individual. The predicted direction of a score was determined by the criteria established in the proposed theory of General Adaptive Capacity (see Chapter III). Where disagreements in scoring arose on an item, the item was either dropped from the pool or disagreements were resolved. After several revisions these procedures resulted in a total of 205 scored items.

Journal of Psychiatry, 119 (1962), pp. 48-56; Roy Grinker, et al., "A Study of 'Mentally Healthy' Young Males (Homoclitites)," A.M.A. Archives of General Psychiatry, 6 (1962), pp. 405-451; Roy Grinker, "A Dynamic Study of the Homoclitite," Science and Psychoanalysis, ed. by Jules Masserman (New York: Grune and Stratton, 1963), Vol. 6, pp. 115-134; Earle Silber, et al., "Adaptive Behavior in Competent Adolescents," A.M.A. Archives of General Psychiatry, 4 (1961), pp. 354-365; Earle Silber, et al., "Competent Adolescents Coping with College Decision," A.M.A. Archives of General Psychiatry, 5 (1961), pp. 517-528; Daniel Offer, and Melvin Sabshin, "The Psychiatrist and the Normal Adolescent," A.M.A. Archives of General Psychiatry, Vol. 9, No. 5 (1963), pp. 427-432; Daniel Offer, et al., "Clinical Evaluations of Normal Adolescents," American Journal of Psychiatry, Vol. 121, No. 9 (1965), pp. 864-872; Daniel Offer, "Normal Adolescents: Interview Strategy and Selected Results," A.M.A. Archives of General Psychiatry, 17 (1967), pp. 285-290; Daniel Offer and Kenneth Howard, "An Empirical Analysis of the Offer Self-Image Questionnaire for Adolescents," A.M.A. Archives of General Psychiatry, 27 (1972), pp. 529-523.

Each of the selected items was assigned to one of the four dimensions of the proposed theory according to item content. The number of items assigned to each dimension was as follows: Affective Style--48 items; Assimilation--49 items; Accommodation--59 items; Environmental Mastery--48 items (see Appendix A). The 205 items were placed in random order and numbered 1 through 205. Examples of items from each of the four a priori scored and classified scales are as follows:

- 170. I anticipate how I will feel in a situation.
(Scale--Affective Style; Scored--4, Always)
- 98. I feel I am responsible for my actions.
(Scale--Assimilation; Scored--4, Always)
- 189. I am influenced by the behavior of others.
(Scale--Accommodation; Scored--2, Sometimes)
- 110. I have a desire to learn new things.
(Scale--Environmental Mastery; Scored--4, Always)

A page of instructions was written to be concise and understandable. The entire inventory was stapled together into ten-page booklets (see Appendix B).

Sample Section

There were three major objectives of the study:

- 1. To empirically investigate the adaptive functioning construct.
- 2. To validate an instrument (SAA) designed to measure the proposed theory of adaptive functioning.
- 3. To identify differential levels of functioning among individuals on the criterion of General Adaptive Capacity.

To accomplish these objectives the following three samples were selected for study from the same population: (1) undergraduate

resident hall advisors (RA's); (2) a random sample of undergraduate students; and (3) a cross-validation sample of college students nominated as being high functioning individuals.

Resident Hall Advisor Staff

Michigan State University employs a number of undergraduate college students to serve as paraprofessional counselors and advisors to the students living in each of the resident halls on campus. Application for staff positions is open to any undergraduate student above the level of freshman. Only those individuals who demonstrate a psychological understanding of themselves and the ability to help others in emotional conflict are selected to become resident hall advisors (RA's).⁴ In addition, each RA staff participates in an intensive paraprofessional training program. The paraprofessional training programs are conducted by psychologists from the University Counseling Center. Thus, the resident hall advisor staff represented a special sample of undergraduate students who were selected for their maturity and adaptability. It was assumed that the impact of the selection process was the identification of a fairly homogeneous, above average functioning group.

An additional, screening device was developed to nominate a sample of the RA staff who functioned at high levels on each of the four dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) of adaptive capacity. However, response

⁴The resident hall advisor staff is hereafter referred to as RA's or the RA sample.



to the screening device was poor and this procedure was dropped from the study.

Three-hundred-twenty resident hall advisors were employed by the University during the 1971-72 school year. The entire resident hall staff was asked to participate in the study. Each head resident advisor was asked to encourage his/her staff to cooperate in the study. The sample consisted of approximately equal numbers of males and females. Seventeen per cent of the sample were sophomores. The proportion of juniors and seniors in the sample was 45% and 38%, respectively. The distribution of the RA's by class and sex is presented in Table 4.1.

Random Sample

A computerized file of all students attending Michigan State University is kept in the Student Records Office. The Student Records Office was asked to randomly select 102 students from each class above the freshman level. The sample was evenly divided between males and females. It was assumed that the subjects selected represented a heterogeneous group of diverse levels of functioning of students attending Michigan State University. A total of 306 students were randomly selected. Twelve of those selected were RA's and were removed from the random sample. The distribution of the 294 students who comprised the random sample is presented in Table 4.2.

Cross-Validation Sample

A group of thirty subjects were identified as a criterion group. The cross-validation sample was a nominated group of subjects

TABLE 4.1.--Distribution of Resident Hall Advisors (RA's) by Class and Sex.

		Sex		Total
		Male	Female	
Class	Soph.	36	18	54
	Junior	57	86	143
	Senior	62	61	123
	Total	155	165	320

TABLE 4.2.--Distribution of Random Sample by Sex and Class.

		Sex		Total
		Male	Female	
Class	Soph.	49	51	100
	Junior	50	49	99
	Senior	49	46	95
	Total	148	146	294

306 Sampled; 12 RA's Omitted from Sample; 294 Surveys distributed.

who were judged to be mature and to rate high on the criteria of adaptability.

Six psychologists were asked to nominate five individuals. The individuals nominated were judged by the psychologists to be emotionally stable, self-actualizing men and women. The thirty subjects that comprised the cross-validation sample were all college students either at the graduate or undergraduate level. They ranged in age from twenty to twenty-seven years old. Seventeen of the subjects were male; thirteen of the individuals nominated were female. Ten of the subjects were attending Michigan State University at the time of their nomination. The balance of twenty subjects in the cross-validation sample were attending four other universities across the country at the time of their nomination.

Administration of the Instrument

The subjects in the random and RA samples were given SAA test booklets and two IBM answer sheets. The IBM answer sheets were used to facilitate machine scoring. The instructions on the cover of each test booklet requested information on sex, year in school, Michigan State University address, and the name of each subject. A cover letter (see Appendix B) was included in the test materials explaining the purpose of the study and requesting the cooperation from each subject in completing the test materials. Included in the letter were instructions to return the completed test materials through the Michigan State University campus mail.

It was estimated that from one to two hours was required to complete the test materials. Length of time between delivering the

test packets and having the completed answer sheets returned ranged from a few days to several weeks. Repeated requests to have the materials completed and returned were required before many subjects would finish the task.

The test materials were delivered to the two samples during the seventh week of Michigan State University's spring term. The timing of the distribution of test materials was unfortunate. Many subjects complained that they were too busy completing term papers and preparing for final examinations to take time to complete the inventory. Subjects who did complete the inventory were regarded as a "cooperative" sample. Thus, generalization of the results from the study beyond those subjects who participated is questionable.

A total of 614 test packets were passed out to the RA and random samples. Forty-two per cent (120 subjects) of the random sample completed the task. The returns were distributed in approximately equal numbers of males and females across the three class levels for the random sample. By comparison, the task was completed by 32% (102 subjects) of the RA sample. The proportion of RA returns was approximately equal across class levels. However, almost twice as many female RA's completed the test materials as male RA's. Thus, two-hundred-twenty-two subjects (36%) of both samples returned the completed test materials. The distribution of returns by sample is contained in Tables 4.3 and 4.4.

The administration procedures and instructions for the cross-validation sample were similar to those described above for the random and RA samples. Test materials were given (or sent) to the

TABLE 4.3.--Distribution of Returns from Residence Hall Advisors by Class and Sex.

		Sex		Totals
		Male	Female	
Class	Soph.	7(19.4%)	7(38.8%)	14(25.9%)
	Junior	12(21%)	35(40.7%)	47(32.8%)
	Senior	15(24.2%)	26(42.6%)	41(33.3%)
	Totals	34(21.5%)	68(41.2%)	102(31.8%)

320 Total Surveys Distributed; 102 Returned (32%)

TABLE 4.4.--Distribution of Returns from Random Sample by Class and Sex.

		Sex		Totals
		Male	Female	
Class	Soph.	18(36.7%)	19(37.2%)	37(37%)
	Junior	21(42%)	21(42.8%)	42(42.4%)
	Senior	14(28.5%)	27(58.7%)	41(43.1%)
	Totals	53(36.5%)	67(45.9%)	120(41.6%)

306 Sampled; 12 RA's Omitted from Random Sample; 294 Surveys Distributed; 120 Returned (42% of those distributed)

psychologist who nominated each of the subjects that comprised the sample. The materials were then distributed to each subject and the completed test was returned to the psychologist who nominated the subject. Twenty-nine subjects returned the completed test packets. One female did not complete the task. Repeated requests to have her complete the inventory were ignored. She was finally dropped from the study.

A total of 251 subjects from the three samples completed the inventory. The returned test materials were coded with an identifying number for each student who completed the task. Responses to the SAA were tabulated and punched on computer cards. An item analysis using a discrimination index value identified those items that discriminated between the high and low levels of functioning on each of the a priori classified scales (Affective Style, Assimilation, Accommodation, and Environmental Mastery).⁵ The procedure resulted in a reduction of SAA items from 205 to 85. The reduction of the number of items on the SAA was necessary to eliminate those items on the SAA which failed to discriminate between the high and low levels of adaptive functioning on each of the a priori classified scales.

Hypotheses

It was suggested earlier in the study (see Chapter II) that adaptive functioning was a multi-dimensional construct of mental

⁵Since the cross-validation sample was selected as a criterion group, they were omitted from this part of the study.

health not sufficiently explained by the absence of pathology. It was further stated that some individuals achieve an adaptive style at the expense of some area of human functioning; while the adaptive style of other individuals was not achieved by limited functioning in some area of adaptive capacity. Finally, in Chapter III, four dimensions of the adaptive functioning construct were identified and a proposed theory of General Adaptive Capacity was outlined.

Four basic assumptions were made in the study.

1. A factor analysis of items on an instrument (SAA) designed to measure the proposed theory would yield interpretable factors.

2. The salient items that comprised each interpretable factor would discriminate between the high and low levels of functioning of the subjects in each group.

3. The subjects of each group would respond to the salient items of the SAA in predicted directions (i.e., the subjects in the cross-validation sample would represent a homogeneous, high functioning group; the RA sample would represent a fairly homogeneous, above average functioning group of subjects; the random sample would represent a heterogeneous group of diverse levels of functioning).

4. Scores on the salient items of each interpretable factor would not be related to scores on the salient items of other interpretable factors.

The following research hypotheses were designed to measure these assumptions.

Factor Structure Hypotheses

It was proposed in Chapter III that adaptive functioning was a psychological construct consisting of various characteristics that clustered around four postulated dimensions. Thus, the first null hypothesis and directional alternate were designed to examine the results of a number of specified factor rotations to determine whether the derived factors were interpretable within the framework of the four dimensional theory of General Adaptive Capacity.

H₀₁: There will be no relationship between factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation and the theoretical dimensions of General Adaptive Capacity.

H₁₁: A factorial analysis of the discriminating items on the Survey of Actualization: Adaptation will form a structure consistent with the theoretical dimensions of General Adaptive Capacity.

Various theorists (e.g., King, Murphy, White, Mechanic, and D. H. Heath)⁶ have suggested that the construct of adaptive functioning was composed of similar characteristics. However, they have regarded these characteristics as clustering around a different set of dimensions. For instance, King and Murphy have suggested a

⁶Stanley H. King, Five Lives at Harvard: Personality Change During College (Cambridge: Harvard University Press, 1973); Lois Murphy and Alice Moriarty, Vulnerability, Coping, and Growth: From Infancy to Adolescence (New Haven: Yale University Press, 1976); Robert White, "Strategies of Adaptation," Coping and Adaptation, ed. by G. V. Coelho, D. A. Hamburg, and J. E. Adams (New York: Basic Books, 1974), pp. 47-69; David Mechanic, "Social Structure and Personal Adaptation: Some Neglected Dimensions," Coping and Adaptation, ed. by G. V. Coelho, D. A. Hamburg, and J. E. Adams (New York: Basic Books, 1974), pp. 32-44; D. H. Heath, op. cit., 1965.

two dimensional theory of adaptation. White and Mechanic have proposed a three dimensional theory of adaptive functioning. Finally, Heath has suggested that adaptive capacity consisted of five distinct components (see Chapter II for a review of these formulations).

Thus, specified factor rotations were examined to determine whether derived factors were interpretable within some other framework of adaptive functioning.

H₀²: No interpretable factors will be found from a factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation.

H₂²: A factorial analysis of discriminating items on the Survey of Actualization: Adaptation will yield a set of interpretable factors consistent with one of the other theories of adaptive functioning.

Multivariate Analysis of Variance Hypotheses

The second phase of the study was to examine the relationship between the three samples selected for study and their scores on the SAA. Specifically, scores for each group on the salient items of each interpretable factor were computed. Total scores for each interpretable factor were entered into the multivariate equation to compute the F ratio. The results from this method of analysis were used to answer three specific questions.

1. Were there differences among groups across the interpretable factors of the adaptive functioning construct?

2. If differences across factors were found, were there also differences among groups on each interpretable factor (i.e., were differences factor-specific or the result of an interaction between factors)?

3. If questions one and two were answered positively, how did the groups differ?

The following set of research hypotheses were designed to answer the three questions.

H_{03} : No difference will be found among groups across the interpretable factors (dimensions) of adaptive functioning.

Symbolically:

$$H_{03}: [\mu_{11}, \dots, \mu_{1f}] = [\mu_{21}, \dots, \mu_{2f}] = [\mu_{31}, \dots, \mu_{3f}]$$

where: μ_{gf} represents the population mean for the "g"th group and "f"th factor

and where: G_1 denotes the random sample

G_2 denotes the RA sample

G_3 denotes the cross-validation sample

H_{33} : A difference will be found to exist among groups across the interpretable factors (dimensions) of adaptive functioning.

Symbolically:

H_{33} : H_{03} is false

If the null hypothesis (H_{03}) is rejected, then univariate tests of significance will be computed for each interpretable factor.

H_{04} : No difference will be found among groups within each interpretable factor.

Symbolically: H_{04} : $\mu_{1f} = \mu_{2f} = \mu_{3f}$

H_{44} : A difference will be found among groups within each interpretable factor.

Symbolically: H_{44} : H_{04} is false

If the null hypothesis (H_0) is rejected, then post hoc contrasts (Scheffé) will be calculated for pairs of groups (random sample/RA sample; random sample/cross-validation sample; RA sample/cross-validation sample).

Analysis of Data

The study was designed to accomplish three major purposes. First, the empirical investigation of the construct adaptive functioning. Second, the validation of a new instrument designed to measure adaptive capacity. Third, the identification of differential levels of functioning among individuals on the criteria of General Adaptive Capacity. Two distinct methods of data analysis were used to accomplish these purposes: factor analysis and multivariate analysis of variance.

The following six sequential steps were employed to analyze the data of the study.

1. Prior to employing the factor analytic procedure an item analysis using the Davis⁷ discrimination index was calculated on each of the a priori classified scales (Affective Style, Assimilation, Accommodation, and Environmental Mastery).⁸ The index was used to identify those items that discriminated between the high and low

⁷F. B. Davis, "Item Selection Techniques," Educational Measurement, ed. by E. F. Lindquist (Washington, D.C.: American Council on Education, 1951), Chapter 9.

⁸Since the cross-validation sample was selected as a criterion group, they were omitted from this part of the study.

levels of adaptive functioning. The procedure resulted in a reduction of SAA items for each scale.

2. The factor analytic procedure was used to determine whether the discriminating items comprising the refined SAA inventory empirically clustered to form a structure which defined the four proposed dimensions (Affective Style, Assimilation, Accommodation, Environments: Mastery) of adaptive functioning. The second research hypothesis was designed to determine whether factorial analysis would yield a set of interpretable factors consistent with some other theory of adaptive functioning.

3. Responses to the salient items that comprised each interpretable factor were weighted. The weights reflected the proximity of a response to the a priori score assigned to an item.

4. Cronbach's⁹ reliability estimate (coefficient alpha) was calculated for each interpretable factor. Coefficient alpha, an estimate of test homogeneity, was used as a measure of the internal consistency of each scale.

5. The Pearson¹⁰ correlation coefficient was computed on the interpretable factors. Pearson "r" is used to determine the intercorrelation between various measures of a construct. In this case, the Pearson "r" was used to determine the intercorrelation among the interpretable factors.

⁹Lee J. Cronbach, "Coefficient Alpha and the Internal Structure of Tests," Principles of Educational and Psychological Measurement, ed. by W. A. Mehrens and R. L. Ebel (Chicago: Rand McNally, 1964), pp. 133-165.

¹⁰William L. Hays, Statistics (New York: Holt, Rinehart and Winston, 1963), pp. 490-538.

6. The multivariate statistic was used to explore the nature of the relationship among the three samples and their scores on the salient items that comprised each interpretable factor of the factor structure.

Factor Structure

The discriminating items remaining in the Affective Style, Assimilation, Accommodation, Environmental Mastery scales after refinement of the SAA were factor analyzed to determine whether factors, empirically derived, would reflect a set of interpretable dimensions consistent with a proposed theory of adaptive functioning.

The principal components method of factor analysis was used. Six separate rotations with different N factor solutions were performed using a varimax procedure. Fixed factor rotations specifying N=2,3,4,5,6, and 7 factors were performed.

Factor analysis is a procedure for locating and defining dimensional space among a large number of independent variables (items). It is designed to locate a smaller number of valid dimensions or factors among a larger set of independent variables.¹¹

The mathematics of the principal components solution involves the assumption that the total variance demonstrated by the inter-correlations of the independent variables (items) can be divided into independent factors or sets. These independent sets of variance represent the number of factors necessary to account for an

¹¹ Norman H. Nie, et al., Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975), p. 10.

intercorrelation matrix.¹² The principal components method identifies that linear combination of variables (items) which explains the most variance.¹³ Thus, the first null hypothesis would be rejected if the greatest amount of variance was accounted for in the first four factors. The second null hypothesis would be rejected if a set of interpretable factors were found consistent with one of the other proposed theories of adaptive functioning. This method does not require any assumptions about the general structure of the variables.¹⁴

Multivariate Analysis of Variance

Three of the four basic assumptions of the study (see page 124) involved examining the relationship between scores on the SAA across empirically derived factors. Scores were obtained from a group of subjects who comprised three separate samples. A particular interest of the study, was to examine the variability of scores across the selected samples. Three statistical procedures were employed to examine the data. The procedures used are designed to examine the variability of a measure (or measures) of the subjects selected for study.

Analysis of variance (ANOVA) is a statistical technique for exploring the relationship between a single dependent variable and various levels of the independent variable. However, when two or

¹²Raymond B. Cattell, Factor Analysis (New York: Harper Brothers, 1952), pp. 35-45.

¹³Jum C. Nunnally, Psychometric Theory (New York: McGraw-Hill, 1967), pp. 315-316.

¹⁴Norman H. Nie, et al., op. cit., p. 479.

more dependent variables are involved in a study, then multivariate analysis of variance (MANOVA) is required.¹⁵

Multivariate analysis permits the simultaneous examination of a vector of dependent variables across the levels of the independent variable (or variables). By contrast, ANOVA is limited to examining a single dependent variable.¹⁶ The difficulty with using a series of univariate tests to examine each dependent variable separately is that the tests cannot attend to the intercorrelation between the dependent variables.¹⁷ Thus, multivariate analysis was the more appropriate statistical technique for the present study.

If significant multivariate differences are found (rejection of the null hypothesis), then a follow-up investigation to explore the nature of those differences is imperative.¹⁸ Thus, the present study employed the following statistical procedures as an initial and follow-up investigation of the relationship between the dependent variables (factors) and the independent variables (scores on the salient items of each factor).

The multivariate statistic was used to examine the relationship between the interpretable factors (the dependent variables) and the scores on the salient items of each factor (the independent variable).

¹⁵Schuyler W. Huck, William H. Cormier, and William C. Bounds, Jr., Reading Statistics and Research (New York: Harper and Row Publishers, 1974), p. 184.

¹⁶Eli Cohen and Phil Burns, "Multivariate Analysis of Variance and Covariance," User's Guide Supplement: SPSS Revisions with Local Modifications (East Lansing, Michigan: Michigan State University, 1976), p. 31.

¹⁷Huck, et al., op. cit., p. 191.

¹⁸Ibid., p. 181.

If differences across factors were found (H_03 rejected), then univariate analysis was used to examine the differences among the three groups for each interpretable factor.

Where differences on a factor were found (H_04 rejected), post hoc contrasts (Scheffé) were calculated for each factor on the pairs of groups (random sample/RA sample; random sample/cross-validation sample; RA sample/cross-validation sample) to determine how the groups differed.

The multivariate test of significance was set at the .05 level. The application of a series of univariate tests (one for each dependent variable) causes the probability of a Type I error (rejection of the null when it should have been retained) to be higher than the level of significance that is used. A similar problem arises when performing multiple post hoc comparisons. To avoid increasing the probability of a Type I error beyond the .05 level, the level of significance was partialled out for the number of dependent variables (factors) when the univariate analysis was performed. The level of significance was also partialled out for the number of post hoc contrasts performed.

Three basic assumptions are made in applying the MANOVA model. (1) The effects of the dependent variables (factors) are randomly distributed and independent for all subjects. (2) The scores on the salient items (the independent variable) are normally distributed for each population. (3) The three population variances are approximately equal. The degree to which any one of the three basic assumptions is not met increases the probability of a Type I error. However, the F test is robust to violations of the assumptions particularly if the sample size is large.¹⁹ Thus, unless one

¹⁹B. J. Winer, Statistical Principles in Experimental Design (New York: McGraw-Hill Book Company, 1971), pp. 309-315.

or more assumptions are seriously violated, no real problem in accuracy of interpretation is likely.

Summary

The present preliminary investigation was designed to explore the multidimensional nature of adaptive functioning as a construct of mental health. There were three major objectives of the study:

1. To empirically investigate the adaptive functioning construct.
2. To validate an instrument designed to measure the proposed theory of adaptive functioning.
3. To identify differential levels of functioning among individuals on the criteria of General Adaptive Capacity.

A basic component of the study was the construction of an inventory (the Survey of Actualization: Adaptation) to measure the proposed theory of adaptive capacity. The inventory consisted of 205 items as a measure of four significant dimensions outlined in the theory. The items were scored and classified according to the four dimensional theory.

Three separate samples were selected to accomplish the objectives stated above. The RA sample consisted of the 320 individuals that comprised the resident hall advisor staff. It was assumed that this sample represented a fairly homogeneous, above average functioning group. The random sample consisted of 294 subjects. It was assumed that these subjects represented a heterogeneous group of diverse levels of adaptive functioning. Finally,

a cross-validation group of thirty nominated subjects were judged to represent a homogeneous, high functioning group.

The inventory (the SAA) was distributed to all the subjects of the three samples. A total of 251 subjects from the three samples returned completed inventories. The distribution of returns by sample were as follows: RA sample--102 subjects; random sample--120 subjects; cross-validation sample--29 subjects. Responses to the SAA were tabulated and punched on computer cards. An item analysis using a discrimination index value identified those items that discriminated between the high and low levels of adaptive functioning. The procedure resulted in a reduction of SAA items.

Four basic assumptions were made in the study:

1. A factor analysis of items on an instrument (SAA) designed to measure the proposed theory would yield interpretable factors.
2. The salient items that comprised each interpretable factor would discriminate between the high and low levels of functioning of the subjects in each group.
3. The subjects of each group would respond to the salient items of the SAA in predicted directions (i.e., the subjects in the cross-validation sample would represent a homogeneous, high functioning group; the RA sample would represent a fairly homogeneous, above average functioning group of subjects; the random sample would represent a heterogeneous group of diverse levels of functioning).
4. Scores on the salient items of each interpretable factor would not be related to scores on the salient items of other interpretable factors.

Two distinct methods of data analysis were used to test the assumptions stated above: factor analysis and multivariate analysis of variance.

Four major research hypotheses were generated to examine the assumptions stated above. The first two hypotheses were tested using a factor analytic procedure to determine whether factors, empirically derived, would reflect a set of interpretable dimensions consistent with a proposed theory of adaptive functioning. The remaining two major hypotheses were generated to examine the relationship among the derived, interpretable factors and the three samples selected for study. Multivariate analysis and univariate analysis of variance were used to test the last two hypotheses. The multivariate test of significance was set at the .05 level. The level of significance established for the univariate tests and the post hoc contrasts was partialled out to the number of dependent variables (factors) in the study and for the number of post hoc contrasts performed. This procedure avoided increasing the probability of a Type I error beyond the .05 level.

CHAPTER V

ANALYSIS OF RESULTS

The results from the procedures of analyzing the data described in the previous chapter are presented in the five major sections of this chapter.

The results from the item analysis is presented in section one.

In section two, the factor analytic results are presented together with a discussion of the interpretable factors. The relationship between the interpretable factors and various theories of adaptive functioning is also discussed.

The weighting of scores on the salient items that comprise each interpretable factor is presented in section three.

The homogeneity of the items that comprise the interpretable factors is presented in section four. The intercorrelations between the factors is also discussed.

In section five, the results from the multivariate analysis together with the follow-up investigation of the relationship between the dependent variables (factors) and the independent variables (scores on the salient items of the Survey of Actualization: Adaptation) is presented.

Item Analysis

An item analysis using the Davis¹ discrimination index was calculated on each of the items of the Survey of Actualization: Adaptation.² The purpose of the item analysis was to identify those items on the SAA which discriminated between the high and low scores on each item. The scores on the identified discriminating items were used to differentiate between the levels of functioning among the three groups selected for study. In addition, item analysis served the purpose of reducing the number of items (variables) below 100. The reduction of items was necessary to employ the factor analytic procedure (practical problems of cost and computer central memory limitations prohibit factor analysis in excess of 100 variables).

The following three steps were employed in the item analysis.

First, an item by item test score was calculated for each subject in the random and RA sample³ (since the cross-validation sample was selected as a criterion group, they were omitted from this part of the study). The distribution of scores for an item was based on the a priori score of each of the 205 items that comprised the SAA.

¹F. B. Davis, "Item Selection Techniques," Educational Measurement, ed. by E. F. Lindquist (Washington, D.C.: American Council on Education, 1951), Chapter 9.

²The Survey of Actualization is referred to as the SAA.

³The RA sample represents the resident hall advisor staff.

Second, the Davis discrimination index was calculated for each item. Davis discrimination index values were determined by calculating the difference between the proportion of correct responses given in the upper and lower 27% of the total group taking the inventory.

Three, a critical value of 30% was arbitrarily established as a cutoff score on the discrimination index. Thus, any item that achieved an index value below 30% was deleted.

The three steps resulted in a reduction of SAA items from 205 to 85. The following number of items were retained for each a priori classified dimension: Affective Style - 18; Assimilation - 21; Accommodation - 24; Environmental Mastery - 22 (discriminating items are identified by an asterisk in the Appendices A and B).

Factor Analysis

A proposed theory of adaptive functioning was outlined in Chapter III. In the theory, adaptation was identified as a psychological construct consisting of various characteristics that clustered around four postulated dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery). It was further proposed that the four dimensions, if measured, would be identified as somewhat discrete, independent assessments of the adaptive functioning construct. Thus, an individual's adaptive style would represent differential levels of functioning across the four dimensions.

Various other theories of adaptive functioning have been proposed (see Chapter II). The theorists (e.g., Heath, King,

Murphy, White and Mechanic)⁴ have essentially agreed that the characteristics that comprise the construct are similar to those described in Chapter III. However, they have differed in terms of the composition and number of dimensions that comprise the construct.

One of the basic assumptions of the study (see Chapter IV) was that factorial analysis of the discriminating items of the SAA would yield interpretable factors. Thus, the factor analytic procedure was used to determine whether factors, empirically derived, would reflect a set of interpretable dimensions consistent with one of the proposed theories. Two research hypotheses were designed to exam the results of a number of specified factor rotations.

Factor Structure

Two distinct operations were performed in the factor analytic procedure used in the study. First, the principle components analysis was performed to establish the correlation between the 85 discriminating items of the SAA. The procedure resulted in an 85 X 85 intercorrelation matrix (see Appendix C). The principle

⁴Donald H. Heath, Explorations of Maturity (New York: Appleton-Century-Crofts, 1965); Stanley H. King, Five Lives at Harvard: Personality Change During College (Cambridge: Harvard University Press, 1973); Lois Murphy and Alice Moriarty, Vulnerability, Coping, and Growth: from Infancy to Adolescence (New Haven: Yale University Press, 1976); Robert White, "Strategies of Adaptation," Coping and Adaptation, ed. by G. V. Coelho, D. A. Hamburg, and J. E. Adams (New York: Basic Books, 1974), pp. 47-69; David Mechanic, "Social Structure and Personal Adaptation: Some Neglected Dimensions," Coping and Adaptation, ed. by G. V. Coelho, D. A. Hamburg, and J. E. Adams (New York: Basic Books, 1974), pp. 32-44.

components method identifies that linear combination of variables (items) which explains the most variance. Second, six separate rotations of the intercorrelated items were performed. Fixed factor rotations specifying $N=2,3,4,5,6$, and 7 factors were performed using the varimax procedure. The second operation resulted in six separate factor matrices with item factor loadings on each of the specified factors.

The significance of an item factor loading was arbitrarily established at $\pm .40$. Items that achieved a factor loading below the $\pm .40$ level were regarded as nonsignificant. In addition, a factor was regarded as significant if the number of high item loadings on that factor accounted for at least ten per cent of the variance. Thus, factors that accounted for less than ten per cent of the variance were regarded as nonsignificant and uninterpretable.⁵

The first null hypothesis (H_{01}) would be rejected if the greatest amount of the variance was accounted for in the first four factors. The second null hypothesis (H_{02}) would be rejected if a set of interpretable factors were found consistent with one of the other proposed theories of adaptive functioning.

Results of the Factor Analysis

Null Hypothesis I (H_{01}): There will be no relationship between factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation and the theoretical dimensions of General Adaptive Capacity.

⁵Dennis Child, The Essentials of Factor Analysis (New York: Holt, Rinehart and Winston, 1973), pp. 45-46. Child describes these procedures as an appropriate method for identifying interpretable factors.

A fixed factor rotation (N=4) was performed to test the first null hypothesis. The proportion of variance accounted for in the four factor varimax solution was as follows: Factor I - .25; Factor II - .11; Factor III - .11; Factor IV - .02. Since the amount of variance accounted for beyond the third factor fell below the ten per cent level of significance, the four factor solution was regarded as uninterpretable.

Thus, no relationship between the four factor solution and the theoretical dimensions of adaptive functioning outlined in Chapter III was found to exist. The first null hypothesis failed to be rejected.

Null Hypothesis II (H_{02}): No interpretable factors will be found from a factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation.

Fixed factor rotations specifying N=2,3,5,6, and 7 factors were performed to test the second null hypothesis. As was expected from an examination of the four factor solution, the proportion of variance accounted for beyond the third factor for three of the specified rotations (N=5,6, and 7) fell below the ten per cent level of significance.⁶ Thus, three of the five factor rotations performed to test the second null hypothesis contained nonsignificant factors and were regarded as uninterpretable.

⁶The proportion of variance accounted for in the N=5,6, and 7 factor solutions was as follows. Five factor solution: Factor I - .25, Factor II - .11, Factor III - .11, Factor IV - .02, Factor V - .02; Six factor solution: Factor I - .25, Factor II - .11, Factor III - .10, Factor IV - .02, Factor V - .02, Factor VI - .02; Seven factor solution: Factor I - .25, Factor II - .10, Factor III - .10, Factor IV - .02, Factor V - .02, Factor VI - .02, Factor VII - .02.

The remaining fixed factor rotations (N=2 and 3) were examined to determine if a significant set of factors were derived from these rotations. The proportion of variance accounted for in the two factor solution was as follows: Factor I - .26; Factor II - .12. The proportion of variance accounted for in the three factor solution was: Factor I - .26, Factor II - .11; Factor III - .11. Both the two and three factor varimax solutions contained a set of factors that were significant beyond the .10 level. Since the greatest cumulative proportion of variance was accounted for in the three factor solution (.48 in the three factor rotation as opposed to .38 in the two factor rotation), it was concluded that a set of three interpretable factors were identified from the factor analysis.

The final step in testing the second null hypothesis was to determine if the empirically derived factors would reflect a set of interpretable dimensions consistent with one of the proposed theories of adaptive functioning. To accomplish this purpose, the two and three factor solutions were examined for their relationship to four proposed theories of adaptive functioning. The significant items that comprised the two factor solution were examined for their relationship to King and Murphy's⁷ two dimensional proposed theory. The significant items that comprised the three factor solution were examined for their relationship to White and Mechanic's⁸ three

⁷S. H. King, op. cit., 1973; Murphy and Moriarty, op. cit., 1976.

⁸R. White, op. cit., 1974; D. Mechanic, op. cit., 1974.

dimensional formulation of adaptive capacity (see Chapter II for a review of the four formulations). In addition, the two and three factor solutions were examined to determine if the various factors were consistent with any of the four dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) of General Adaptive Capacity (see Chapter III).

Interpretation of Factors

Most factor analytic studies either name or number their factors. The tradition of naming factors is followed in the present investigation for the purpose of discussion and theory reformulation. An attempt was made to confine the naming of the factors to the most obvious content of the highest loading items (i.e., those items that loaded $\pm .40$ or above).

Two Factor Solution.--Both King and Murphy have proposed two dimensional theories of adaptive functioning that have identified the construct as comprising an internal and external dimension. There was little distinction between Murphy's internal dimension (Coping II) and King's internal dimension (efficiency). Both theorists characterized this component as the ability to maintain an internal equilibrium. However, they did differ in their conceptualization of the external component. Murphy's external dimension (Coping II) emphasized the individual's flexibility of response to the environment; while King defined his external component as the individual's ability to meet environmental demands.

The two factor solution was examined to determine the degree to which the content of the items that comprised each factor was consistent with Murphy or King's formulation of adaptive capacity. Each factor was also examined to determine if it was consistent with any of the dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) of the proposed theory of General Adaptive Capacity.⁹

Two Factor Varimax Solution
Factor I

<u>Item #</u>	<u>Loading</u>	<u>Scale*</u>
125. When I start an important task, I feel I will succeed at it.	.9324	As
112. Things turn out for me the way I expect them to.	.9187	Ac
42. I like new experiences.	.9150	EM
50. I learn from new experiences.	.9126	EM
108. If something is really important to me, I know I will succeed at it.	.9124	As
110. I have a desire to learn new things.	.9015	EM
52. I feel my life has purpose.	.8766	Ac
140. My enthusiasm is contagious.	.8731	EM
139. I like following a set schedule.	.8709	As
115. My friends comment on my high degree of energy.	.8637	EM
70. I choose (make my own choices) as to how I will react to a situation.	.8626	As

⁹It should be noted that the a priori classification of items into the four dimensions (scales) was not consistent with either the two or three factor varimax solution.



135.	I let other people make me feel guilty.	.8504	Ac
131.	I feel my life as meaning.	.8328	Ac
113.	I am accurate in describing my past reactions.	.8318	EM
60.	In the future I want to do things differently than I have in the past.	.8286	As
69.	Feelings make me realize my humanness.	.8233	Af
114.	I feel hopeless.	.8051	Af
130.	I put off until tomorrow what I ought to do today	.7778	As
44.	I am a "now" person.	.7776	As
68.	I gossip a little.	.7154	Ac
67.	I fret over problems which turn out to be trivial.	.7042	EM
136.	It's hard for me to feel good about myself when I fail.	.6978	Ac
132.	I can feel good about myself even when facing a difficult problem.	.6885	Ac
62.	Worry makes me feel hopeless.	.6422	Af
35.	I have ways of handling my nervousness that are useful to me.	.5841	Af
105.	If I were to relive my life, I would do much differently than I have.	.5637	As
203.	Getting too excited can stop me from doing something.	.5338	Af
177.	I welcome the opportunity to take responsibility and do things on my own.	-.5175	As
149.	I feel hopeful about my future.	-.4889	Af
172.	I like to work on a problem even when I know there is no clear-cut answer.	.4771	EM
74.	Tuning in to the emotional experiences of others helps me to grow.	.4690	As

144.	I work better alone than with a group.	.4054	Ac
189.	I behave appropriately.	-.3824	Ac
174.	I have a good general idea how I will react in most situations.	-.3737	EM
173.	I feel like swearing.	-.3483	Af
75.	I am a good, solid problem solver.	-.3481	EM
157.	I am pleased with my reactions to situations.	.3462	EM
6.	I enjoy working with a group.	-.3254	Ac
154.	I feel most comfortable when other people help me make major decisions.	-.3108	As
85.	I enjoy my feelings--pleasant and unpleasant.	.2842	Af
14.	My feelings are different from my reactions.	-.2555	Ac
91.	I am a good example to others.	-.2539	As
165.	I look forward to a new experience with a feeling of excitement.	.1212	EM
193.	I feel people should establish their own standards.	.0659	As

Factor II

33.	I am frustrated when things don't go right.	-.7739	Af
199.	I would rather win than lose in a game.	-.7082	Ac
202.	My imagination leads me to anticipate solutions to future problems.	-.6653	As
104.	When I make mistakes I try to understand why.	-.6651	As
101.	I express my feelings.	-.6365	Af
24.	I enjoy learning new things.	.6259	EM
204.	I enjoy both sad and happy feelings.	-.5948	Af
94.	I am an active person.	.5870	EM

169.	I look for positive elements in new situations.	.5831	EM
90.	I feel the best part of my life is now.	.5684	As
175.	I like to fool around with new ideas, even if they turn out later to have been a total waste of time.	-.5297	As
180.	I make my own major decisions.	-.5252	As
23.	I look forward to starting something new.	.5220	EM
141.	I am ashamed of my feelings.	-.5165	Af
164.	I want to be around when tomorrow comes.	.5154	Ac
188.	My hunches about situations are accurate.	-.5144	Ac
178.	My perceptions of a situation are accurate.	-.5126	Ac
77.	I have had exciting and interesting experiences.	.4930	EM
29.	I feel guilty when I behave inappropriately.	-.4929	Ac
198.	I seek out new experiences.	-.4914	EM
10.	I worry and fret.	-.4889	Af
195.	My reactions to situations are misunderstood.	.4881	EM
80.	I am responsible for my successes and failures.	-.4860	As
170.	I anticipate how I will feel in a situation.	.4436	Af
72.	Being afraid incapacitates me.	.4430	Af
191.	It is important that other people accept what I do.	.4362	Ac
200.	Unusual ways of doing things turn me on.	-.4215	EM
194.	I am influenced by the behavior of others.	-.3819	Ac
163.	Past successes tend to fall into perspective.	.3643	Ac
176.	I am a creative problem solver.	-.3371	EM
98.	I feel I am responsible for my actions.	-.3208	As

166.	When I am feeling very happy and active, someone who is blue or low will spoil it all.	-.3103	Ac
3.	I enjoy doing difficult things.	.3027	EM
142.	I am a happy person.	.3008	Af
11.	I calm myself down when I'm too nervous.	.2324	Af
73.	I feel that the best part of my life is over.	.2300	Ac
17.	I am confused about my feelings.	.2172	Af
148.	I change my way of thinking to please others.	-.2036	Ac
187.	Even when my plans are full of difficulties I am able to carry them out.	.0842	As
19.	My hunches about people are accurate.	.0736	Ac
16.	Failure demolishes me.	.0509	Ac

*
 As = Assimilation
 Ac = Accommodation
 EM = Environmental Mastery
 Af = Affective Style

Factor I.--Factor I accounted for the largest proportion of the variance (.26) in the two factor solution. A total of 44 of the 85 discriminating items had the highest loading on this factor. The high loading of 32 items was significant ($\pm .40$ or above); while 12 items had nonsignificant loadings (below $\pm .40$).

An examination of the content of the significant items suggests that it is an external factor. The content of the items focuses on the individual's learning from the environment. A high score on the items that comprise this factor would characterize an individual who saw himself/herself as goal-directed and competent. Murphy's external dimension (Coping I) appeared to more adequately characterize

this factor than King's definition of effectiveness. In addition, the items that comprise Factor I were more consistent with the Environmental Mastery dimension of the present study than they were with any of the other three dimensions (Affective Style, Assimilation, Accommodation).

Factor II.--The proportion of variance accounted for in Factor II was .12. Forty-one of the 85 discriminating items had the highest loading on this factor. Twenty-seven of those items had high loadings that were significant ($\pm .40$ or above). Fourteen items had nonsignificant loadings (below $\pm .40$).

The significant items that comprise Factor II identify the factor as being internally oriented. The content of the items suggests that they focus on the individual's emotionality; or, more specifically, it is a self awareness factor with an emphasis on emotionality. Individual's who score high on this factor would be characterized as being aware of their feelings, owning their feelings, expressive of their feelings, and use anxiety and worry creatively. Thus, Factor II was somewhat consistent with King and Murphy's internal dimension of adaptive functioning. However, King and Murphy's internal dimension appeared more broadly defined than the items that comprise this factor. Aspects of the Affective Style and Assimilation dimensions outlined in Chapter III were contained in Factor II of the two factor solution.

Thus, the items that comprise the two factor varimax solution appeared to identify two distinct dimensions of adaptive functioning. Factor I was an external factor characterized by goal-directiveness,

competence, and a sense of being able to learn from the environment. Factor I appeared consistent with Murphy's Coping I dimension. This factor was also consistent with the Environmental Mastery dimension of the present study. Factor II was an internal factor that focused on self awareness with an emphasis on emotionality. Both King and Murphy's internal dimensions were consistent with this factor, but their formulations appeared more broadly defined than the items that comprise Factor II. Aspects of both the Affective Style and Assimilation dimensions appeared to be descriptive of this factor. Murphy's two dimensional theory (Coping I and Coping II) appeared to be more consistent with the items comprising the two factor structure than King's two dimensional theory.

Three Factor Solution.--White and Mechanic have proposed three dimensional theories of adaptive functioning. Similar to the formulations summarized above, they have identified the construct as comprising both internal and external dimensions.

Mechanic proposed a single internal dimension. He defined the component as the individual's ability to maintain a psychological equilibrium. White subdivided the internal dimension into two components. First, internal organization was defined as the individual's ability to control anxiety in order to maintain and enhance internal organization. Second, autonomy was defined as the individual's ability to maintain a freedom of movement in order to process environmental information, and to respond in ways consistent with self-perception.

White's single external dimension was labeled information. He defined this dimension as the individual's ability to secure accurate information from the environment to serve as a guide to action. Mechanic identified two external dimensions. First, the individual is motivated to meet environmental demands. Second, the individual has the ability to deal with environmental demands as well as the ability to influence and control the demands to which he is exposed.

The three factor solution was examined to determine the degree to which the content of the items that comprised each factor was consistent with White or Mechanic's formulation of adaptive functioning. The items that comprised each factor were also examined to determine if they were consistent with any of the dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) of the proposed theory of adaptive functioning.

Three Factor Varimax Solution
Factor I

<u>Item #</u>	<u>Loading</u>	<u>Scale*</u>
125. When I start an important task, I feel I will succeed at it.	.9236	As
42. I like new experiences.	.9178	EM
112. Things turn out for me the way I expect them to.	.9171	Ac
108. If something is really important to me, I know I will succeed at it.	.9054	As
115. My friends comment on my high degree of energy.	.8933	EM
52. I feel my life has purpose.	.8903	Ac

139.	I like following a set schedule.	.8833	As
50.	I learn from new experiences.	.8796	EM
110.	I have a desire to learn new things.	.8788	EM
140.	My enthusiasm is contagious.	.8756	EM
135.	I let other people make me feel guilty.	.8685	Ac
70.	I choose how I will react to a situation.	.8511	As
69.	Feelings make me realize my humanness.	.8452	Af
114.	I feel hopeless.	.8267	Af
44.	I am a now person.	.8078	As
60.	In the future I want to do things differently than I have in the past.	.8035	As
113.	I am accurate in describing my past reactions.	.7922	EM
131.	I feel my life has meaning.	.7780	Ac
130.	I put off until tomorrow what I ought to do today.	.7460	As
68.	I gossip a little.	.7269	Ac
67.	I fret over problems which turn out to be trivial.	.6653	EM
136.	It's hard for me to feel good about myself when I fail.	.6635	Ac
132.	I can feel good about myself even when facing a difficult problem.	.6279	Ac
105.	If I were to relive my life, I would do much differently than I have.	.5983	As
203.	Getting too excited can stop me from doing something.	.5653	Af
204.	I enjoy both sad and happy feelings.	.5390	Af
177.	I welcome the opportunity to take responsibility and do things on my own.	-.5172	As
149.	I feel hopeful about my future.	-.5063	Af

172.	I like to work on a problem even when I know there is no clear-cut answer.	.4913	EM
74.	Tuning into the emotional experiences of others helps me to grow.	.4632	As
144.	I work better alone than with a group.	.3933	Ac
189.	I behave appropriately.	-.3929	Ac
173.	I feel like swearing.	-.3865	Af
154.	I feel most comfortable when other people help me make major decisions.	-.2771	As
85.	I enjoy my feelings--pleasant and unpleasant.	.2633	Af
91.	I am a good example to others.	-.2610	As
165.	I look forward to a new experience with a feeling of excitement.	.1315	EM

Factor II

199.	I would rather win than lose in a game.	-.7515	Ac
198.	I seek out new experiences.	-.7339	EM
101.	I express my feelings.	-.7109	EM
169.	I look for positive elements in new situations.	-.7109	EM
33.	I am frustrated when things don't go right.	-.6999	Af
141.	I am ashamed of my feelings.	-.6873	Af
24.	I enjoy learning new things.	.6725	EM
180.	I make my own major decisions.	-.6565	As
200.	Unusual ways of doing things turn me on.	-.6188	EM
29.	I feel guilty when I behave inappropriately.	-.5995	Ac
176.	I am a creative problem solver.	-.5805	EM
157.	I am pleased with my reactions to situations.	.5638	EM

94.	I am an active person.	.5610	EM
17.	I am confused about my feelings.	.5473	Af
164.	I want to be around when tomorrow comes.	.5227	Ac
148.	I change my way of thinking to please others.	-.4783	Ac
90.	I feel that the best part of my life is now.	-.4538	As
175.	I like to fool around with new ideas, even if they turn out later to have been a total waste of time.	-.4297	As
195.	My reactions to situations are misunderstood.	.4212	EM
77.	I have had exciting and interesting experiences.	-.4134	EM
188.	My hunches about situations are accurate.	-.3736	Ac
166.	When I am feeling very happy and active, someone who is blue or low will spoil it all.	-.2789	Ac
14.	My feelings are different from my reactions.	-.2581	Ac

Factor III

62.	Worry makes me feel hopeless.	-.6764	Af
98.	I feel I am responsible for my actions.	-.6434	As
3.	I enjoy doing difficult things.	.6134	EM
142.	I am a happy person.	.6129	Af
170.	I anticipate how I will feel in a new situation.	.5870	Af
73.	I feel that the best part of my life is over.	.5772	Ac
23.	I look forward to starting something new.	.5769	EM
72.	Being afraid incapacitates me.	.5730	Af
202.	My imagination leads me to anticipate solutions to future problems.	-.5495	As
80.	I am responsible for my successes and failures.	-.5423	As

191.	It is important that other people accept what I do.	.5371	Ac
10.	I worry and fret.	-.5254	Af
104.	When I make mistakes I try to understand why.	-.5189	As
178.	My perceptions of a situation are accurate.	-.5126	Ac
163.	Past successes tend to fall into perspective.	.5029	Ac
6.	I enjoy working with a group.	.4896	Ac
174.	I have a good general idea how I will react in most situations.	.4333	EM
75.	I am a good, solid problem solver.	-.4186	EM
16.	Failure demolishes me.	-.3234	Ac
11.	I calm myself down when I'm too nervous.	.3153	Af
194.	I am influenced by the behavior of others.	-.2755	Ac
187.	Even when my plans are full of difficulties I am able to carry them out.	.1651	As
19.	My hunches about people are accurate.	.1588	Ac
193.	I feel people should establish their own standards.	.1051	As

*As = Assimilation
 Ac = Accommodation
 Af = Affective Style
 EM = Environmental Mastery

Factor I.--Factor I accounted for the largest proportion of the variance (.26) in the three factor solution. A total of 38 of the 85 discriminating items had the highest loading on this factor. The high loading of 31 items was significant ($\pm .40$ or above); while 7 items had nonsignificant loadings. The significant items that comprise Factor I remained essentially unchanged from the two

factor solution (item number 62 achieved a significant high loading on Factor III of the three factor solution). Thus, the description of Factor I as an external, Environmental Mastery or competence factor was unchanged. Factor I was also consistent with White's external dimension (information) and one of Mechanic's external dimensions (e.g., the ability to influence and control the environmental demands to which one is exposed). Mechanic's other external dimension (e.g., one is motivated to meet environmental demands) did not appear to be descriptive of the items that comprise Factor I.

Factor II.--The proportion of variance accounted for in Factor II was .11. Twenty-three of the 85 discriminating items had the highest loading on this factor. Twenty of those items had high loadings that were significant ($\pm .40$ or above). Only three items had nonsignificant loadings (below $\pm .40$).

A comparison of the items that comprise Factor II on the two and three factor solution identified some differences. Seven of the items that had significant high loadings on the two factor solution did not appear in Factor II of the three factor solution. However, the description of the factor remained relatively unchanged. The content of the items that comprise this factor still focused on self awareness with an emphasis on emotionality. The major change in Factor II appeared to be the absence of items that describe response to anxiety. Thus, aspects of the Affective Style and Assimilation dimensions of the proposed theory of General Adaptive Capacity were still present in Factor II. In addition, the items that comprise this factor appeared to be descriptive of White's

internal dimension of autonomy and Mechanic's psychological equilibrium dimension.

Factor III.--The proportion of variance accounted for in Factor III was .11. Twenty-four of the 85 discriminating items had a highest loading on this factor. Eighteen of those items had significant high loadings ($\pm .40$ or above). Six items had non-significant loadings (below $\pm .40$).

The significant items that comprise Factor III identified the factor as being internally oriented. The content of the items suggested that they focus on the individual's response to anxiety and the creative use of worrying. Individuals' who score high on this factor would be characterized as focusing on the solution to problems rather than the cause of problems.

Factor III was consistent with White's description of maintaining internal organization (i.e., the ability to control anxiety in order to maintain and enhance internal organization). In addition, Factor III was descriptive of the response and management of anxiety aspect of the Affective Style dimension of General Adaptive Capacity.

Thus, the items that comprise the three factor varimax solution appeared to identify three distinct dimensions of adaptive functioning. As was found in the two factor solution, Factor I was an external factor characterized by goal-directiveness, competence, and a sense of being able to learn from the environment. It was also consistent with White's external dimension (information) and Mechanic's external dimension of influence and control over

environmental demands. The Environmental Mastery dimension of the present study was consistent with Factor I.

Factors II and III were described as internal factors. The items that comprised Factor II focus on self awareness with an emphasis on emotionality. Aspects of the Affective Style and Assimilation dimensions were present in Factor II. In addition, the factor appeared to be descriptive of White's dimension of autonomy and Mechanic's psychological equilibrium dimension. Factor III was descriptive of an individual's response to anxiety and the creative use of worrying. White's description of maintaining internal organization is consistent with this factor. In addition, Factor III was descriptive of the response and management of anxiety aspect of the Affective Style dimension of the present study.

Summary

Six separate factor rotations were examined in this section. Four (N=4,5,6, and 7) of the specified rotations were found to contain nonsignificant factors (factors accounting for less than ten per cent of the total variance) and were dropped from further examination. The consequence of finding a nonsignificant factor on the four factor solution resulted in a failure to reject the first null hypothesis.

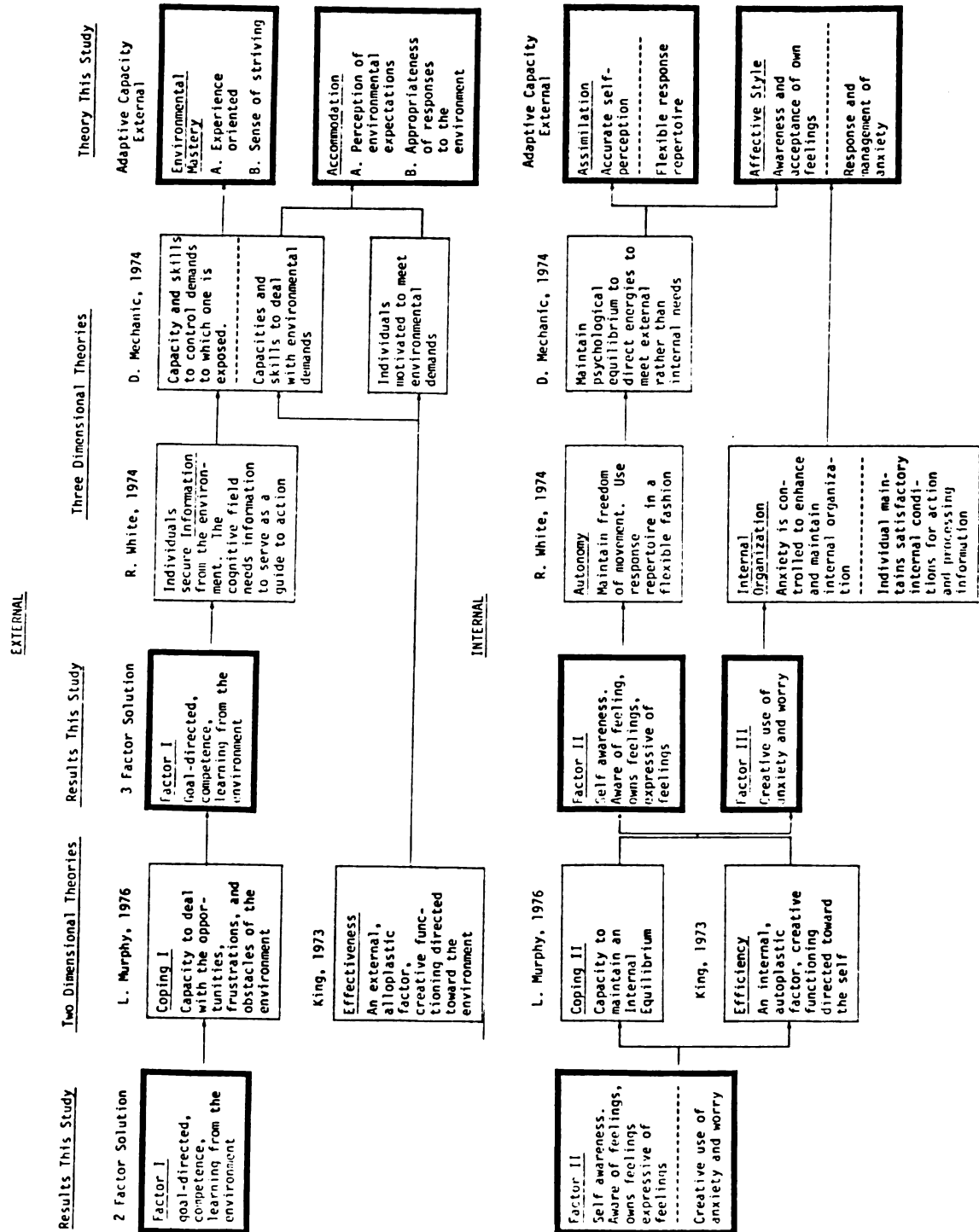
Significant factors were found in two of the specified rotations (N=2 and 3). The test of the second null hypothesis was to examine the two and three factor solutions to determine if the content of the items that comprise each factor would reflect a set of interpretable dimensions consistent with one of four proposed

theories (Murphy and King's two dimensional theories; and White and Mechanic's three dimensional theories). In addition, the two and three factor solutions were examined to determine if the various factors were consistent with any of the four dimensions of General Adaptive Capacity.

Table 5.1 summarizes the interpretation and conclusions from examining the two and three factor varimax solutions. An examination of this table indicates that the factorial procedure identified two of the four proposed dimensions (Affective Style and Environmental Mastery) outlined in Chapter III of the study. Part of one of the other dimensions (Assimilation) was also identified in the factor structure. The Affective Style dimension was descriptive of two factors in the three factor solution. The factor structure did not identify the self perception aspect of the Assimilation dimension or the Accommodation dimension of General Adaptive Capacity.

Murphy's two dimensional theory of adaptive functioning (Coping I and Coping II) appeared to be consistent with the items comprising the two factor structure. The items comprising the three factor solution appeared to be consistent with White's three dimensional theory of adaptation (Information, Autonomy, and Internal Organization). Since the greatest cumulative proportion of variance was accounted for in the three factor solution (.48 in the 3 factor solution as opposed to .38 in the 2 factor solution), it was concluded that a set of three interpretable factors were identified from the factor analysis. A relationship between the three factor

TABLE 5.1.--Relationship Between the 2 and 3 Factor Varimax Solutions and Five Proposed Theories of Adaptation.



rotation and White's three dimensional theory of adaptive functioning was found to exist. The second null hypothesis was rejected.

The factor analytic procedure resulted in reducing the number of items on the SAA from 85 to 69. Thus, a total of 69 significant items that comprised three empirically derived factors were used to compute the results reported in the remaining sections of this chapter. In the balance of this chapter the following results from the study are reported: (1) the weighting of scores to determine the proximity of a response to the a priori score assigned to each item; (2) the reliability estimates calculated on the three interpretable factors; (3) the intercorrelation between the three factors; and (4) the results from the multivariate analysis to test the remaining two research hypotheses.

Weights Assigned to Scores

The responses of subjects and the a priori score assigned to an item were set on a four-point scale. The following four-point scale was established for each item: 1 - Never; 2 - Sometimes; 3 - Frequently; 4 - Always. In order to compute the differential levels of functioning across the salient items of each factor, the proximity of a response to the a priori score needed to be calculated. A system of weighting scores was designed to accomplish this purpose. Thus, the 69 discriminating items of the refined SAA were assigned the following weights; an a priori score of 1 (Never) for an item was assigned a weight of 4. Therefore, an individual who responded 1 (Never) to that item was given a score of 4. By comparison, a response of 2 (Sometimes) on that item was weighted 3; a response of

3 (Frequently) was weighted 2; and a response of 4 (Always) was weighted 1. The weights assigned to an item according to the proximity of a response to the a priori score is identified in Table 5.2.

TABLE 5.2.--Distribution of Weights According to the a priori Desired Score Representing a High Functioning Individual.

		Desired Score			
		Never 1	Sometimes 2	Frequently 3	Always 4
Possible Responses to an Item	Never 1	(4)	3	1	1
	Sometimes 2	3	(4)	2	2
	Frequently 3	2	2	(4)	3
	Always 4	1	1	3	(4)

In Table 5.2 the a priori score representing the weight given a response of a high functioning individual is circled for each of the four possible responses to an item. Reading the table vertically, the weight assigned to an item according to the proximity of a response to the desired score is identified.

Responses to all items on the refined SAA were recoded and assigned a weighted score. The higher a subjects total weighted score across the salient items of each interpretable factor, the

more consistent his/her responses were to a high functioning individual on that factor. By contrast, a low total weighted score on each factor would identify an individual who functioned at a low level of adaptability on that factor. Weighted score values were used to compute the results reported in the two remaining sections of this chapter.

Reliability Estimates and Intercorrelation of Factors

Factor Homogeneity

Cronbach's reliability estimate (coefficient alpha) was calculated for each interpretable factor using weighted score values. The factor analytic procedure identified three interpretable factors from the 69 discriminating items that comprised the refined SAA. It was necessary to determine the internal consistency of the salient items of each factor (i.e., what was the degree to which the salient items of each factor represented a homogeneous group of items that measure the same dimension). Coefficient alpha was calculated for each factor. A "high" coefficient would reflect a high degree of homogeneity and internal consistency among the items that comprise that factor. By contrast, a "low" coefficient on a factor would suggest that the items comprising that factor were dissimilar from some common dimension or characteristic.¹⁰ A reliability estimate

¹⁰"High" and "low" coefficients are, to some extent, subjective evaluations. The range of possible values coefficient alpha can have is between ± 1.00 . Therefore, the highest positive value of alpha is $+ 1.00$. Thus, a coefficient of $+ 1.00$ would suggest that the reliability of each item comprising a factor to measure the same dimension was perfect. The closer to zero the value of alpha is, the greater the dissimilarity between the various items that

was also calculated for all the discriminating items of the refined SAA irrespective of the assignment of an item to a factor. Thus, the degree of homogeneity among all the discriminating items was determined.

If the value of alpha for each factor was high ($+ .80$ or above) and the overall alpha level was somewhat below $+ .80$, then the following conclusions could be made:

1. The salient items of the refined SAA were a homogeneous measure of a multidimensional construct of which three dimensions were identified.
2. The salient items that comprised each factor were a homogeneous measure of separate dimensions of a construct.
3. The salient items that comprised a factor were a homogeneous measure of one dimension related to but relatively independent of the other factors.

The reliability estimates and the number of test items that comprise each factor are summarized in Table 5.3.

TABLE 5.3.--Summary of Alpha Coefficients by Factor.

	Factor I	Factor II	Factor III	Overall
Alpha	.83	.75	.65	.91
Test Items	31	20	18	69

comprise that factor. For purposes of the study, an alpha coefficient of $+ .80$ or above was regarded as sufficiently "high" to be able to conclude that the items comprising a factor were measuring the same dimension.

From an examination of this table, the following conclusions were made:

1. The homogeneity of items that comprised Factor I (.83) was sufficiently high to conclude that a measure of this dimension of adaptive functioning was reliable.
2. The homogeneity of the items that comprised Factor II (.75) and Factor III (.65) was contrary to expectations. Thus, the reliability of these two dimensions of the adaptive functioning construct is questionable.
3. The homogeneity of the total inventory was higher (.91) than the homogeneity of each of the three scales (factors); therefore, the refined SAA was one large scale with three subsets of that scale which were highly interrelated.

To further test the validity of these conclusions, a Pearson correlation coefficient was computed on each of the three factors and the 69 items that comprised the refined SAA.

Factor Intercorrelations

Pearson "r" is used to determine the intercorrelations between various measures of a construct. In this case, the Pearson "r" was used to determine the intercorrelation among the three derived factors. Correlation coefficients were computed using the responses of each sample separately and for the combined responses of the three samples. In Table 5.4, correlation coefficients for each group by factor are presented.

As is indicated in Table 5.4, each factor was highly correlated with the other two factors (from .45 to .81). Further, each factor is highly correlated with the overall inventory (from .82 to .96). Thus, the conclusions drawn above that the refined SAA was one large scale with three highly interrelated subsets would appear

TABLE 5.4.--Pearson Correlation Coefficients Obtained on each Factor.

		Factor			Overall
		I	II	III	
<u>Factor I</u>	G1* (n=102)	1.0	.73	.67	.94
	G2 (n=120)	1.0	.78	.81	.96
	G3 (n= 29)	1.0	.66	.45	.90
	G• (n=251)	1.0	.79	.76	.95
	Gp (n=251)		.75	.73	
<u>Factor II</u>	G1 (n=102)		1.0	.61	.87
	G2 (n=120)		1.0	.70	.90
	G3 (n= 29)		1.0	.54	.86
	G• (n=251)		1.0	.70	.90
	Gp (n=251)			.66	
<u>Factor III</u>	G1 (n=102)			1.0	.82
	G2 (n=120)			1.0	.89
	G3 (n= 29)			1.0	.72
	G• (n=251)			1.0	.87

* G1 represents the RA sample.

G2 represents the random sample.

G3 represents the cross-validation sample.

G• represents the overall correlation of the three samples.

Gp represents the pooled within cell correlation of the three samples.

to be supported. Based on the results of the reliability estimates and the intercorrelations among the factors reported above, an additional conclusion was made:

Since the homogeneity of the total inventory was high (.91); each factor correlated highly with the total inventory; and each factor was highly correlated with the other two factors, it would appear that the best measure from the inventory was the combined score.

Thus, it would appear that the three factors that comprised the refined SAA were not discrete measures of a larger construct. While each factor apparently measured a somewhat different aspect of the larger construct, the factors were sufficiently interrelated to be indistinguishable measures of a "g" factor. There were two implications of these conclusions for the present investigation:

1. Subject responses to the SAA would not identify differential levels of functioning within the separate factors.
2. Differential levels of functioning among the groups of the study could be identified by using the combined score computed across the three factors.

Multivariate analysis of variance was employed to more specifically explore the conclusions made in this section. Multivariate analysis was also used to examine the relationship between the factors and subject responses to the salient items of the SAA.

The results of the multivariate analysis is presented in the remaining section of this chapter.

Multivariate Analysis of Variance

Results of Multivariate Analysis

A multivariate analysis of variance with three levels of the independent variable (groups) and three dependent variables (factors) was performed on the data to test the third null hypothesis.

Null Hypothesis III (H_{03}): No difference will be found among groups across the interpretable factors (dimensions) of adaptive functioning.

The multivariate analysis of the three factors was found to be significant ($F=7.20$, $df = 6/492$, $P < .05$). The null hypothesis of no multivariate difference among groups was rejected. Thus, the three groups differ in terms of mean scores on at least one of the factors. To determine which dependent variable (factor) contributed to the rejection of the null hypothesis, a univariate test of significance was calculated for each dependent variable.

Results of Univariate Analysis

Three univariate analyses with three levels of the independent variable (groups) and one dependent variable (factor) was performed to test the fourth, fifth and sixth null hypotheses.¹¹

Null Hypothesis IV (H_{04}): No difference will be found among groups on Factor I.

Null Hypothesis V (H_{05}): No difference will be found among groups on Factor II.

¹¹The univariate tests of no differences among groups amounts to testing three separate research hypotheses. However, the results from the three univariate tests were identical. Thus, to avoid an unnecessary repetition of identical results, they were reported together. A similar procedure was followed in reporting the results from the multiple post hoc comparisons.

Null Hypothesis VI (H_{06}): No difference will be found among groups on Factor III.

To avoid an increase in the probability of a Type I error (rejection of the null hypothesis when it should be retained), the alpha level established for the multivariate analysis (.05) was partialled out for the three univariate tests. Thus, the null hypothesis of no difference among groups within each interpretable factor would be rejected if differences were found at the .017 level.

The results of the three univariate comparisons are summarized in Table 5.5.

TABLE 5.5.--Summary of Univariate Analysis of Variance.

	Source	D.F.	Sum of Squares	Mean Square	F Ratio
<u>Factor I</u>	Between Groups	2	3719.97	1859.99	19.68*
	Within Groups	248	23435.76	94.50	
	Total	250	27155.74		
<u>Factor II</u>	Between Groups	2	1586.91	793.45	19.15*
	Within Groups	248	10275.01	41.43	
	Total	250	11861.92		
<u>Factor III</u>	Between Groups	2	800.33	400.16	13.59*
	Within Groups	248	7300.84	29.44	
	Total	250	8101.17		

* (p < .017)

An examination of this table reveals that the univariate analysis for each of the factors was found to be significant ($p < .017$). The null hypotheses (H_{04} , H_{05} , and H_{06}) of no univariate difference among groups within each interpretable factor was rejected. In addition to there being a multivariate difference among groups, the three groups differ in terms of mean scores on each of the three factors. Thus, the scores on the 69 items that comprise the three empirically derived factors of the SAA differentiate between the samples selected for study. A series of post hoc comparisons (Scheffé) were computed to examine the nature of those differences.

Post Hoc Comparisons

Multiple comparisons are designed to examine the difference between all possible pairs of groups in a study. Mean score values are used to examine the difference between groups. A total of nine Scheffé comparisons were calculated (three tests of comparison for each factor). The alpha level set for the univariate tests (.017) was partialled out to the nine comparisons. The post hoc comparisons test of significance was set at the .006 level.

The results of the nine post hoc comparisons are summarized in Table 5.6.

An examination of this table identifies the following differences in the groups. The RA sample (G1) and the cross-validation sample (G3) constitute one subset. No significant difference was found to exist between these two groups (G1 and G3)

TABLE 5.6.--Summary of Multiple Post Hoc Comparisons.

Factor I (31 Items)			
	G1** (98.912)	G2 (92.600)	G3 (103.207)
G1 (98.912) N=102	--	6.312*	4.295
G2 (92.600) n=120		--	10.607*
G3 (103.207) n=29			--
Factor II (20 Items)			
	G1 (64.784)	G2 (60.317)	G3 (66.724)
G1 (64.784) n=102	--	4.467*	2.406
G2 (60.317) n=120		--	6.407*
G3 (66.724) n=29			--
Factor III (18 Items)			
	G1 (51.392)	G2 (60.317)	G3 (61.069)
G1 (59.392) n=102	--	3.059*	1.677
G2 (56.333) n=120		--	4.736*
G3 (61.069) n=29			--

* (p < .006)

**
 G1 = RA sample.
 G2 = Random sample.
 G3 = Cross-validation sample.

on any of the three factors. The random sample (G2) constitutes a second subset. When the mean score values of the random sample were compared with those of either the RA sample (G1) or the cross-validation sample (G3), a significant difference was found ($p < .006$).

Distribution of Scores

One of the four basic assumptions of the study (see Chapter IV) was that the subjects of each group would respond to the salient items of the SAA in predicted directions. Thus, it was assumed that the mean scores of the RA sample (representing a fairly homogeneous, high functioning group) would be significantly higher than the random sample. By contrast, it was assumed that the scores of the subjects in the random sample (representing a heterogeneous group of diverse levels of functioning) would be more variable and the mean would be lower than either of the other two groups. Finally, it was assumed that the scores of the subjects in the cross-validation sample (representing a homogeneous, high functioning group) would be less variable and the mean would be higher than either of the other two groups.

In both the multivariate analysis and the univariate analysis, a difference among groups across the interpretable factors was identified. In the results from the multiple post hoc comparisons, the three groups were found to comprise two subsets. The RA sample and the cross-validation sample (G1 and G3) comprised one subset. The random sample (G2) represented a second subset.

To further explore the nature of the differences between the three groups, the distribution of mean scores and standard deviations

were examined. In addition, the skewness, kurtosis, and the range of scores for the three samples were examined.

Means and Standard Deviations.--In Table 5.7, the mean scores and the standard deviations for each group across the three factors are summarized.

An examination of this table identified the following differences in mean scores and standard deviations among the three groups.

1. The mean scores of the random sample (G2) were consistently lower across the three factors from the mean scores of either the RA sample (G1) or the cross-validation sample (G3).

2. The standard deviations of the random sample were greater than either of the other two groups indicating greater variability of scores for the random sample.

3. The highest mean scores and the lowest standard deviations identify the cross-validation sample indicating that this group represents a more homogeneous, high functioning group than the other two samples.

4. The mean scores and standard deviations of the RA sample lie between the scores of the other two samples suggesting that the RA sample represented a less homogeneous group than the cross-validation sample; but, also, a less heterogeneous group than the random sample.

Figure 5.1 graphically illustrates the differences in means among the three samples. The results from the post hoc comparisons identified the differences between the random sample (G2) and the other groups (G1 and G3) as being significant ($p < .006$). While

TABLE 5.7.--Summary of Cell Means and Standard Deviations.

		Means	Standard Deviations	N
Factor I (31-124)**	G1*	98.91	9.44	102
	G2	92.60	10.35	120
	G3	103.21	7.74	29
	G•	96.39	10.42	251
	Gp		9.72	251
Factor II (20-80)	G1	64.78	5.66	102
	G2	60.32	7.30	120
	G3	66.72	5.01	29
	G•	62.87	6.89	251
	Gp		6.44	251
Factor III (18-72)	G1	59.39	4.94	102
	G2	56.33	6.61	120
	G3	61.07	4.36	29
	G•	58.12	5.69	251
	Gp		5.43	251
Overall (69-276)	G1	223.09	17.89	102
	G2	209.25	21.85	120
	G3	231.00	14.47	29
	G•	217.39	21.13	251

* G1 = RA Sample; G2 = Random Sample; G3 = Cross-Validation Sample; G• = Overall means and standard deviations for the three samples; Gp = pooled standard deviation for the three samples.

** Numerical values represent the lower and upper limits of the theoretical range for each factor and for the combined factors.

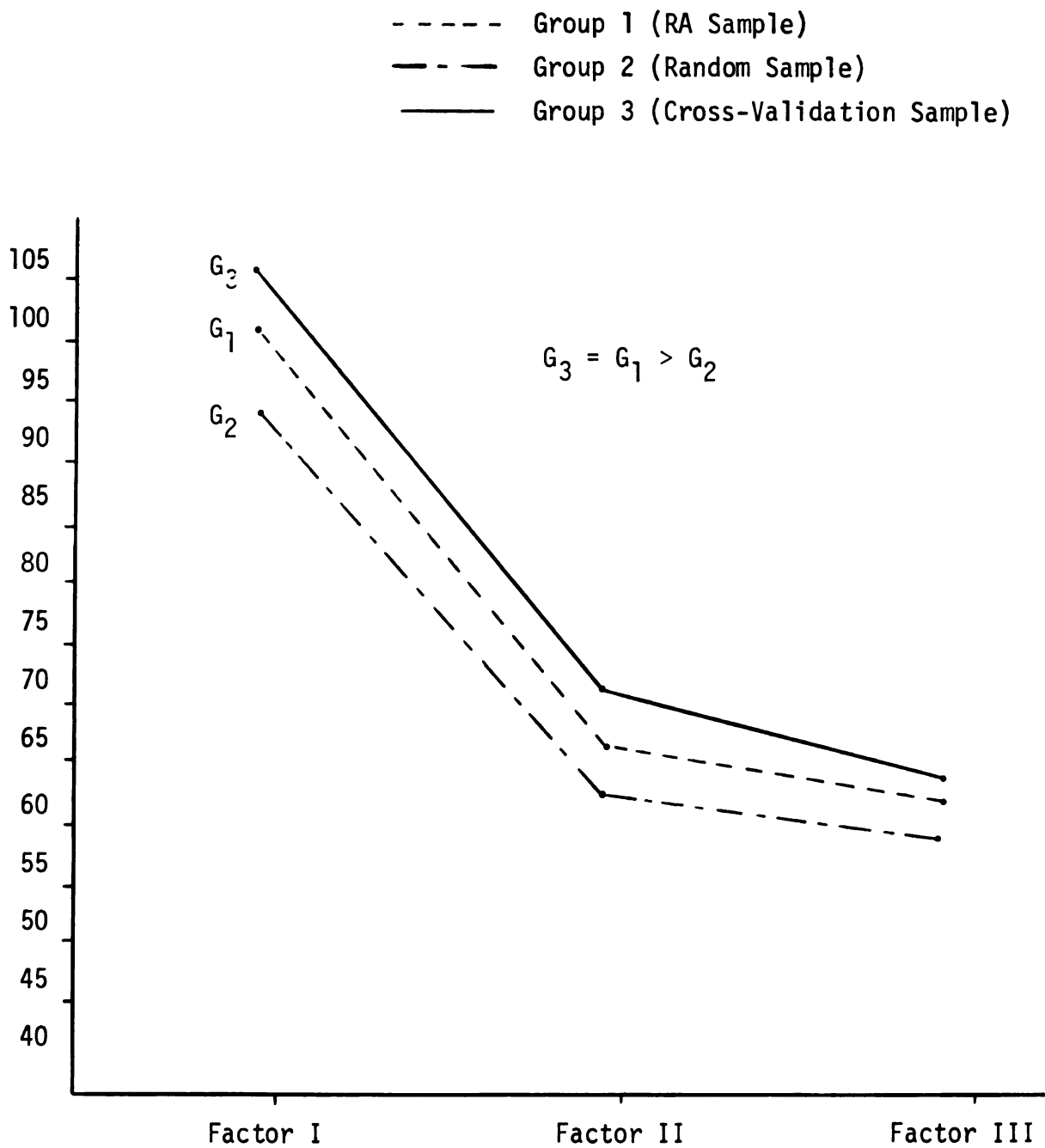


Figure 5.1.--Plot of Means for Three Groups (1,2,3) on Three Factors (Factor I, Factor II, and Factor III).

differences existed between the means of the RA sample and the means of the cross-validation sample, the differences were non-significant. An examination of this graph also indicates that the differences in mean scores between the three samples is proportionally equivalent. Thus, the conclusion made in the previous section that the factors were sufficiently interrelated to be indistinguishable measures of a "g" factor is supported. The implication of this conclusion is that a subject's responses to the salient items that comprise a factor did not identify differential levels of functioning (i.e., a subject who scored low on one factor also scored low on the other two factors).

Range.--Table 5.8 summarizes the range of scores for each sample across the three factors. The range of scores for each factor is indicated by two separate entries on the scores for the three samples. First, the numerical value of the total range of scores is indicated for a sample. Second, the upper and lower limits of scores achieved by a sample is indicated.

An examination of the values reported in this table identifies the following differences in the range of scores among the three groups.

1. There was some overlap of scores across the three samples. However, the lowest scores were received by individuals belonging to the random sample (G2). By contrast, the highest scores were received by individuals belonging to the cross-validation sample (G3).
2. The range of scores was widest (most variable) for the subjects in the random sample. The range of scores was narrowest (least variable) for the subjects in the cross-validation sample.

TABLE 5.8.-- Range.

	G1* (n=102)	G2 (n=120)	G3 (n=29)	G• (n=251)
<u>Factor I</u>				
83**	49	52	28	57
(31-124)	64-113	59-111	88-116	59-116
<u>Factor II</u>				
60	28	32	18	34
(20-80)	47-75	41-73	57-75	41-75
<u>Factor III</u>				
54	25	27	16	29
(18-72)	42-67	40-67	53-69	40-69
<u>Overall</u>				
207	93	109	48	112
(69-276)	160-253	141-250	202-250	141-253

* G1 = RA Sample; G2 = Random Sample; G3 = Cross-validation Sample; G• = the range for the three samples.

** The numerical values in the column at the left represent the theoretical range, and the lower and upper limits of the theoretical range.

3. The range of scores for the RA sample (G1) fell consistently between the scores of the other two groups.

Thus, the differences in the range of scores among the three samples were consistent with the assumption stated at the beginning of this section.

Skewness.--Skewness determines the degree to which a distribution of cases approximates a normal curve. The measure of skewness will take on a value of zero when the distribution is a completely symmetric bell-shaped curve. A negative value indicates that the cases are clustered to the right of the mean with most of the extreme values to the left. A positive value indicates clustering to the left of the mean.¹²

Table 5.9 summarizes the skewness of scores for the three samples across the three interpretable factors.

TABLE 5.9.--Skewness.

	G1* (n=102)	G2 (n=120)	G3 (n=29)	G• (n=251)
<u>Factor I</u>	-1.02	-.52	-.54	-.71
<u>Factor II</u>	-.56	-.34	-.38	-.60
<u>Factor III</u>	-.83	-.49	-.43	-.70
<u>Overall</u>	-1.10	-.50	-.50	-.80

*G1 = RA Sample; G2 = Random Sample; G3 = Cross-validation Sample; G• = the overall value of skewness for the three samples.

¹²Norman H. Nie, et al., Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975), pp. 184-185.

An examination of this table reveals that the measure of skewness for the three samples across the three factors is negative. This identifies the scores for the three samples as being distributed to the right of the mean on a bell-shaped curve. The skewness of scores for the three samples was somewhat consistent with the assumption stated at the beginning of this section. However, it was expected that the distribution of scores for the random sample would be less skewed to the right and more representative of a bell-shaped curve.

Kurtosis.--Kurtosis is a measure of the relative peakness or flatness of the curve defined by the distribution of cases. A normal distribution will have a kurtosis of zero. If the kurtosis is positive, then the distribution is peaked and narrow (leptokurtic). A negative value means that the distribution is flat and broad (platykurtic).¹³

The measure of kurtosis for the scores received by the three samples is summarized in Table 5.10.

An examination of the values reported in this table identifies the shape of the distribution of scores for the three samples as follows.

1. The distribution of scores for the RA sample (G1) was leptokurtic. Subjects' scores clustered around the mean for this group across the three factors. The shape of the distribution of scores for this group was narrow and peaked.
2. The distribution of scores for the random sample (G2) was leptokurtic on Factor I. However, subjects' scores

¹³Norman H. Nie, et al., op. cit., p. 185.

TABLE 5.10.--Kurtosis.

	G1* (n=102)	G2 (n=120)	G3 (n=29)	G* (n=251)
<u>Factor I</u>	1.13	.16	-.74	.32
<u>Factor II</u>	.11	-.65	-.85	-.14
<u>Factor III</u>	1.08	-.40	-.65	.19
<u>Overall</u>	1.40	-.11	-.76	.34

G1 = RA Sample; G2 = Random Sample; G3 = Cross-Variation Sample; G = the overall value of kurtosis for the three samples.

on Factors II and III, and the overall scores were evenly distributed across the range of scores achieved by the subjects that comprised this sample. The general shape of the distribution of scores was broad and relatively flat (platykurtic).

3. The distribution of scores for the cross-validation sample (G3) was platykurtic. Subjects' scores were evenly distributed across the range of scores achieved by the subjects that comprised the cross-validation sample. The shape of the distribution of scores for this group was broad and relatively flat.

Thus, the distribution of scores for the three samples was generally supportive of the assumption made at the beginning of this section.

Summary

The third research hypothesis was generated to examine the differences among groups across the three interpretable factors. Since a significant multivariate difference ($p < .05$) was found, the third null hypothesis was rejected.

Three univariate analyses were computed to test the fourth, fifth, and sixth research hypotheses of differences among groups within each factor. A significant univariate difference ($p < .017$)

was found resulting in the rejection of the fourth, fifth and sixth null hypotheses.

Multiple post hoc comparisons (Scheffé) were computed for all possible pairs of groups in the study. The post hoc comparisons identified the three samples of the study as comprising two subsets. The RA sample and the cross-validation sample constituted one subset. No significant difference was found to exist between these two groups on any of the three factors. The random sample constituted a second subset. A significant difference ($p < .006$) was found to exist between the random sample, and both the RA sample and the cross-validation sample on the three factors.

To further explore the nature of the differences between the three groups, the distribution of mean scores and standard deviations for each of the three factors were examined. In addition, the skewness, kurtosis, and the range of scores for the three samples were examined.

The means of the random sample were found to be lower than the means of either of the other two groups. The standard deviations of this group were greater than the other two groups. Similarly, the range of scores achieved by the subjects that comprised this group was wider and lower than either of the other two groups. The distribution of scores for the random sample was generally platykurtic. An examination of the measure of kurtosis together with the range indicates that these subjects' scores were evenly distributed across the wide range of scores. Thus, of the three samples selected for study, the random sample represented a

heterogeneous group of diverse levels of functioning as measured by their scores on the SAA.

The highest mean scores and the lowest standard deviations identified the cross-validation sample. The range of scores for this group was narrower than either of the other two groups. The distribution of scores for the cross-validation sample was platykurtic. An examination of the measure of kurtosis together with the range indicated that these subjects' scores were evenly distributed across a narrow range of scores. The scores of the subjects that comprised this group were also negatively skewed. Thus, of the three samples selected for study, the cross-validation sample represented a homogeneous, high functioning group as measured by their scores on the SAA.

The mean scores and standard deviations of the RA sample fell between the scores of the other two samples suggesting that the RA sample represented a less homogeneous group than the cross-validation sample; but, also, a less heterogeneous group than the random sample. This conclusion was consistent with the range of scores achieved by the RA group. The shape of the distribution of scores for this group was narrow and peaked (leptokurtic). As was the case with the other two groups, the RA samples' scores were negatively skewed. Thus, of the three samples selected for study, the RA sample represented a fairly homogeneous group of above average levels of functioning as measured by their scores on the SAA.

The conclusions stated above were consistent with the assumption that the subjects of each group would respond to the salient items of the SAA in predicted directions. However, the difference in mean scores between the three samples across the factors were proportionally equivilent. Thus, it was concluded that the factors were sufficiently interrelated to be indistinguishable measures of a "g" factor. The implication of this conclusion is that a subject's responses to the salient items that comprise a factor did not differentiate levels of functioning (i.e., a subject who scored low on one factor also scored low on the other two factors).

Summary

The item analysis procedures were designed to identify those items on the SAA which discriminated between high and low scores on each item. Eighty-five of the 205 items that comprised the SAA were identified as discriminating.

The discriminating items were factor analyzed to determine whether the items would form a factor structure consistent with the proposed theory of General Adaptive Capacity outlined in Chapter III. Specified factor rotations were also examined to determine if derived factors were interpretable within the framework of one of the five other theories of adaptive reviewed in Chapter II. Two research hypothesis were generated to examine the relationship between the factor structure and various theories of adaptive functioning. The conclusions drawn from an examination of the factor analytic results were as follows.

1. No relationship between the four factor solution and the four theoretical dimensions of General Adaptive Capacity was found to exist. The first null hypothesis failed to be rejected. In addition, three other specified rotations (N=5,6, and 7) were found to contain nonsignificant factors.

2. Two of the specified factor rotations (N=2 and 3) were found to contain significant interpretable factors. The content of the items that comprised these factors were examined for their relationship to any of the four dimensions of General Adaptive Capacity. Further, the significant factors were examined to determine if a relationship existed between Murphy and/or King's two dimensional theories of adaptive functioning, and White and/or Mechanic's three dimensional theory of adaptation.

3. The two factor varimax solution was found to be consistent with Murphy's two dimensional theory of adaptive functioning (Coping I and Coping II). The three factor solution was found to be consistent with White's three dimensional theory of adaptation (Autonomy, Internal Organization, and Information).

4. The content of the items that comprised Factor I of both the two and three factor solutions was consistent with the Environmental Mastery dimension of General Adaptive Capacity. Factor II of the three factor solution was consistent with aspects of both the Assimilation and Affective Style dimensions of General Adaptive Capacity. Factor III was descriptive of an individual's response to anxiety and the creative use of worrying. This factor was consistent with the response and management of anxiety aspect

of the Affective Style dimension. The factor structure did not identify the self perception aspect of the Assimilation dimension, or the Accommodation dimension of General Adaptive Capacity.

5. The greatest cumulative proportion of variance was accounted for in the three factor solution. In addition, there was a relationship between the three factor solution and White's three dimensional theory of adaptive functioning. Thus, the second null hypothesis was rejected.

The scores of the 69 SAA items that comprised the three factor solution were weighted. The weighting of scores was necessary to determine the proximity of a response to the a priori score assigned to each item.

Coefficient Alpha (an estimate of the internal consistency of the salient items that comprised each factor) and the inter-correlations (Pearson "r") among the three derived factors was calculated. The reliability of the three factors was found to be relatively high (from .65 to .83), but the reliability of the total inventory was higher (.91). In addition, the three factors were found to be highly intercorrelated. It was concluded that the three factors were not discrete measures of a larger construct, and that the factors were sufficiently interrelated to be indistinguishable measures of a "g" factor. Therefore, subject responses to the SAA would not identify differential levels of functioning within the separate factors (i.e., a subject who scored low on one factor would also score low on the other two factors). This conclusion was supported by the results from the follow-up investigation

of the multivariate analysis. Thus, one of the basic assumptions of the research (see Chapter IV) that the interpretable factors would identify differential levels of functioning among the subjects selected for study was not supported.

Differences across the interpretable factors among the groups selected for study were identified using a multivariate analysis, univariate analysis, and Scheffé multiple comparisons. Multivariate and univariate differences were found among the groups resulting in a rejection of the third, fourth, fifth, and sixth null hypotheses. Post hoc comparisons identified the three groups as comprising two subsets. The RA sample and the cross-validation sample constituted one subset. No significant difference was found to exist between these two groups on any of the three factors. The random sample constituted a second subset. A significant difference ($p < .006$) was found to exist between the random sample, and both the RA sample and the cross-validation sample.

An examination of the distribution of scores for the subjects that comprised each sample identified the three samples as follows.

1. The random sample represented a heterogeneous group of diverse levels of functioning.
2. The cross-validation sample represented a homogeneous, high functioning group.
3. The RA sample represented a fairly homogeneous group of above average levels of functioning.

Thus, it was concluded that the subjects of the three samples did respond to the salient items of the SAA in predicted directions.

CHAPTER VI

SUMMARY AND CONCLUSIONS

A general interest of the present study was an examination of the multidimensional nature of the concept of mental health. Specifically, the study was concerned with a preliminary investigation of adaptive functioning as a multidimensional criteria of mental health.

Collation of Summaries

Traditional theories of personality have regarded mental health as a unidimensional concept. These theories have been primarily based on data gathered from individuals who displayed disturbed functioning. An inherent assumption of these theories has been that mental health is the absence of disturbed functioning. Some investigators¹ have proposed models of mental health that are extensions of existing personality theories. These investigators have viewed mental health as a multidimensional concept not sufficiently explained by the absence of pathological symptoms.

¹M. B. Smith, "Research Strategies Toward a Conception of Positive Mental Health," American Psychologist, 14 (1959), pp. 673-681; Marie Mahoda, Current Concepts of Positive Mental Health (New York: Basic Books, 1958); William A. Scott, "Conceptions of Normality." In E. F. Borgatta and W. W. Lambert (Eds.), Handbook of Personality Theory and Research (Chicago: Rand McNally, 1968), pp. 974-1006.

Researchers have emphasized one of two major themes as a measure of adaptive functioning. The self theorists² have emphasized an inner directed theme. They have regarded the individual's self-image or self-esteem to be of prime concern in understanding the problems of human adjustment. By contrast, the ego psychologists³ have emphasized an outer directed theme. They have regarded the individual's ability to fit or adjust to the environment as being of major importance in understanding the mental health of the individual.

Those who have adhered to a unitary view of mental health have regarded the two theoretical positions as simply being different ways of attending to the same construct. The multidimensional view of mental health has regarded the two positions as speaking of two functionally different systems. Proponents of the multidimensional view have suggested that self-esteem and environmental adjustment are clearly related. An understanding of adaptive functioning requires investigating how the two systems mutually facilitate and hamper each other.

²Jahoda, op. cit., 1958, pp. 24-30; Gordon Allport, "Personality Normal and Abnormal," Personality and Social Encounter (Boston: Beacon, 1960); L. S. Kubie, "The Fundamental Nature of the Distinction Between Normality and Neurosis," Psychoanalytic Quarterly, 23 (1954), pp. 187-188.

³S. H. King, Five Lives at Harvard: Personality Change During College (Cambridge, Mass.: Harvard Univ. Press, 1973); H. Hartmann, Ego Psychology and the Problem of Adaptation (New York: International Univ. Press, 1958); R. White, "Motivation Reconsidered: The Concept of Competence," Psychological Review, 66 (1959), pp. 297-333.

A review of the literature identified four theorists who agreed that a theory of adaptive capacity must attend to at least two components. First, such a theory must allow for the individual's growth and satisfaction of internal needs. Second, a theory of adaptive functioning must provide for the individual's reacting to environmental demands. Some theorists (e.g., Murphy and King⁴) have identified adaptive capacity as containing two dimensions. Other researchers (e.g., White and Mechanic⁵) have proposed three dimensional theories of adaptations.

In the present study, the adaptive functioning construct was regarded as attending to the reciprocal relationship between the person and the environment. A four dimensional theory of adaptive functioning was proposed. The four postulated dimensions (Affective Style, Assimilation, Accommodation, Environmental Mastery) were consistent with the internal and external themes found in the literature on mental health. In addition, the proposed theory (General Adaptive Capacity) was a synthesis of the various dimensions described in the four formulations of adaptive functioning found in the literature (see Tables 2.1 and 2.2 for a summary of the relationship between these various theories).

⁴Lois Murphy and Alice Moriarty, Vulnerability, Coping, and Growth: from Infancy to Adolescence (New Haven: Yale University Press, 1976); King, op. cit., 1973.

⁵Robert White, "Strategies of Adaptation." In G. V. Coelho, D. A. Hamburg, and J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 47-69; David Mechanic, "Social Structure and Personal Adaptation: Some Neglected Dimensions." In G. V. Coelho, D. A. Hamburg, and J. E. Adams (Eds.), Coping and Adaptation (New York: Basic Books, 1974), pp. 32-44.

A review of nine studies of normality and adaptive functioning identified various characteristics and clusters of characteristics that defined differential levels of functioning of the adaptive capacity construct. These characteristics were consistent with the four dimensional theory of General Adaptive Capacity (see Table 3.1 for a summary of the characteristics).

Thus, the present preliminary investigation was designed to explore the multidimensional nature of adaptive functioning as a construct of mental health. There were three major objectives of the study.

1. To empirically investigate the adaptive functioning construct.
2. To validate an instrument designed to measure the proposed theory of adaptive functioning.
3. To identify differential levels of functioning among individuals on the criteria of General Adaptive Capacity.

A 205 item instrument (the Survey of Actualization: Adaptation) was constructed to measure the proposed theory of General Adaptive Capacity. Three individuals, a clinical psychologist and two counseling psychologists, scored and classified each item consistent with the four dimensions of the proposed theory.

Responses to the inventory were collected from 251 subjects who comprised three separate samples. A group of 102 resident hall advisors responded to the inventory. It was assumed that this sample represented a fairly homogeneous, high functioning group. One hundred twenty subjects of a random sample completed the inventory. It was assumed that these subjects represented a

heterogeneous group of diverse levels of functioning. Finally, a cross-validation group of 29 nominated subjects completed the inventory. They were judged to represent a homogeneous, high functioning group of subjects.

Four basic assumptions were made in the study:

1. A factor analysis of the discriminating items on the Survey of Actualization: Adaptation designed to measure the proposed theory would yield interpretable factors.
2. The salient items that comprised each interpretable factor would differentiate between the high and low levels of functioning of the subjects in each group.
3. The subjects of each group would respond to the salient items of the inventory in predicted directions (i.e. responses to the inventory would be consistent with the assumptions stated above about the nature or characteristics of the subjects that comprised each sample).
4. Scores on the salient items of each interpretable factor would not be related to scores on the salient items of the other interpretable factors.

Two distinct methods of data analysis were used to test the assumptions stated above: factor analysis and multivariate analysis of variance.

An item analysis using the Davis discrimination index identified 85 of the 205 items that comprised the Survey of Actualization: Adaptation as discriminating between high and low scores on each item. The discriminating items were factor analyzed to determine whether the items would form a factor structure consistent with one of the various proposed theories described in Chapters II and III.

Fixed factor rotations specifying $N = 2, 3, 4, 5, 6$, and 7 factors were performed using the varimax procedure. A rationale was developed for the two through seven rotations. The significance of

an item factor loading was arbitrarily established at $\pm .40$ or above. In addition, a factor was regarded as significant and interpretable if the number of high loadings on that factor accounted for ten per cent of the variance. The three factor solution was identified as containing a significant set of factors.

Scores from the items that comprised the three factors were weighted to determine the proximity of a response to the a priori score established for an item. The reliability estimates (alpha) were relatively high for the three factors (from .65 to .83). However, the reliability of the total inventory was higher (.91) suggesting that the total inventory was one large scale with three subsets of that scale. The intercorrelations (Pearson "r") were also high (from .45 to .81). In addition, each factor was highly correlated with the overall inventory (from .82 to .96). Thus, it was concluded that the 69 items that comprised the refined inventory was probably one large scale with three highly interrelated subsets of that scale.

A multivariate and univariate difference was found among the three groups selected for study across the interpretable factors ($P < .05$ and $P < .017$, respectively). Multiple post hoc comparisons (Scheffé) identified the three samples as comprising two subsets. No significant difference was found between the resident hall advisors sample and the cross-validation sample. However, a significant difference ($P < .006$) was found to exist between the random sample, and both the resident hall advisors group and the cross-validation sample.

The distribution of scores was skewed to the left for the three samples. Thus, the subjects that comprised the three samples represented a fairly high functioning group of individuals. This was somewhat contrary to expectation since it was expected that the scores for the random sample would be more heterogeneously distributed.

An examination of the distribution of mean scores identified the random sample as the lowest scoring group, and the cross-validation sample as the highest scoring group. Mean scores for the resident hall advisors group were between the other two samples. Thus, the distribution of mean scores for the samples was consistent with the predicted direction of responses to the inventory as stated in the third assumption listed above.

Conclusions

Four major research hypotheses were generated to examine the data. The factor analytic procedure was tested with hypotheses I and II. The third and fourth hypotheses were designed to examine the results from the multivariate analysis of variance.

Testing the Hypotheses

1. Null Hypothesis I: There will be no relationship between factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation and the theoretical dimensions of General Adaptive Capacity. A fixed factor solution (N=4) was performed to test the first null hypothesis. The amount of variance accounted for beyond the third factor fell below the ten per cent level of significance. Therefore, the four factor solution

was regarded as uninterpretable. Since the four factor solution did not yield four interpretable factors, the first null hypothesis was not rejected.

2. Null Hypothesis II: No interpretable factors will be found from a factorial analysis of discriminating items (variables) on the Survey of Actualization: Adaptation. Fixed factor rotations of $N = 2, 3, 5, 6$, and 7 were performed to test the second null hypothesis. Only the two and three factor solutions were found to contain a set of significant, interpretable factors. An examination of the content of the items comprising the various significant factors identified the two factor solution as being consistent with Murphy's two dimensional theory of adaptive functioning. White's three dimensional theory was identified as being consistent with the three factor solution. It was concluded that the three factor solution (accounting for the greatest amount of cumulative variance) identified a set of interpretable factors. The second null hypothesis was rejected.

3. Null Hypothesis III: No difference will be found among groups across the interpretable factors (dimensions) of adaptive functioning. A multivariate analysis of the three factors was found to be significant ($F=7.20$, $df\ 6/492$, $P<.05$). The third null hypothesis of no difference among groups was rejected.

4. Null Hypothesis IV: No difference will be found among groups within each interpretable factor. Since a multivariate difference was found, univariate tests were computed on each factor to determine which factor contributed to the rejection of the third

null hypothesis. A significant difference was found to exist on each of the three factors (Factor I - $F=19.68$, $df\ 2/248$, $P<.017$; Factor II - $F=219.15$, $df\ 2/248$, $P<.017$; Factor III - $F=13.59$; $df\ 2/248$, $P<.017$). The fourth null hypothesis was rejected.

5. As a consequence of rejecting the fourth null hypothesis, post hoc comparisons (Scheffé) were computed. A comparison of mean scores for all possible pairs of the three groups across the three factors resulted in the following findings. The resident hall advisors group and the cross-validation sample formed one subset. The random sample formed a second subset. The difference between the two subsets was significant ($P<.006$). The patterning of differences among the three samples was identical for the three factors. It was concluded that differential responses to the items that comprised the interpretable factors sorted the three samples into two subsets: one comprised of the random sample, and the other comprised of the cross-validation and resident hall advisors samples.

Factor Structure

A summary of the factor structure is limited to the following conclusions drawn from the study. (1) An interpretation of the three factor solution is provided. (2) The relationship between the three factor solution and the four dimensional theory proposed for the study is reviewed. (3) The relationship between White's three dimensional theory of adaptive functioning and the three factor solution is provided. A more thorough summary of the results from

the factor analysis and the various theories of adaptive functioning reviewed in Chapter II is provided in Table 5.1.

The content of the items that comprised Factor I described the factor as externally oriented with a focus on the individual's learning from the environment. A high score on the items that comprise Factor I would characterize individuals who saw themselves as goal-directed and competent. The Environmental Mastery dimension of the present study was consistent with this factor. In addition, White's external dimension (information) was descriptive of Factor I.

Factor II was described as an internal factor. The content of the items that comprised Factor II focused on self awareness with an emphasis on emotionality. Individuals who score high on Factor II would be characterized as being aware of, owning, and expressive of their feelings. Aspects of the Affective Style and Assimilation dimensions of General Adaptive Capacity were present in the factor. Factor II was also descriptive of White's internal dimension of autonomy.

The significant items that comprised Factor III described this factor as being internally oriented and focusing on the individual's response and management of anxiety. Individuals who scored high on Factor III would be characterized as focusing on the solution to problems rather than the cause of problems. Factor III was descriptive of the response and management of anxiety aspect of the Affective Style dimension of General Adaptive Capacity. In addition, White's description of maintaining internal organization

(i.e., the ability to control anxiety in order to maintain and enhance internal organization) was consistent with Factor III.

Distribution of Scores for the Three Samples

An inspection of the distribution of scores for the three samples led to the following conclusions.

1. Subject responses to the SAA did not identify differential levels of functioning within the separate factors (i.e., a subject who scores low on one factor would also score low on the other two factors).
2. The subjects of the random sample were a more heterogeneous group of diverse levels of functioning than the other two samples.
3. The cross-validation sample and the resident hall advisors group were a more homogeneous, high functioning group than the random sample.
4. The mean scores of the cross-validation sample were higher than the mean scores of the resident hall advisors group across the three factors. However, the difference was nonsignificant.

Discussion

Some of the findings from the study were clearly supportive of the theoretical assumptions made about the adaptive functioning construct. For instance, the responses to the salient items of the inventory did differentiate between levels of functioning for the

three samples. However, differences were of a more global nature than was expected. The subjects that comprised each sample responded in predicted directions on the inventory, but when scores across the interpretable factors were examined, no distinction was found (i.e., an individual who responded low on the items that comprised one factor also scored low on the items of the other two factors).

There are several possible implications that can be derived from this finding. One such interpretation is that the adaptive functioning construct is, in fact, unidimensional. There is apparently sufficient overlap (interrelationship) between the identified factors that they are indistinguishable measures of some larger "g" factor. An examination of the intercorrelations (see Table 5.4) of each factor with the total inventory supports this interpretation.

Thus, an individual who has difficulty responding to his/her own anxious feelings (Factor III) is also somewhat constricted in other areas of his emotional life (Factor II), and views himself/herself as not competent to master the tasks established by the environment. Similarly, then, feelings of competence are clearly related to an unrestricted access to one's emotionality and an ability to respond to and manage one's anxiety. In terms of the interpretation offered for the content of the items that comprise the three factors, the implication is that the individual who uses worrying creatively (Factor III) is also goal-directed and competent

(Factor I), and aware of and expressive of his/her emotionality (Factor II).

The consistency of responses across the factors was understandable from an examination of the intercorrelation coefficients. Each factor is highly correlated with the other two factors. However, Factor II (emotionality) and Factor III (response to anxiety) are somewhat more highly correlated with Factor I (competence) than they are with each other.

It is tempting to suggest that unrestricted access to one's emotions and an ability to respond and manage one's anxiety results in goal-directed behavior and a feeling of competence. Some theoretical support for this conclusion is offered by White.⁶ He has proposed the concept of Effectance Motivation as an instinct to master or to have an effect on the environment. White viewed the individual as achieving affective and cognitive pleasure in learning from the environment. Further, he regarded individuals as being motivated to master the tasks established by the environment. Exploratory behavior was regarded as the individual's efforts to master environmental tasks. White suggests that a willingness to experience novelty increases exploratory behavior and fear (anxiety) decreases an individual's willingness to learn from the environment. However, much more research of an experimental nature is needed before White's theoretical position can be accepted.

⁶White, op. cit., 1959.

Factor I from the study could be conceptually similar to White's concept of Effectance Motivation. Factors II and III could be conceptually similar to his assumptions about responses that increase and decrease exploratory behavior. This interpretation of the results from the study is clearly beyond the scope of the present investigations, but it does have some interesting implications for future research.

The findings from the study failed to identify three major aspects of the proposed theory: Self perception (an aspect of the Assimilation dimension) and perception of environmental demands and the appropriateness of meeting environmental demands (Accommodation). Several interpretations of the failure in the study to identify these characteristics are possible. One such explanation is that the inventory items related to these aspects of the theory were not explicit or powerful enough to measure the complexity of self and environmental perception. Other measurement techniques (other than a paper and pencil inventory) may be needed to measure these characteristics.

The number of responses to the inventory from the subjects that comprised the three samples was low. It was stated earlier (see Chapter IV) that the data was collected from a group of individuals who were regarded as a cooperative sample. Thus, any generalization of the results beyond those subjects is questionable.

It was expected that the random sample would represent a heterogeneous group of subjects with diverse levels of functioning. An examination of the distribution of scores for the three samples

identified the random sample as a fairly high functioning group of subjects even though their scores were significantly lower than the subjects that comprised the other two samples. The failure to identify the random sample as a more heterogeneous group may be due to the very limited response to the inventory (only 42 per cent of the random sample completed the inventory). Thus, primarily those individuals who felt good about their adaptive capacity may have responded. However, the use of college students has some clear limitations to this type of study. As a population of subjects, college students may tend to represent a fairly homogeneous group. It may be more fruitful to select a sample from a larger, diverse population.

Implications for Future Research

The results of the factor analysis suggest that the adaptive functioning construct is comprised of three interrelated dimensions. In addition, a multivariate analysis of the salient items that comprised the three factors did identify a difference between the groups selected for study across the interpretable factors. These two major findings from the study suggest several implications for future research.

1. The question of adaptive functioning as being a uni-dimensional or multidimensional construct was essentially unanswered by the results of the present study. The results suggest uni-dimensionality. However, most of the item factor loadings that comprised Factors II and III were quite low (generally below $\pm .60$).

An examination of the item intercorrelation matrix (see Appendix C) indicates that the items were highly correlated across the three factors. In addition, the lower correlated items tended to comprise the salient items of Factors II and III. This would seem to suggest that additional items designed to measure Factor II and III (that are uncorrelated with Factor I) need to be generated. One possible procedure would be to generate and research a list of salient items for each dimension of the adaptive functioning construct, but design separate studies to validate the salient list of each dimension. Data collected from a series of studies using samples from the same population could then be intercorrelated and factor analyzed.

2. The factor analytic procedure used in the study was a relatively simple and direct way of determining the factor structure. While the procedure is traditionally accepted, other factorial procedures are available. Child⁷ recommends a multiple factorial procedure that uses a combination of oblique and orthogonal rotations to form a factor structure. His recommendations are statistically complex and time consuming, but are potentially more precise than the procedure used in the present study.

3. It may be that current knowledge of human functioning is too limited and unsophisticated to use complex analytic procedures such as factor analysis (Heath has come to this conclusion⁸).

⁷Dennis Child, The Essentials of Factor Analysis (New York: Holt, Rinehart and Winston, 1973), pp. 53-65.

⁸D. H. Heath, April 28, 1977. Personal communication.

A combination of measurement procedures (e.g., semi-structured interviews, projective techniques, and reports from significant others) might yield more useful data than the approach used in this study. As an adjunct to formal statistical analysis of the data, an evaluation of the subjects by independent raters could be a useful procedure in determining the differential levels of functioning, and as a means of exploring the unidimensional or multidimensional nature of the adaptive functioning construct.

4. The content of the items that comprise the three factor solution appears to be related to White's theory of adaptive functioning. In addition, there appears to be some relationship between White's concept of Effectance Motivation and the interpretable factors. Additional research needs to be done to determine the validity of these conclusions. The salient items that comprise the Survey of Actualization: Adaptation provide a core of test items from which additional items need to be generated. Items to measure Factors I and II (as mentioned above) are particularly weak and need to be reworked. Research needs to be conducted in this area selecting a random sample from a more heterogeneous population than college students. The present study has provided some basis for identifying high functioning individuals, but research needs to be conducted using individuals who are identified as low functioning.

5. Very little mental health research has been conducted to empirically determine differences between males and females on some identified construct. The present investigation did not alter this

void. Cultural stereotypes, at least, suggest that differential responses to a construct such as adaptive functioning do exist. It would seem reasonable to assume that females would respond differently than males to measures of competence, emotionality and anxiety. The assumption requires research.

Thus, while no clearcut conclusions were derived from the results of the study, the investigation did raise a number of important issues that need further research. In addition, the proposed theory needs to be reexamined for possible modification, and instrumentation to measure the adaptive functioning construct needs to be improved.

4

BIBLIOGRAPHY

BIBLIOGRAPHY

- Allport, Gordon W. Personality: A Psychological Interpretation. New York: Henry Holt and Company, 1938.
- Allport, Gordon W. Personality and Social Encounter. Boston: Beacon Press, 1960.
- Barron, Frank. Creativity and Psychological Health. New York: D. Van Nostrand Company, Inc., 1963.
- Block, Jack, and Haan, Norma. Lives Through Time. Berkeley, California: Bancroft Books, 1971.
- Bonney, Merl E. The Normal Personality. Berkeley, California: McCutchan Publishing Corporation, 1969.
- Buss, Arnold H. Psychopathology. New York: John Wiley and Sons, 1966.
- Cattell, Raymond B. Personality: A Systematic Theoretical and Factual Study. New York: McGraw-Hill, 1950.
- Cattell, Raymond B. Factor Analysis. New York: Harper Brothers, 1952.
- Child, Dennis. The Essentials of Factor Analysis. New York: Holt, Rinehart and Winston, 1973.
- ✓ Coelho, George V.; Hamburg, D. A.; and Murphy E. "Coping Strategies in a New Learning Environment." A.M.A. Archives of General Psychiatry 9 (1963):433-43.
- ✓ Coelho, George V.; Hamburg, D. A.; and Adams, J. E., eds. Coping and Adaptation. New York: Basic Books, 1974.
- Cronbach, Lee J. "Coefficient Alpha and the Internal Structure of Tests." In Principles of Educational and Psychological Measurement. Edited by William A. Mehrens and Robert L. Ebel. Chicago: Rand McNally, 1964.
- Davis, F. B. "Item Selection Techniques." In Educational Measurement. Edited by E. F. Lindquist. Washington, D.C.: American Council on Education, 1951.

- Dollard, John, and Miller, Neal E. Social Learning and Imitation. New Haven: Yale University Press, 1941.
- Eaton, Joseph W. "The Assessment of Mental Health." American Journal of Psychiatry 108 (1951):81-90.
- Ellis, Albert. "The Validity of Personality Questionnaires." Psychological Bulletin 42 (1946):385-440.
- English, Horace, and English, Ava. A Comprehensive Dictionary of Psychological and Psychoanalytic Terms. New York: David McKay Company, 1972.
- Erikson, Eric. Childhood and Society. New York: W. W. Norton, 1963.
- Escalona, Sibylle et al. "Early Phases of Personality Development: A Non Normative Study of Infant Behavior." Monographs of the Society for Research in Child Development, Vol. 17, Serial 54, No. 1, 1952.
- Fenichel, Otto. The Psychoanalytic Theory of Neurosis. New York: W. W. Norton and Company, 1945.
- Fiedler, Fred E.; Dodge, J. S.; and Jones, R. E. "Interrelations Among Measures of Personality Adjustment in Nonclinical Populations." Journal of Abnormal Social Psychology 56 (1958): 343-51.
- Foote, Nelson N., and Cottrell, L. S., Jr. Identity and Interpersonal Competence. Chicago: University of Chicago Press, 1955.
- Freud, Anna. The Ego Mechanisms of Defense. London: Hogarth Press, 1937.
- Freud, Anna. "Adolescence as a Developmental Disturbance." In Adolescence: Psychological Perspectives. Edited by Gerald Caplan and S. Lebovici. New York: Basic Books, 1969.
- Freud, Sigmund. The Problem of Anxiety. Translated by Henry Alden Bunker. New York: W. W. Norton, 1936.
- Glover, Edward. "Medico-Psychological Aspects of Normality." In On the Early Development of Mind. Edited by E. Glover. New York: International Universities Press, 1956.
- Golden, Jules; Mandel, N.; Glueck, B. L., Jr.; and Feder, A. "A Summary Description of Fifty 'Normal' White Males." American Journal of Psychiatry 119 (1962):48-56.
- Goldstein, Kurt. Human Nature in the Light of Psychopathology. Cambridge: Harvard University Press, 1940.

Gough, H. G. California Psychological Inventory Manual. Palo Alto, California: Consulting Psychologists Press, 1957.

Grinker, Roy R., and Spiegel, J. P. Men Under Stress. Phil.: McGraw-Hill, Blakiston Division, 1945.

✓ Grinker, Roy R. et al. "A Study of 'Mentally Healthy' Young Males (Homoclitites)." A.M.A. Archives of General Psychiatry 6 (1962):405-51.

Grinker, Roy R. "A Dynamic Study of the Homoclitite." In Science and Psychoanalysis, Vol. 6. Edited by Jules Masserman. New York: Grune and Stratton, 1963.

Grinker, Roy R., and Werble, B. "Mentally Healthy Young Males (Homoclitites) Fourteen Years Later." A.M.A. Archives of General Psychiatry 30 (1974):701-4.

Hamburg, David A., and Adams, J. E. "A Perspective on Coping Behavior: Seeking and Utilizing Information in Major Transitions." A.M.A. Archives of General Psychiatry 17 (1967):277-84.

Hartman, Heinz. Ego Psychology and the Problem of Adaptation. Translated by David Papaport. New York: International Universities Press, 1958.

Hathaway, Starke R., and McKinley, J. C. Manual for the MMPI. New York: Psychological Corporation, 1967.

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

Heath, Clark W. et al. What People Are . . . a study of normal young men. Cambridge: Harvard University Press, 1946.

Heath, Donald H. Explorations of Maturity. New York: Appleton-Century-Crofts, 1965.

✓ Heath, Donald H. Growing Up in College. San Francisco: Jossey-Bass, Inc., 1968.

✓✓ Helson, Harry. Adaptation Level Theory. New York: Harper and Row, 1964.

Heist, Paul; Yonge, G.; McConnell, T. R.; and Webster, H. Omnibus Personality Inventory Manual. New York: Psychological Corporation, 1967.

Hendricks, Ives. "The Discussion of the 'Instinct to Master.'" Psychoanalytic Quarterly 12 (1943):563-66.

Hollander, Edwin P. Leaders, Groups and Influence. New York: Oxford University Press, 1964.

- Hootan, Ernest. Young Man, You Are Normal. New York: G. P. Putnam, 1945.
- Huck, Schuyler W.; Cormier, William C.; and Bounds, William C., Jr. Reading Statistics and Research. New York: Harper and Row, 1974.
- Jahoda, Marie. "Toward a Social Psychology of Mental Health." In Symposium on the Healthy Personality. Edited by Milton J. E. Senn. Josiah Macy Foundation, 1950.
- Jahoda, Marie. Current Concepts of Positive Mental Health. New York: Basic Books, 1958.
- Johnson, Wendall. People in Quandaries. New York: Harper and Row, 1946.
- Jones, Ernest. "The Concept of the Normal Mind." International Journal of Psychoanalysis 23 (1942):1-8.
- Jones, Maxwell. The Therapeutic Community: A New Treatment Method in Psychiatry. New York: Basic Books, 1952.
- ✓ King, Stanley H. "Coping Mechanisms in Adolescence." Psychiatric Anals. 1 (1971):10-46.
- ✓ King, Stanley H. "Coping and Growth in Adolescence." Seminars in Psychiatry, Vol. 4, No. 4 (Nov. 1972):355-66.
- King, Stanley H. Five Lives at Harvard: Personality Change During College. Cambridge: Harvard University Press, 1973.
- Kroeber, Theodore C. "The Coping Functions of the Ego Mechanisms." In The Study of Lives. Edited by Robert W. White. New York: Atherton Press, 1963.
- Kubie, Lawrence S. "The Fundamental Distinction Between Normality and Neurosis." Psychoanalytic Quarterly 23 (1954):167-204.
- Lazarsfield, Felix P. Mathematical Thinking in the Social Sciences. Glencoe, Ill.: Free Press, 1954.
- Maslow, Abraham M. Motivation and Personality. New York: Harper and Row, 1954.
- McLaughlin, James T. "Normality and Psychosomatic Illness." Mental Hygiene 34 (1950):19-33.
- Moriarty, Alice, and Toussieng, Povl W. "Adolescence in a Time of Transition." Bulletin of the Menninger Clinic, Vol. 39, No. 5 (Sept. 1975):391-408.

- Mowrer, O. Hobert. "'Sin,' the Lesser of Two Evils." American Psychologist 15 (1960):301-4.
- Mueller, William, and Kell, Bill. Coping with Conflict. New York: Appleton-Century-Crofts, 1972.
- Murphy, Lois. Social Behavior and Child Personality: An Exploratory Study of Some Roots of Sympathy. New York: Columbia University Press, 1964.
- ✓ Murphy, Lois, and Moriarty, Alice. Vulnerability, Coping and Growth: from Infancy to Adolescence. New Haven: Yale University Press, 1976.
- Nie, Norman H. et al. Statistical Package for the Social Sciences. New York: McGraw-Hill, 1975.
- Norman, R. D. "The Interrelationships Among Acceptance-Rejection, Self-Other Identity, Insight into Self, and Realistic Perception of Others." Journal of Social Psychology 34 (1953): 205-34.
- Nunnally, Jum C. Psychometric Theory. New York: McGraw-Hill, 1967.
- Offer, Daniel, and Sabshin, Melvin. "The Psychiatrist and the Normal Adolescent." A.M.A. Archives of General Psychiatry 9 (1963): 427-32.
- Offer, Daniel et al. "Clinical Evaluations of 'Normal' Adolescents." American Journal of Psychiatry 121 (1965):864-72.
- Offer, Daniel. "Normal Adolescents: Interview Strategy and Selected Results." A.M.A. Archives of General Psychiatry 17 (1967): 285-90.
- Offer, Daniel, and Howard, Kenneth L. "An Empirical Analysis of the Offer Self-Image Questionnaire for Adolescents." A.M.A. Archives of General Psychiatry 27 (1972):129-533.
- Offer, Daniel, and Sabshin, Melvin. Normality: Theoretical and Clinical Concepts of Mental Health. New York: Basic Books, 1974.
- Offer, Daniel, and Offer, Judith. From Teenage to Young Manhood: Psychological Study. New York: Basic Books, 1975.
- Piaget, Jean. The Origins of Intelligence in Children. International University Press, 1952.
- Renaud, H., and Estess, F. "Life Interviews with One Hundred Normal American Males: 'Pathogenecity' of Childhood." American Journal of Orthopsychiatry 31 (1961):786-801.

- Rychlak, Joseph F. A Philosophy of Science for Personality Theory. Boston: Houghton Mifflin Company, 1968.
- Schofield, William, and Balien, L. "A Comparative Study of the Personal Histories of Schizophrenic and Nonpsychiatric Patients." Journal of Abnormal and Social Psychology 59 (1959):216-25.
- Scott, William A. "Conceptions of Normality." In Handbook of Personality Theory and Research. Edited by Edgar F. Borgatta and W. W. Lambert. Chicago: Rand McNally, 1968.
- Silber, Earle et al. "Adaptive Behavior in Competent Adolescents." A.M.A. Archives of General Psychiatry 5 (1961):354-65.
- Silber, Earle et al. "Competent Adolescents Coping with College Decision." A.M.A. Archives of General Psychiatry 5 (1961): 517-28.
- Smith, M. Brewster. "Research Strategies Toward a Conception of Positive Mental Health." American Psychologist 14 (1959):673-81.
- Smith, M. Brewster. "'Mental Health' Reconsidered: A Special Case of the Problem of Values in Psychology." American Psychologist 16 (1961):299-306.
- Sullivan, Harry S. The International Theory of Psychiatry. New York: W. W. Norton, 1953.
- Tindall, Ralph H. "Relationships Among Indices of Adjustment Status." Educational Psychological Measurement 15 (1955):152-62.
- Vaillant, George E. "Theoretical Hierarchy of Adaptive Ego Mechanisms." A.M.A. Archives of General Psychiatry 24 (1971):107-18.
- Vaillant, George E., and MacArthur, C. C. "Natural History of Male Psychologic Health: The Adult Cycle from 18-50." Seminars in Psychiatry, Vol. 4., No. 4 (1972):415-27.
- Vaillant, George E. "Natural History of Male Psychological Health: Empirical Dimensions of Mental Health." A.M.A. Archives of General Psychiatry 32 (1975):420-26.
- Werner, H. "The Concept of Development from a Comparative and Organismic Point of View." In The Concept of Development: An Issue in the Study of Human Behavior. Edited by D. B. Harris. Minneapolis: University of Minnesota Press, 1957.
- Westley, William A. "Emotionally Healthy Adolescents and Their Family Backgrounds." In The Family in Contemporary Society. Edited by Iago Galdston. New York: International Universities Press, 1958.

- White, Robert W. "Motivation Reconsidered: The Concept of Competence." Psychological Review 66 (1959):297-333.
- Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1971.

General References

- Allport, Gordon W. Pattern and Growth in Personality. New York: Holt, Rinehart, and Winston, 1961.
- Angyal, Andras. Foundations for a Science of Personality. New York: The Commonwealth Fund, 1941.
- Barron, Frank. "An Ego-Strength Scale Which Predicts Response to Psychotherapy." Journal of Consulting Psychology 17 (1953): 327-33.
- Barron, Frank. Personal Soundness in University Graduate Students. Berkeley: University of California Press, 1954.
- Beres, D., and Obers, S. J. "The Effects of Extreme Deprivation in Infancy on Psychic Structure in Adolescence." Psychoanalytic Studies of Childhood 5 (1950):121-40.
- ✓ Bills, Robert E.; Vance, E. L.; and McLenn, O. S. "An Index of Adjustment and Values." Journal of Consulting Psychology 15 (1951): 257-61.
- Blau, Abram. "The Diagnosis and Therapy of Health." American Journal of Psychiatry 110 (1954):594-98.
- Burnham, William H. The Normal Mind. New York: D. Appleton, 1924.
- Cowen, Emory L.; Heilizer, F.; and Axelrod, H. S. "The Correlates of Manifest Anxiety in Perceptual Reactivity, Rigidity, and Self-Concept." Journal of Consulting Psychology 21 (1957):405-11.
- ✓ Dana, Richard H. Foundations of Clinical Psychology: Problems of Personality and Adjustment. New York: D. Van Nostrand, 1966.
- Douvan, Elizabeth, and Adelson, Joseph. The Adolescent Experience. New York: John Wiley and Sons, 1966.
- Dunbar, Helen Flanders. "Coefficient of Homeostatic Elasticity." In Psychiatry in the Medical Specialties, by Helen Flanders Dunbar. New York: McGraw-Hill, 1959.
- Epstein, Nathan B. "Concepts of Normality or Evaluation of Emotional Health." Behavioral Scientist 3 (1958):335-43.

- Freides, David. "Toward the Elimination of the Concept of Normality." Journal of Consulting Psychology 24 (1960):128-33.
- French, Alfred, and Steward, M. S. "Adaptation and Affect: Toward a Synthesis of Piagtian and Psychoanalytic Psychologies." Perspectives in Biology and Medicine 18 (1975):464-74.
- Garber, Benjamin. Follow-up Study of Hospitalized Adolescents. New York: Brunner-Mazel Publishers, 1972.
- Gurin, Gerald; Veroff, J.; and Feld, S. Americans View Their Mental Health. New York: Basic Books, 1960.
- Gough, H. G. "Theory and Measurement of Socialization." Journal of Consulting Psychology 24 (1960):23-30.
- Haan, Norma. "Proposed Model of Ego Functioning: Coping and Defense Mechanisms in Relationship to IQ Change." Psychological Monographs 77 (1963):1-23.
- Haan, Norma. "Personality Development from Adolescence to Adulthood." Seminars in Psychiatry 4 (1972):399-414.
- Hacker, F. "The Concept of Normality and Its Pratical Significance." American Journal of Orthopsychiatry 15 (1945):47-64.
- Hartmann, Heinz. "Psychoanalysis and the Concept of Health." International Journal of Psychoanalysis 20 (1939):308-21.
- Heath, Donald H. Maturity and Competence: A Transcultural View. New York: Gardner Press, 1977.
- Heisler, Verda. "Towards a Process Model of Psychological Health." Journal of Counseling Psychology 11 (1964):59-62.
- ✓ Holtzman, Wayne H., and Bitterman, M. E. "A Factorial Study of Adjustment to Stress." Journal of Abnormal Social Psychology 52 (1956):179-85.
- Jackson, Douglas N., and Messick, S. "Response Styles on the MMPI: Comparison of Clinical and Normal Samples." Journal of Abnormal Social Psychology 65 (1962):285-99.
- Jackson, Douglas N., and Messick, S., eds. Problems in Human Assessment. New York: McGraw-Hill, 1967.
- Jessor, Richard, and Liverant, S. "Imbalance in Need Structure and Maladjustments." Journal of Abnormal Social Psychology 66 (1963):271-75.
- Kagan, Jerome. "American Longitudinal Research in Psychological Development." Child Development 35 (1964):1-32.

Klein, Melanie; Heimann, Paula; and Money-Kyrle, R. G., eds. New Directions in Psychoanalysis. New York: Basic Books, 1957.

Erikson, Erik H. "Growth and Crises of the 'Healthy Personality.'" In Personality in Nature, Society, and Culture. Edited by C. Kluckhohn, H. A. Murray, and D. M. Schneider. New York: Knopf, 1955.

Lazarus, Richard S. Psychological Stress and the Coping Process. New York: McGraw-Hill, 1966.

Lichtenberg, Phillip; Cassetta, R.; and Scanlon, J. C. "Mutual Achievement Strivings: A Continuum for Mental Health." Journal of Abnormal Social Psychology 63 (1961):619-28.

Maslow, Abraham H. Toward a Psychology of Being. Second Edition. Princeton: Van Nostrand, 1968.

Maslow, Abraham H. "Self Actualizing People: A Study of Psychological Health." Personality Symposia 16 (1950):11-34.

Masterson, James F., Jr. The Psychiatric Dilemma of Adolescence. Boston: Little, Brown and Company, 1967.

✓ Menninger, Karl. "Adaptation Difficulties in College Students." Mental Hygiene 2 (1927):519-28.

Murray, Henry A. Explorations in Personality. London: Oxford University Press, 1938.

Offer, Daniel, and Freedman, D. X., eds. Modern Psychiatry and Clinical Research. New York: Basic Books, 1972.

Overall, John E., and Klett, C. James. Applied Multivariate Analysis. New York: McGraw-Hill, 1972.

Preston, George H. The Substance of Mental Health. New York: Farrar and Rinehart, 1943.

Redlich, Frederick C. "The Concept of Normality." American Journal of Psychotherapy 6 (1952):551-69.

Reider, Norman. "The Concept of Normality." Psychoanalytic Quarterly 19 (1950):43-51.

Rennie, Thomas A. C., and Woodward, L. E. Mental Health in Modern Society. New York: Commonwealth, 1948.

Ryle, John A. "The Meaning of Normal." Lancet 1 (1947):4-5.

Saul, Leon J. Emotional Maturity. Philadelphia: J. B. Lippincott Company, 1947.

- Scott, William A. "Research Definitions of Mental Health and Mental Illness." Psychological Bulletin 55 (1958):29-45.
- Shoben, Edward J., Jr. "Toward a Concept of the Normal Personality." American Psychologist 12 (1957):183-89.
- Smith, M. Brewster. "Optima of Mental Health." Psychiatry 13 (1950): 503-10.
- Symonds, Percival M., and Jensen, A. R. From Adolescent to Adult. New York: Columbia University Press, 1961.
- Waelder, Robert. "The Principle of Multiple Functions." Psycho-analytic Quarterly 5 (1936):45-62.
- Westley, William, and Epstein, Nathan. Silent Majority. San Francisco: Jossey Bass, 1969.
- White, Robert W. Lives in Progress. New York: Dryden Press, 1952.
- Wisher, J. "A Concept of Efficiency in Psychological Health and in Psychopathology." Psychological Review 1 (1955):62-69.

APPENDICES

APPENDIX A

DISTRIBUTION OF ITEMS BY CLASSIFIED SCALES

INTERNAL DIMENSIONS

Affective Style

(The ability to experience a full range of feelings
thoughts and reactions)

Having a sense of one's limits

- 26. I think of things too bad to talk about.
- 54. My feelings surprise me.
- 69. Feelings make me realize my humanness.*
- 87. I am selectively open about my feelings.
- 106. I have a good general idea how I will feel in most situations.
- 147. Negative feelings are incapacitating to me.
- 168. My feelings help me to know what to do in a situation.
- 170. I anticipate how I will feel in a situation.*
- 182. I am able to control my feelings.

Wide range of feelings

- 10. I worry and fret.*
- 36. I am accurate in describing my past feelings.
- 47. I am aware of multiple (having more than one) feelings in some situations.
- 85. I enjoy my feelings--pleasant and unpleasant.*
- 101. I express my feelings.*
- 142. I am a happy person.*
- 196. I like to be surprised.
- 204. I enjoy both sad and happy feelings.*

*Discriminating items.

Owns rather than disowns feelings

- 8. Negative feelings from others are dealt with the person sending them.
- 17. I am confused about my feelings.*
- 32. I do not want people to diminish the intensity of my feelings.
- 37. I get angry.
- 39. Other people are not responsible for my feelings.
- 53. My feelings surprise me.
- 57. I don't want others to take feelings away from me--pleasant or unpleasant.
- 63. When I am not feeling well I am cross.
- 88. Other people feel things more deeply than I do.
- 107. I have feelings.
- 121. I am not doubtful or unsure about the way I feel.
- 126. Good feelings are enjoyed when I experience them.
- 141. I am ashamed of my feelings.*
- 173. I feel like swearing.

Anxiety is approached rather than avoided

- 9. Worry makes me productive.
- 35. I have ways of handling my nervousness that are useful to me.*
- 61. I have bucked the crowd.
- 102. Fear motivates me to do things.
- 109. Worrying can be productive for me.
- 111. I do not shrink from facing a crisis or difficulty.

*Discriminating items.

190. If something worries me, I stick with it until I arrive at a workable solution.
205. Worry helps me plan what to do in a bad situation.

The ability to maintain distress (anxiety) within manageable limits

11. I calm myself down when I'm too nervous.*
22. When I am afraid I want to run away.
33. I am frustrated when things don't go right.*
62. Worry makes me feel hopeless.*
72. Being afraid incapacitates me.*
83. Most nights I go to sleep without ideas or thoughts bothering me.
114. I feel hopeless.*
149. I feel hopeful about my future.*
203. Getting too excited can stop me from doing something.*

Assimilation

(The ability to selectively choose external goals that will satisfy internal needs)

Capacity to formulate ends and implement them

1. All I can learn from a mistake is to not make it again.
55. I try to avoid past mistakes in the future.
86. The unfinished and the imperfect often have greater appeal for me than the completed and the polished.
104. When I make mistakes I try to understand why.*
128. I prefer to answer test questions that allow me to include my own ideas about things.

*Discriminating items.

- 139. I like following a set schedule.*
- 146. I like assignments requiring original work.
- 184. The hardest part of doing things is finishing.
- 202. My imagination leads me to anticipate solutions to future problems.

Realistic self ideals with regard to aspirations and attainments

- 28. I want to know that something will really work before I am willing to take a chance on it.
- 80. I am responsible for my successes and failures.*
- 123. I do not dwell on the rightness or wrongness of past decisions.
- 137. It is a good rule to accept nothing as certain or proved.
- 154. I feel most comfortable when other people help me make major decisions.*
- 158. I prefer new ways of doing things rather than the old, known ways.
- 175. I like to fool around with new ideas, even if they turn out later to have been a waste of time.*
- 177. I welcome the opportunity to take responsibility and do things on my own.*
- 179. The hardest part of doing things is getting started.
- 180. I make my own major decisions.*

Flexibility with regard to response choices

- 2. I can change my plans.
- 45. There's a limit to how far I'll go along with the crowd.
- 56. In life there is more than one right answer to problems.
- 70. I choose (make my own choices) as to how I will react to a situation.*

*Discriminating items.

- 76. Changing plans leaves me feeling uneasy.
- 118. When faced with a big problem, I imagine various ways to solve it.
- 130. I put off until tomorrow what I ought to do today.*
- 145. I will laugh at a dirty joke.
- 150. Compromise is a way of life with me.
- 153. Before I attack a problem, I figure out various ways to solve it.
- 181. I have a sense of making my choices about how I will react in a situation.

Satisfaction of internal emotional needs

- 15. I do not wish I could change my past experiences (I regret things less or less often than others seem to).
- 44. I am a "now" person.*
- 60. In the future I want to do things differently than I have in the past.*
- 74. Tuning into the emotional experiences of others helps me to grow.*
- 90. I feel that the best part of my life is now.*
- 91. I am a good example to others.*
- 95. I do not have trouble concentrating on things that interest me.
- 96. I like to know some important people because it makes me feel important.
- 98. I feel I am responsible for my actions.*
- 105. If I were to relive my life, I would do much differently than I have.*
- 108. If something is really important to me, I know I will succeed at it.*
- 193. I feel people should establish their own standards.*

*Discriminating items.

Behavior is successful

- 13. Being a success is important to me.
- 25. I enjoy success.
- 27. My past successes influence my present behavior.
- 49. I have experienced failure.
- 79. My past failures influence my present behavior.
- 125. When I start an important task, I feel I will succeed at it.*
- 187. Even when my plans are full of difficulties I am able to carry them out.*

External Dimensions

(Accommodation. The ability to assess the appropriateness of adapting oneself to the external environment based on the value, cost, and energy spent in attaining a desired goal)

Capacity to meet and deal with a changing world

- 18. If it were possible I would want to know my future.
- 31. I am a "future" person.
- 51. I feel that the best part of my life is yet to come.
- 52. I feel my life has purpose.*
- 65. I live in the present with one foot in the future.
- 73. I feel that the best part of my life is over.*
- 78. I am a "yesterday" person.
- 93. I get mad easily and then get over it soon.
- 103. I tell the truth.
- 131. I feel my life has meaning.*
- 138. It takes me a long time to get over being angry.

*Discriminating items.

164. I want to be around when tomorrow comes.*

Satisfaction of external requirements

- 6. I enjoy working with a group.*
- 66. A person should adapt himself and his ideas to the group or situation he happens to be with at the time.
- 82. It is important that others understand my way of doing things before I go ahead with something.
- 84. If I could get into a movie without paying and be sure I was not seen I would do it.
- 117. Rules and regulations bother me.
- 119. I have been in situations where I have been unable to adjust or adapt myself.
- 144. I work better alone than with a group.*
- 148. I change my way of thinking to please others.*
- 191. It is important that other people accept what I do.*
- 192. I change my way of doing things to please others.

Accurate perceptions of reality

- 19. My hunches about people are accurate.*
- 89. I understand things better than most people.
- 112. Things turn out for me the way I expect them to.*
- 122. I make quick decisions about situations.
- 134. I make quick decisions about people.
- 162. I am more realistic than idealistic, that is, more occupied with things as they are than with things as they should be.
- 178. My perceptions of a situation are accurate.*
- 188. My hunches about situations are accurate.*

*Discriminating items.

Capacity to maintain a self-image of oneself as adequate to the perceived requirements of a new situation or in facing a new problem

- 16. Failure demolishes me.*
- 20. It's hard for me to accept success.
- 129. The further I get from successes the less important they become.
- 132. I can feel good about myself even when facing a difficult problem.*
- 133. Failure makes me try harder.
- 136. It's hard for me to feel good about myself when I fail.*
- 163. Past successes tend to fall into perspective.*
- 199. I would rather win than lose in a game.*

Behavior is situation appropriate

- 7. A direct request is what gets me to do things.
- 14. My feelings are different from my reactions.*
- 21. I like everyone I know.
- 29. I feel guilty when I behave inappropriately.*
- 34. I do not carry intense feelings with me from one person to another.
- 43. I am able to change my mind even about those things that I feel most definite.
- 58. My table manners are not quite as good at home as when I am out in company.
- 64. I do not carry intense feelings from one situation to another.
- 68. I gossip a little.*
- 81. Other people tell me I have strange ways of doing things.
- 99. My reactions are different from my feelings.

* Discriminating items.

- 124. I change the way I act to fit the situation.
- 135. I let other people make me feel guilty.*
- 152. At elections I vote for men about whom I know very little.
- 156. There are situations in which an honest reaction is inappropriate.
- 161. Pulling on my guilt strings is not effective in getting me to do things.
- 166. When I am feeling very happy and active, someone who is blue or low will spoil it all.*
- 185. I read every editorial in the newspaper every day.
- 189. I behave appropriately.*
- 194. I am influenced by the behavior of others.*
- 197. I feel ashamed when I behave inappropriately.

External

(The ability to experience challenges, novelty,
in the environment)

Experience oriented

- 4. Past experiences are (can be) useful in solving present and future problems.
- 24. I enjoy learning new things.*
- 77. I have had exciting and interesting experiences.*
- 92. I seem to have excess energy.
- 94. I am an active person.*
- 110. I have a desire to learn new things.*
- 115. My friends comment on my high degree of energy.*
- 140. My enthusiasm is contagious.*

*Discriminating items.

1

2

3

- 151. I have enough energy to do what I want to do.
- 155. I prefer to do one thing at a time.
- 165. I look forward to a new experience with a feeling of excitement.*
- 201. There are so many interesting things to do I do not have time to do them all.

Emotional reactions are situation defined

- 100. I over react to situations.
- 113. I am accurate in describing my past reactions.*
- 143. I am slow to react to situations.
- 157. I am pleased with my reactions to situations.*
- 159. My reactions rarely surprise me.
- 174. I have a good general idea how I will react in most situations.*
- 186. I regret how I react to situations.
- 195. My reactions to situations are misunderstood.*

Problems are attacked which possess the quality of being beyond one's level of current attainment

- 3. I enjoy doing difficult things.*
- 5. I solve real life problems in my dreams.
- 12. Traditional ways of doing things turn me on.
- 30. I enjoy solving difficult problems.
- 46. If there is no solution to a problem, I can let it go.
- 48. Physiological processes take a back seat when I try to solve an important problem.
- 67. I fret over problems which turn out to be trivial.*
- 75. I am a good, solid problem solver.*

*Discriminating items.

- 97. I like to work on a problem even when I know there's not a clear-cut, unambiguous answer.
- 120. I get pleasure out of doing something well.
- 160. My energy is wasted on unsolvable problems.
- 171. Unsolvable problems make me try to the point of utter frustration.
- 172. I like to work on a problem even when I know there is no clear-cut answer.*
- 176. I am a creative problem solver.*
- 183. Unsolvable problems make me try harder.
- 200. Unusual ways of doing things turn me on.*

New experiences are regarded as exciting and rewarding

- 23. I look forward to starting something new.*
- 38. There is a great deal I haven't come into contact which I want to know about.
- 40. I would like to travel.
- 42. I like new experiences.*
- 50. I learn from new experiences.
- 59. I have been so entertained by the cleverness of a crook that I have hoped he would get by with it.
- 71. Other people seem to enjoy new things more than I do.
- 116. Uncertain and unpredictable events are exciting for me.
- 127. When I get bored I like to stir up some excitement.
- 169. I look for positive elements in new situations.*
- 198. I seek out new experiences.*

*Discriminating items.

APPENDIX B

SURVEY OF ACTUALIZATION: ADAPTATION

May 19, 1972

May you ever wondered why so many studies focus on human limitations? We have. Mostly, we are surprised at how little we actually know about positive human adaption. That is why we are asking your help in filling out the attached questionnaires. It will not take much of your time. However, your answers, which will be held in strictest confidence, can help us make some new inroads in understanding some of human being's positive strengths. Will you help us?

Please place the test booklets and the completed answer sheets back in the envelope. Cover up your name and address with the gummed return address label. Return the test information to Dr. William Farquhar through the campus mail. We would appreciate your returning the completed information to us as quickly as possible.

William W. Farquhar
Professor

Kenneth E. Hall
Counseling Intern

SURVEY OF ACTUALIZATION: ADAPTATION

This is a survey of your choices. There are no right or wrong answers.

The inventory is made up of statements about how a person feels, reacts, or behaves to a variety of situations or problems. Read each statement carefully. Answer each statement in a way that most accurately describes how you would feel, react, or behave in the situation or problem described.

Answer all statements as honestly and frankly as you can. Only in this way will the results be meaningful.

Do not write in the test booklet. Place your answers on the answer sheet provided for you. If "1" most accurately describes how you would feel, react, or behave, mark "1" on your answer sheet; if "2" is more accurate, mark "2".

EXAMPLE:

Test Booklet	Answer Sheet				
1. I have experienced failure.	1	2	3	4	5
	1.	//	//	//	//
	(ignore column 5)				

This person marked the number "2" on the answer sheet which means that sometimes he has experienced failure or on occasion has had the feeling that he has failed at something.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

You will find these response numbers reported at the bottom of each page to help you remember them.

Now, turn the page and answer all the statements. Do not skip any statements. Work as rapidly as you can and do not spend too much time on any one item. Remember, you are describing how you would feel, react, or behave to the situation or problem in the statement.

At the top of your answer sheet place the following information: Your name, MSU Address, Year in School, and Sex.

The statements on this inventory refer to the spaces on your blue answer sheet numbered 1-168. Statements on the inventory numbered 169-205 refer to the spaces on your red answer sheet numbered 1-37.

1. All I can learn from a mistake is to not make it again.
2. I can change my plans.
- ③. I enjoy doing difficult things.*
4. Past experiences are (can be?) useful in solving present and future problems.
5. I solve real life problems in my dreams.
- ⑥. I enjoy working with a group.
7. A direct request is what gets me to do things.
8. Negative feelings from others are dealt with the person sending them.
9. Worry makes me productive.
- ⑩. I worry and fret.
- ⑪. I calm myself down when I'm too nervous.
12. Traditional ways of doing things turn me on.
13. Being a success is important to me.
- ⑭. My feelings are different from my reactions.
15. I do not wish I could change my past experiences (I regret things less or less often than others seem to).
- ⑯. Failure demolishes me.
- ⑰. I am confused about my feelings.
18. If it were possible I would want to know my future.
- ⑲. My hunches about people are accurate.
20. It's hard for me to accept success.

*Discriminating items are circled.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

21. I like everyone I know.
22. When I am afraid I want to run away.
- ②3. I look forward to starting something new.
- ②4. I enjoy learning new things.
25. I enjoy success.
26. I think of things too bad to talk about.
27. My past successes influence my present behavior.
28. I want to know that something will really work before I am willing to take a chance on it.
- ②9. I feel guilty when I behave inappropriately.
30. I enjoy solving difficult problems.
31. I am a "future" person.
32. I do not want people to diminish the intensity of my feelings.
- ③3. I am frustrated when things don't go right.
34. I do not carry intense feelings with me from one person to another.
- ③5. I have ways of handling my nervousness that are useful to me.
36. I am accurate in describing my past feelings.
37. I get angry.
38. There is a great deal I haven't come into contact which I want to know about.
39. Other people are not responsible for my feelings.
40. I would like to travel.
41. I have a wide variety of interests (I seem to have a wider variety of interests than most people).

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

42. I like new experiences.
43. I am able to change my mind even about those things that I feel most definite.
44. I am a "now" person.
45. There's a limit to how far I'll go along with the crowd.
46. If there is no solution to a problem, I can let it go.
47. I am aware of multiple (having more than one) feelings in some situations.
48. Physiological processes take a back seat when I try to solve an important problem.
49. I have experienced failure.
50. I learn from new experiences.
51. I feel that the best part of my life is yet to come.
52. I feel my life has purpose.
53. My feelings surprise me.
54. My feelings interfere with what I want to do.
55. I try to avoid past mistakes in the future.
56. In life there is more than one right answer to problems.
57. I don't want others to take feelings away from me--pleasant or unpleasant.
58. My table manners are not quite as good at home as when I am out in company.
59. I have been so entertained by the cleverness of a crook that I have hoped he would get by it.
60. In the future I want to do things differently than I have in the past.
61. I have bucked the crowd.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

62. Worry makes me feel hopeless.
63. When I am not feeling well I am cross.
64. I do not carry intense feelings from one situation to another.
65. I live in the present with one foot in the future.
66. A person should adapt himself and his ideas to the group or situation he happens to be with at the time.
67. I fret over problems which turn out to be trivial.
68. I gossip a little.
69. Feelings make me realize my humanness.
70. I choose (make my own choices) as to how I will react to a situation.
71. Other people seem to enjoy new things more than I do.
72. Being afraid incapacitates me.
73. I feel that the best part of my life is over.
74. Tuning in to the emotional experiences of others helps me to grow.
75. I am a good, solid problem solver.
76. Changing plans leaves me feeling uneasy.
77. I have had exciting and interesting experiences.
78. I am a "yesterday" person.
79. My past failures influence my present behavior.
80. I am responsible for my successes and failures.
81. Other people tell me I have strange ways of doing things.
82. It is important that others understand my way of doing things before I go ahead with something.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

83. Most nights I go to sleep without ideas or thoughts bothering me.
84. If I could get into a movie without paying and be sure I was not seen I would do it.
85. I enjoy my feelings--pleasant and unpleasant.
86. The unfinished and the imperfect often have greater appeal for me than the completed and the polished.
87. I am selectively open about my feelings.
88. Other people feel things more deeply than I do.
89. I understand things better than most people.
90. I feel that the best part of my life is now.
91. I am a good example to others.
92. I seem to have excess energy.
93. I get mad easily and then get over it soon.
94. I am an active person.
95. I do not have trouble concentrating on things that interest me.
96. I like to know some important people because it makes me feel important.
97. I like to work on a problem even when I know there's not a clear-cut ambiguous answer.
98. I feel I am responsible for my actions.
99. My reactions are different from my feelings.
100. I over react to situations.
101. I express my feelings.
102. Fear motivates me to do things.
103. I tell the truth.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

104. When I make mistakes I try to understand why.
 105. If I were to relive my life, I would do much differently than I have.
 106. I have a good general idea how I will feel in most situations.
 107. I have feelings.
 108. If something is really important to me, I know I will succeed at it.
 109. Worrying can be productive for me.
 110. I have a desire to learn new things.
 111. I do not shrink from facing a crisis or difficulty.
 112. Things turn out for me the way I expect them to.
 113. I am accurate in describing my past reactions.
 114. I feel hopeless.
 115. My friends comment on my high degree of energy.
 116. Uncertain and unpredictable events are exciting for me.
 117. Rules and regulations bother me.
 118. When faced with a big problem, I imagine various ways to solve it.
 119. I have been in situations where I have been unable to adjust or adapt myself.
 120. I get pleasure out of doing something well.
 121. I am not doubtful or unsure about what I feel.
 122. I make quick decisions about situations.
 123. I do not dwell on the rightness or wrongness of past decisions.
 124. I change the way I act to fit the situation.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

125. When I start an important task, I feel I will succeed at it.
 126. Good feelings are enjoyed when I experience them.
 127. When I get bored I like to stir up some excitement.
 128. I prefer to answer test questions that allow me to include my own ideas about things.
 129. The further I get from successes the less important they become.
 130. I put off until tomorrow what I ought to do today.
 131. I feel my life has meaning.
 132. I can feel good about myself even when facing a difficult problem.
 133. Failure makes me try harder.
 134. I make quick decisions about people.
 135. I let other people make me feel guilty.
 136. It's hard for me to feel good about myself when I fail.
 137. It is a good rule to accept nothing as certain or proved.
 138. It takes me a long time to get over being angry.
 139. I like following a set schedule.
 140. My enthusiasm is contagious.
 141. I am ashamed of my feelings.
 142. I am a happy person.
 143. I am slow to react to situations.
 144. I work better alone than with a group.
 145. I will laugh at a dirty joke.
 146. I like assignments requiring original work.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

147. Negative feelings are incapacitating to me.
148. I change my way of thinking to please others.
149. I feel hopeful about my future.
150. Compromise is a way of life with me.
151. I have enough energy to do what I want to do.
152. At elections I vote for men about whom I know very little.
153. Before I attack a problem, I figure out various ways to solve it.
154. I feel most comfortable when other people help me make major decisions.
155. I prefer to do one thing at a time.
156. There are situations in which an honest reaction is inappropriate.
157. I am pleased with my reactions to situations.
158. I prefer new ways of doing things rather than the old, known ways.
159. My reactions rarely surprise me.
160. My energy is wasted on unsolvable problems.
161. Pulling on my guilt strings is not effective in getting me to do things.
162. I am more realistic than idealistic, that is, more occupied with things as they are than with things as they should be.
163. Past successes tend to fall into perspective.
164. I want to be around when tomorrow comes.
165. I look forward to a new experience with a feeling of excitement.
166. When I am feeling very happy and active, someone who is blue or low will spoil it all.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

167. Having a change in my normal routine is exciting.
168. My feelings help me to know what to do in a situation.
169. I look for positive elements in new situations.
170. I anticipate how I will feel in a situation.
171. Unsolvable problems make me try to the point of utter frustration.
172. I like to work on a problem even when I know there is no clear-cut answer.
173. I feel like swearing.
174. I have a good general idea how I will react in most situations.
175. I like to fool around with new ideas, even if they turn out later to have been a total waste of time.
176. I am a creative problem solver.
177. I welcome the opportunity to take responsibility and do things on my own.
178. My perceptions of a situation are accurate.
179. The hardest part of doing things is getting started.
180. I make my own major decisions.
181. I have a sense of making my choices about how I will react in a situation.
182. I am able to control my feelings.
183. Unsolvable problems make me try harder.
184. The hardest part of doing things is finishing.
185. I read every editorial in the newspaper every day.
186. I regret how I react to situations.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

- (187). Even when my plans are full of difficulties I am able to carry them out.
 (188). My hunches about situations are accurate.
 (189). I behave appropriately.
 190. If something worries me, I stick with it until I arrive at a workable situation.
 (191). It is important that other people accept what I do.
 192. I change my way of doing things to please others.
 (193). I feel people should establish their own standards.
 (194). I am influenced by the behavior of others.
 (195). My reactions to situations are misunderstood.
 196. I like to be surprised.
 197. I feel ashamed when I behave inappropriately.
 (198). I seek out new experiences.
 (199). I would rather win than lose in a game.
 (200). Unusual ways of doing things turn me on.
 201. There are so many interesting things to do I do not have time to do them all.
 (202). My imagination leads me to anticipate solutions to future problems.
 (203). Getting too excited can stop me from doing something.
 (204). I enjoy both sad and happy feelings.
 205. Worry helps me plan what to do in a bad situation.

	Never	Sometimes	Frequently	Always
Responses-	1	2	3	4

APPENDIX C

ITEM INTERCORRELATION MATRIX

3

29	44.	29	80	-0.1612	-0.1134	-0.6235	-0.1449	-0.0445	-0.1122	-0.0510	-0.1918	-0.2710	-0.1360
30	44.	31	85	-0.1794	-0.1202	-0.5874	-0.1419	-0.0330	-0.2414	-0.0507	-0.1344	-0.0714	-0.1702
31	44.	31	90	-0.2074	-0.1549	-0.5411	-0.1114	-0.0697	-0.1709	-0.0709	-0.1600	-0.2419	-0.1447
32	44.	32	91	-0.2400	-0.1647	-0.5552	-0.1409	-0.0416	-0.422	-0.0646	-0.1609	-0.2111	-0.1197
33	44.	33	94	-0.2555	-0.1654	-0.5949	-0.1611	-0.2000	-0.602	-0.1118	-0.1114	-0.2457	-0.0773
34	44.	34	98	-0.1424	-0.2772	-0.3123	-0.1776	-0.1277	-0.253	-0.105	-0.1257	-0.2717	-0.0707
35	44.	35	101	-0.1739	-0.2127	-0.2335	-0.1754	-0.0421	-0.275	-0.2143	-0.111	-0.2094	-0.2705
36	44.	36	104	-0.2556	-0.1948	-0.1515	-0.2627	-0.3608	-0.252	-0.0406	-0.106	-0.2619	-0.2372
37	44.	37	105	-0.2874	-0.2218	-0.1671	-0.1112	-0.1011	-0.2504	-0.1622	-0.1410	-0.0449	-0.0338
38	44.	38	108	-0.1548	-0.4599	-0.1512	-0.2002	-0.1011	-0.451	-0.0402	-0.1474	-0.2314	-0.0779
39	44.	39	110	-0.459	-0.1804	-0.201	-0.2906	-0.1646	-0.036	-0.1479	-0.1272	-0.0021	-0.091
40	44.	40	112	-0.1729	-0.3405	-0.1127	-0.3407	-0.1958	-0.435	-0.074	-0.0219	-0.046	-0.2704
41	44.	41	113	-0.1817	-0.4097	-0.2514	-0.2204	-0.1175	-0.560	-0.170	-0.1117	-0.1112	-0.1869
42	44.	42	114	-0.2943	-0.2523	-0.2722	-0.1614	-0.1003	-0.2357	-0.151	-0.1770	-0.0745	-0.1134
43	44.	43	115	-0.1329	-0.1537	-0.2545	-0.1003	-0.1016	-0.1420	-0.0508	-0.1020	-0.144	-0.2944
44	44.	44	125	-0.1336	-0.1735	-0.2407	-0.1011	-0.1174	-0.1229	-0.0727	-0.1217	-0.111	-0.417
45	44.	45	130	-0.1131	-0.1319	-0.1311	-0.1015	-0.2429	-0.324	-0.145	-0.0413	-0.1457	-0.1861
46	44.	46	131	-0.1074	-0.1029	-0.2771	-0.1379	-0.2014	-0.564	-0.403	-0.222	-0.1202	-0.2519
47	44.	47	132	-0.1214	-0.1039	-0.1414	-0.1416	-0.1037	-0.022	-0.244	-0.1444	-0.2472	-0.1442
48	44.	48	135	-0.2621	-0.1063	-0.1177	-0.2220	-0.1407	-0.1300	-0.151	-0.1416	-0.1271	-0.2591
49	44.	49	136	-0.0612	-0.1044	-0.1135	-0.2215	-0.0204	-0.597	-0.116	-0.1457	-0.0314	-0.1994
50	44.	50	139	-0.2447	-0.1026	-0.1131	-0.1441	-0.1776	-0.774	-0.138	-0.1704	-0.1217	-0.2414
51	44.	51	140	-0.1461	-0.172	-0.019	-0.1077	-0.2712	-0.116	-0.416	-0.1210	-0.1212	-0.1905
52	44.	52	141	-0.1321	-0.2028	-0.1591	-0.1076	-0.1791	-0.277	-0.357	-0.1414	-0.1006	-0.4794
53	44.	53	142	-0.2113	-0.1724	-0.4039	-0.2719	-0.1110	-0.275	-0.312	-0.1817	-0.1229	-0.0464
54	44.	54	144	-0.060	-0.1639	-0.2362	-0.1014	-0.1291	-0.63	-0.101	-0.0414	-0.1179	-0.2000
55	44.	55	148	-0.472	-0.1221	-0.1469	-0.1109	-0.1914	-0.311	-0.0727	-0.1610	-0.0391	-0.2802
56	44.	56	149	-0.1634	-0.1548	-0.2364	-0.0919	-0.019	-0.232	-0.247	-0.1229	-0.1009	-0.1130
57	44.	57	154	-0.1321	-0.1234	-0.2132	-0.1714	-0.0604	-0.621	-0.2226	-0.1329	-0.1304	-0.1405
58	44.	58	157	-0.1379	-0.2220	-0.1504	-0.1707	-0.1469	-0.278	-0.4054	-0.1274	-0.0539	-0.3038

	Var. 11	Var. 12	Var. 13	Var. 14	Var. 15	Var. 16	Var. 17	Var. 18	Var. 19	Var. 20
21	Var. 11	29	1.0000							
22	Var. 12	33	.0253	1.0000						
23	Var. 13	35	.0078	.0056	1.0000					
24	Var. 14	42	.0022	.0005	.0025	1.0000				
25	Var. 15	44	.0386	.0053	.0154	.0010	1.0000			
26	Var. 16	50	.0172	.0038	.0043	.0010	.0079	1.0000		
27	Var. 17	52	.0240	.0067	.0063	.0011	.0071	.0030	1.0000	
28	Var. 18	60	.0099	.0074	.0042	.0015	.0040	.0000	.0000	1.0000
29	Var. 19	62	.0057	.0054	.0024	.0016	.0020	.0000	.0000	.0000
30	Var. 20	67	.0155	.0027	.0014	.0010	.0012	.0000	.0000	.0000
31	Var. 21	68	.0051	.0037	.0021	.0011	.0001	.0000	.0000	.0000
32	Var. 22	69	.0114	.0017	.0003	.0003	.0003	.0000	.0000	.0000
33	Var. 23	70	.0053	.0041	.0017	.0006	.0003	.0000	.0000	.0000
34	Var. 24	72	.0009	.0023	.0014	.0006	.0003	.0000	.0000	.0000
35	Var. 25	73	.0044	.0042	.0027	.0016	.0012	.0000	.0000	.0000
36	Var. 26	74	.0224	.0139	.0124	.0014	.0014	.0000	.0000	.0000
37	Var. 27	75	.0057	.0054	.0040	.0011	.0010	.0000	.0000	.0000
38	Var. 28	77	.0111	.0034	.0024	.0013	.0010	.0000	.0000	.0000
39	Var. 29	80	.0117	.0044	.0022	.0013	.0010	.0000	.0000	.0000
40	Var. 30	85	.0044	.0024	.0014	.0010	.0010	.0000	.0000	.0000
41	Var. 31	90	.0016	.0016	.0011	.0010	.0010	.0000	.0000	.0000
42	Var. 32	91	.0045	.0019	.0011	.0010	.0010	.0000	.0000	.0000
43	Var. 33	94	.0043	.0037	.0014	.0010	.0010	.0000	.0000	.0000
44	Var. 34	98	.0053	.0051	.0014	.0010	.0010	.0000	.0000	.0000
45	Var. 35	101	.0074	.0053	.0014	.0010	.0010	.0000	.0000	.0000
46	Var. 36	104	.0034	.0072	.0014	.0010	.0010	.0000	.0000	.0000
47	Var. 37	105	.0037	.0064	.0014	.0010	.0010	.0000	.0000	.0000
48	Var. 38	108	.0040	.0013	.0014	.0010	.0010	.0000	.0000	.0000
49	Var. 39	110	.0045	.0019	.0014	.0010	.0010	.0000	.0000	.0000

10	741.	43	114	.4233	.2732	.5514	.4313	.7172	.7734	.7737	.5750	.0451
11	741.	41	113	.3349	.3373	.1243	.7472	.2512	.6869	.7014	.7757	.6474
12	741.	42	114	.3954	.2876	.5273	.7313	.4718	.7555	.5743	.5701	.4667
13	741.	41	115	.4143	.1922	.3933	.3132	.7413	.5454	.6541	.3332	.4601
14	741.	44	125	.4414	.3728	.2547	.4443	.7133	.6527	.7454	.6230	.6554
15	741.	45	130	.3332	.2963	.2739	.5934	.5545	.7568	.5727	.6104	.6438
16	741.	45	131	.3112	.3572	.3946	.7352	.5522	.8622	.7418	.7705	.5594
17	741.	47	132	.3723	.3493	.3333	.3919	.3317	.7745	.5175	.7107	.6520
18	741.	43	135	.4033	.2521	.5542	.7613	.7314	.6943	.7673	.4122	.5313
19	741.	49	136	.3711	.2733	.3522	.4316	.7211	.7224	.5738	.6402	.6454
20	741.	50	139	.3753	.2755	.5453	.7870	.7315	.7316	.5925	.4530	.5345
21	741.	51	140	.4234	.3453	.5317	.7416	.9511	.7414	.7547	.5174	.5962
22	741.	52	141	.2722	.3948	.2133	.4233	.7435	.7215	.7137	.7172	.0018
23	741.	53	142	.1352	.2917	.4541	.7132	.7331	.7353	.7230	.7502	.7313
24	741.	54	114	.1445	.3622	.1715	.3712	.2522	.5535	.2404	.4157	.2697
25	741.	55	148	.2912	.3561	.4133	.3913	.1705	.774	.7434	.7110	.7071
26	741.	55	149	.2812	.2112	.4317	.4213	.7512	.7962	.7370	.7222	.7405
27	741.	57	154	.7549	.7637	.4723	.7111	.7102	.7485	.7254	.7130	.7208
28	741.	53	157	.2235	.1724	.4124	.4811	.3402	.3274	.2135	.4011	.3076
29	741.	53	163	.7554	.2134	.6334	.3624	.1418	.7715	.7768	.7259	.7142
30	741.	60	164	.1722	.3439	.5247	.2214	.2631	.2449	.2533	.1703	.1467
31	741.	61	165	.7317	.2565	.4544	.3916	.1345	.1579	.3221	.7044	.7000
32	741.	62	166	.3355	.1512	.4671	.7454	.7122	.7113	.7130	.7053	.7013
33	741.	61	169	.2749	.4424	.2722	.7111	.7117	.7122	.7111	.7144	.7051
34	741.	64	170	.2122	.4233	.6522	.7125	.7153	.7224	.7120	.7101	.7164
35	741.	65	172	.2139	.2379	.2632	.4433	.4208	.7019	.3650	.2407	.3377
36	741.	66	173	.2254	.3451	.4332	.7112	.7119	.7111	.7114	.7011	.7114
37	741.	67	174	.1547	.1344	.4627	.2231	.7144	.7154	.7121	.7121	.7104
38	741.	68	175	.2835	.3806	.1711	.3311	.2719	.7115	.7407	.7101	.7411
39	741.	69	176	.2522	.2763	.1455	.1312	.1314	.7131	.7140	.7031	.7014

70	AA, 72 177	-.2035	-.1490	-.3327	-.3639	-.3515	-.2747	-.3513	-.3143	-.2431	-.2102
71	AA, 71 178	.0673	.3115	.0710	.3724	-.3093	.2423	.0401	.2140	.2960	.1754
72	AA, 72 180	.1495	.3510	.2791	-.1132	-.1747	-.2056	-.1944	-.1477	-.1193	-.1446
73	AA, 73 187	.0117	-.0848	-.3085	-.0731	-.0199	-.1104	-.2629	-.0412	-.1152	-.1112
74	AA, 74 188	-.0110	.1500	-.1527	-.2717	-.2524	-.1513	-.3133	-.1475	.0744	-.1171
75	AA, 75 189	-.0023	.0502	-.1166	-.2075	-.3173	-.2164	-.2694	-.2174	-.0901	-.2064
76	AA, 76 191	-.0554	-.2747	-.0195	.3731	.1473	-.1707	.0284	-.1700	-.3594	-.1425
77	AA, 77 193	.1324	.1134	.1395	.1436	.1110	.1304	.1134	.0712	.0774	.0452
78	AA, 78 194	.1431	.2420	.0151	.3116	-.0726	.1609	-.0046	.0726	.1427	.1113
79	AA, 79 195	-.1157	-.3428	.0152	.1438	.1433	.1744	.3520	.1784	-.0701	-.0187
80	AA, 80 198	.3333	.4650	.4735	.0174	.3518	.2771	.3593	.2263	.1444	.2021
81	AA, 81 199	.5724	.0754	.3724	.2241	.1347	.2204	.1138	.2331	.2604	.1862
82	AA, 82 200	.5931	.4520	.4801	.4740	.4337	.2737	.4963	.3561	.1605	.2455
83	AA, 83 202	.4173	.5737	.3697	.3592	.2103	.2440	.0293	.4783	.5650	.4644
84	AA, 84 203	.4751	.3721	.4711	.5053	.4423	.4465	.4952	.4790	.3549	.4471
85	AA, 85 204	.5751	.0401	.4711	.4735	.3504	.2546	.4410	.5011	.4412	.4251

	V/A, 21	V/A, 22	V/A, 23	V/A, 24	V/A, 25	V/A, 26	V/A, 27	V/A, 28	V/A, 29	V/A, 30
21	V/A, 21	60	1.0500							
22	V/A, 22	69	.6749	1.0500						
23	V/A, 23	70	.5444	.6051	1.0500					
24	V/A, 24	72	-.0160	-.0558	1.0500					
25	V/A, 25	73	.1710	.2524	.2711	.2598	1.0500			
26	V/A, 26	74	.2793	.2845	.3712	-.0538	.6522	1.0500		
27	V/A, 27	75	-.3735	-.4558	-.3829	-.5560	-.3374	1.0500		
28	V/A, 28	77	.1870	.1588	.2557	-.0573	.2656	-.0512	1.0500	
29	V/A, 29	80	.0492	.0552	.1590	-.2590	.2516	.3167	1.0500	
30	V/A, 30	85	.1183	.2137	.2461	-.1515	.3102	.1443	.0558	1.0000
31	V/A, 31	90	-.2524	-.2536	-.2556	-.1846	-.1551	.1524	.3428	-.0517
32	V/A, 32	91	-.1876	-.2591	-.2125	-.0837	-.0818	.0730	.0565	-.1210
33	V/A, 33	94	.1515	.2528	.2552	.1440	.1852	-.3584	-.2247	.2173
34	V/A, 34	98	-.0554	-.1197	.0746	-.2527	-.4431	.1113	.3426	.0927
35	V/A, 35	101	.2551	.3522	.3561	-.0853	.0552	.3653	.2610	.0549
36	V/A, 36	104	.2564	.2644	.3569	-.3534	-.2194	.4516	.3523	.1231
37	V/A, 37	105	.4517	.4759	.4774	.0534	.2675	.2263	.0559	.0962
38	V/A, 38	108	.7664	.7664	.7672	-.1725	.1160	.3256	.1533	.2614
39	V/A, 39	110	.6139	.5746	.6138	-.2552	.0534	.4247	.1593	.2301
40	V/A, 40	112	.6479	.7647	.7646	-.1353	.1445	-.3432	.0551	.2534
41	V/A, 41	113	.5549	.6168	.7175	-.2516	.3800	-.1628	.2317	.2011
42	V/A, 42	114	.5595	.7316	.6586	.0582	.2558	.3722	-.0857	.2551
43	V/A, 43	115	.6572	.7595	.7442	-.0546	.3167	-.4518	-.0774	.2003
44	V/A, 44	125	.7554	.7569	.7581	-.2550	.1314	-.3437	.1501	.2576
45	V/A, 45	130	.4552	.5781	.6446	-.2522	.3452	-.2269	.2508	.1172
46	V/A, 46	131	.5681	.6107	.7521	-.3754	.3760	-.1581	.2977	.2907
47	V/A, 47	132	.3783	.4534	.6485	-.4424	.6614	-.0821	.3526	.2181
48	V/A, 48	135	.6552	.7518	.6547	.0551	.3076	-.4433	.0542	.1710
49	V/A, 49	136	.4526	.5102	.5637	-.2561	.2580	-.1573	.2036	.1412

56	V43, 50139	.0541	.7121	.7715	-.0750	.2635	.0630	-.3329	.2790	.0751	.2489
51	V44, 51140	.0559	.7125	.7105	-.1140	.2121	.0500	-.3301	.2726	.0712	.2481
52	V45, 51141	.1100	.1174	.0211	-.0750	-.0437	-.1151	-.0440	.1176	.1140	-.0562
53	V46, 51142	.0713	.0542	-.0071	.3175	.3338	.0573	-.1177	-.1155	-.0291	-.1137
54	V47, 51144	.0237	.3151	.0376	-.0155	-.0230	.1051	-.1157	.1711	.0657	.1957
55	V48, 51148	.0534	.1155	.0547	.0020	.1175	-.0537	-.2744	.1110	.0651	-.0947
56	V49, 51149	.1301	-.4170	-.4200	.0737	-.1417	-.1127	.3014	-.1100	.0347	-.1164
57	V50, 51154	-.1153	-.2125	-.0710	.0760	.0034	-.1131	.0623	-.0031	-.0725	-.0711
58	V51, 51157	.1152	.0552	.0542	-.1172	-.1192	.1625	.01251	-.0155	.0700	.1950
59	V52, 51163	.1164	.1158	.0040	.3124	.1414	.1414	-.2052	-.0531	-.0700	.0731
60	V53, 51164	.2135	.2711	.2763	.0717	.1547	.1214	-.1151	-.1149	-.0940	.1643
61	V54, 51165	.0757	.1569	.0567	-.0700	-.0751	.0774	-.0634	-.0040	.1004	.0776
62	V55, 51166	-.1151	-.2142	-.1002	-.0660	-.1443	-.1635	.1812	.0504	.1437	.0005
63	V56, 51169	-.0702	-.0075	-.1152	-.0761	-.0440	-.1162	-.1100	.1490	.1120	-.0613
64	V57, 51170	.0202	.0334	-.0430	.3152	.3001	.1035	-.2140	-.1155	-.1319	-.1052
65	V58, 51172	.1191	.3126	.3033	.0730	.2001	.2005	-.2104	.0150	-.0634	.0763
66	V59, 51173	.2100	-.3000	-.2734	-.0767	-.2171	-.1176	.2232	-.0445	-.0070	.0504
67	V60, 51174	-.1101	-.0066	-.2443	.1151	.1153	.1157	-.0027	-.1134	-.1151	-.1201
68	V61, 51175	.1191	.1964	.3560	-.2777	-.0737	.1310	-.0736	.2004	.2271	.1007
69	V62, 51176	.0551	.1159	.0511	-.0560	.1105	.1111	-.2203	.1100	-.0017	.0007
70	V63, 51177	-.2754	-.3370	-.3560	.0710	-.0740	-.1111	.2157	-.1403	-.11473	-.1139
71	V64, 51178	-.0525	-.0547	.1101	-.2762	-.2397	.0253	.1434	.2504	.3227	.1051
72	V65, 51180	-.1100	-.1100	-.2100	-.0199	.0144	-.1011	-.0432	.1100	.1401	-.0750
73	V66, 51187	.0521	-.0753	-.0700	-.0142	.0704	.1417	-.0000	-.0000	-.1471	.0020
74	V67, 51188	-.2131	-.3054	-.1101	-.2120	-.2100	-.1134	.2077	.1147	.2191	-.1003
75	V68, 51189	-.2561	-.2527	-.2190	-.0732	-.1100	-.2212	.2113	-.0502	.1703	.0302
76	V69, 51191	.0500	.0793	-.0000	.1100	.3121	.0346	-.2215	-.1100	-.2404	-.0200
77	V70, 51193	.1093	.1152	.1144	.0734	.0745	.0731	-.1101	.0537	-.0777	.0431
78	V71, 51194	-.0540	-.0201	.0400	-.1151	-.0517	-.0659	.0737	.1401	.2142	-.0540
79	V72, 51195	.1144	.1400	.1170	.1101	.1194	.0600	-.0602	-.2120	-.2225	.1400

80	134, 0:198	.2575	.3704	.3107	.05138	.2496	.4117	.00007	.2713	.0146	-.0103
81	134, 0:199	.1637	.1723	.2227	-.2011	.0741	.0136	-.1217	.3701	.2103	-.0250
82	134, 0:200	.3197	.0665	.3121	.00115	.2716	.00025	.00041	.2976	.0192	.0727
83	134, 0:202	.3133	.2796	.0111	.04772	.2726	.1121	.00156	.3771	.0605	.0151
84	134, 0:203	.0336	.5767	.0196	-.0117	.0039	.1758	-.3246	.2774	.0601	.0370
85	134, 0:204	.0501	.3792	.0666	.02125	.00606	.0111	.01177	.3161	.2701	.0013

	VAR. 31	VAR. 32	VAR. 33	VAR. 34	VAR. 35	VAR. 36	VAR. 37	VAR. 38	VAR. 39	VAR. 40
31 /A1, 31 90	1.0000									
32 /A1, 32 91	.2734	1.0000								
33 /A1, 33 94	-.3694	.1634	1.0000							
34 /A1, 34 98	.1595	.1673	-.1016	1.0000						
35 /A1, 35 101	.1711	.0000	.0067	.0067	1.0000					
36 /A1, 36 104	.1694	.0755	-.2666	.4722	.5091	1.0000				
37 /A1, 37 105	-.0051	.0010	.0079	-.1450	.4474	.5041	1.0000			
38 /A1, 38 108	-.2377	-.1058	.0077	.0033	.3077	.4256	.4065	1.0000		
39 /A1, 39 110	.0207	-.1017	.0015	.1033	.3092	.5139	.4085	.6731	1.0000	
40 /A1, 40 112	-.2424	-.2000	.0070	-.0020	.3782	.4010	.2097	.0052	.8712	1.0000
41 /A1, 41 113	-.1427	.0022	.1310	.2457	.3785	.5716	.3003	.7704	.8349	.7564
42 /A1, 42 114	-.3012	.0000	.0243	-.1440	.3310	.6960	.8177	.7600	.7165	.7760
43 /A1, 43 115	-.3535	.0077	.3435	-.1530	.3474	.6491	.4096	.8161	.7215	.8066
44 /A1, 44 125	-.2530	.0053	.0060	.0020	.3693	.4415	.4702	.9114	.8471	.8735
45 /A1, 45 130	-.1322	.0013	.0070	.2001	.3726	.4383	.4490	.7051	.7365	.6672
46 /A1, 46 131	-.1154	.0077	.1551	.3165	.3317	.5449	.3430	.7954	.8517	.7614
47 /A1, 47 132	.0131	.0077	.0097	.4474	.2644	.4052	.2339	.6924	.7450	.6196
48 /A1, 48 135	-.3531	.0077	.0077	-.0797	.3654	.6724	.4718	.7654	.7317	.7493
49 /A1, 49 169	-.1403	.0000	.0000	.2425	.2434	.4724	.3560	.8353	.7137	.5925
50 /A1, 50 139	-.5459	.0077	.0077	-.0054	.3513	.6700	.4765	.8044	.7432	.7920
51 /A1, 51 140	-.2340	.0033	.0077	-.0044	.3030	.5661	.4066	.8021	.7406	.8204
52 /A1, 52 141	.2455	.0001	-.4764	-.0040	.3156	.1724	.0932	-.2153	-.2029	-.2116
53 /A1, 53 142	-.1137	.0024	.1032	-.3430	-.1552	-.4103	-.0442	-.2011	-.3041	-.1126
54 /A1, 54 144	-.1623	-.1542	.1771	-.0320	.1550	.1445	.0512	.3154	.3224	.3149
55 /A1, 55 148	.1101	.0075	-.1511	-.2432	.3701	.1503	.2746	.0635	-.0154	.0658
56 /A1, 56 149	.2433	.1047	-.0066	.0064	-.2710	-.2152	-.2643	-.4495	-.4105	-.4132
57 /A1, 57 154	.1031	.0034	-.2114	-.0072	.1167	-.1027	-.0001	-.2781	-.2000	-.2447
58 /A1, 58 157	-.1125	.0000	.0024	.2033	-.1000	.0066	-.0011	.2084	.2070	.2212
59 /A1, 59 163	-.2010	.0040	.1555	-.2754	-.1441	-.3179	.0020	.0074	-.0012	.0150

50	141.	61	164	-.3257	-.2672	-.4252	-.0726	-.2370	5.1043	-.0006	-.2534	-.2156	-.2317
51	141.	61	165	-.3127	-.1645	-.0528	-.0134	-.0550	-.11243	-.0034	-.0434	-.0264	-.0901
52	141.	62	166	-.1535	-.3732	-.1531	-.1341	-.1020	1.148	-.0047	-.1560	-.1427	-.1125
53	141.	63	169	-.2032	-.1052	-.4497	-.2433	-.3050	-.2334	-.2131	-.1037	-.1112	-.0151
54	141.	64	170	-.1619	-.2336	-.0367	-.3356	-.0532	-.2762	-.1117	-.2484	-.1371	-.0362
55	141.	65	172	-.1094	-.2615	-.2515	-.0776	-.0778	-.0154	-.1540	-.4130	-.4000	-.4281
56	141.	66	173	-.2214	-.2067	-.2512	-.2495	-.3546	-.1034	-.3024	-.2054	-.2772	-.2851
57	141.	67	174	-.3730	-.2784	-.2730	-.2477	-.1530	-.2705	-.0700	-.2520	-.3345	-.2836
58	141.	68	175	-.1207	-.2205	-.1127	-.1542	-.3172	-.4141	-.2125	-.3227	-.2704	-.3057
59	141.	69	176	-.1043	-.3124	-.2072	-.2441	-.2030	-.2004	-.2459	-.0520	-.0550	-.1073
70	141.	70	177	-.1431	-.1473	-.2514	-.0456	-.2121	-.2650	-.2563	-.3530	-.3590	-.3424
71	141.	71	178	-.1733	-.2732	-.1435	-.2176	-.2271	-.4004	-.1185	-.1460	-.1704	-.1299
72	141.	72	180	-.3044	-.3976	-.3313	-.0947	-.2442	-.1740	-.0309	-.1784	-.2020	-.1732
73	141.	73	187	-.0013	-.1240	-.0027	-.1051	-.0520	-.1234	-.3450	-.3586	-.1322	-.0512
74	141.	74	188	-.3315	-.1470	-.3522	-.1659	-.1372	-.1715	-.0925	-.2590	-.1504	-.2045
75	141.	75	189	-.3235	-.2012	-.3210	-.1452	-.0078	-.0527	-.1516	-.2756	-.26910	-.2705
76	141.	76	191	-.2234	-.1533	-.2423	-.2430	-.3505	-.3215	-.3112	-.0160	-.1154	-.0060
77	141.	77	193	-.2413	-.2740	-.0502	-.2406	-.0630	-.1132	-.2210	-.3942	-.0498	-.1291
78	141.	78	194	-.2353	-.1071	-.2132	-.1000	-.1922	-.2647	-.0284	-.0254	-.0475	-.0099
79	141.	79	195	-.3314	-.2035	-.3342	-.1131	-.2430	-.2740	-.0011	-.3777	-.0025	-.0066
80	141.	80	198	-.2451	-.2017	-.2375	-.2070	-.5533	-.2942	-.4367	-.3173	-.2031	-.3401
81	141.	81	199	-.3314	-.2030	-.4023	-.0055	-.5639	-.5320	-.3501	-.2483	-.2231	-.2023
82	141.	82	200	-.3334	-.2120	-.1754	-.1351	-.5120	-.4104	-.4230	-.4151	-.3623	-.4205
83	141.	83	202	-.1434	-.2150	-.2033	-.2045	-.4010	-.0734	-.3351	-.4405	-.4063	-.4092
84	141.	84	203	-.3343	-.1013	-.2062	-.0031	-.4328	-.4092	-.4007	-.5037	-.5131	-.5201
85	141.	85	204	-.1410	-.2333	-.3172	-.1440	-.5412	-.6132	-.3705	-.4470	-.5009	-.4619

	VAL. 41	VAL. 42	VAL. 43	VAL. 44	VAL. 45	VAL. 46	VAL. 47	VAL. 48	VAL. 49	VAL. 50
11 VAL. 41 113	1.0000									
12 VAL. 42 114	.9759	1.0000								
13 VAL. 43 115	.9315	.9716	1.0000							
14 VAL. 44 125	.7776	.7516	.9211	1.0000						
15 VAL. 45 130	.7734	.6751	.8753	.7164	1.0000					
16 VAL. 46 131	.6240	.5540	.6136	.7365	.7112	1.0000				
17 VAL. 47 132	.7433	.6712	.6197	.6476	.7036	.6202	1.0000			
18 VAL. 48 135	.6491	.7532	.6035	.7795	.6214	.6327	.6411	1.0000		
19 VAL. 49 136	.6692	.6259	.6331	.6430	.6636	.6446	.6422	.6391	1.0000	
20 VAL. 50 139	.6949	.7774	.6261	.7635	.6117	.6645	.6277	.6339	.6576	1.0000
21 VAL. 51 140	.7035	.6406	.6353	.6172	.6341	.7195	.6295	.7770	.6906	.7436
22 VAL. 52 141	.6197	.6128	.6636	.6210	.6181	.62195	.6186	.61324	.61413	.61924
23 VAL. 53 142	.6354	.6654	.6235	.62127	.62877	.63591	.6327	.63994	.63861	.63861
24 VAL. 54 144	.6217	.6266	.6346	.6432	.6425	.6396	.6442	.6316	.6326	.6386
25 VAL. 55 146	.61127	.6414	.6114	.6421	.6114	.6145	.6194	.6146	.6149	.6146
26 VAL. 56 149	.6322	.6476	.6471	.6474	.6311	.6311	.6266	.6326	.6326	.64226
27 VAL. 57 154	.62733	.6410	.61456	.62736	.61776	.61776	.6234	.62102	.61191	.62038
28 VAL. 58 157	.6292	.6456	.6234	.6232	.6446	.6375	.6327	.6151	.6231	.61624
29 VAL. 59 163	.61654	.6125	.6453	.6249	.6114	.6154	.6275	.6220	.61210	.61624
30 VAL. 60 164	.6252	.6266	.6449	.6274	.6295	.6295	.6426	.6291	.6199	.6277
31 VAL. 61 165	.6319	.6450	.6457	.6311	.6245	.61759	.6182	.6194	.6195	.6195
32 VAL. 62 166	.61277	.61519	.61637	.61919	.6115	.6154	.6124	.61627	.61673	.62025
33 VAL. 63 169	.61513	.61720	.61967	.61295	.61011	.61810	.61698	.61996	.61615	.61951
34 VAL. 64 170	.62134	.6447	.6275	.6357	.61417	.62354	.6307	.63058	.62133	.6462
35 VAL. 65 172	.61650	.6439	.6452	.6131	.6112	.63020	.62505	.6237	.62578	.6144
36 VAL. 66 173	.61559	.6124	.63357	.62033	.61614	.62033	.61121	.61041	.61672	.61032
37 VAL. 67 174	.61555	.61642	.61921	.62733	.61717	.61714	.6323	.62174	.61513	.61942
38 VAL. 68 175	.61772	.6167	.6265	.6119	.6155	.6179	.6173	.6258	.6146	.6166
39 VAL. 69 176	.62234	.6162	.6369	.6214	.6151	.6114	.61595	.61037	.61614	.61917

70	141, 71 177	+0.3279	+0.3793	+0.4129	+0.3778	+0.311	+0.2791	+0.2279	+0.1637	+0.2719	+0.3719
71	141, 71 178	+1.967	+3.31	+0.1134	+0.1136	+0.717	+0.423	+0.335	+0.1013	+0.277	+0.319
72	141, 72 180	+0.1967	+0.722	+0.619	+0.1778	+0.1791	+0.1212	+0.1032	+0.1036	+0.1443	+0.1464
73	141, 73 187	+0.2128	+0.377	+0.5145	+0.3919	+0.1121	+0.103	+0.1635	+0.1732	+0.1327	+0.244
74	141, 74 188	+0.059	+0.136	+0.111	+0.2519	+0.1136	+0.126	+0.20	+0.2737	+0.0439	+0.2755
75	141, 75 189	+0.2029	+0.311	+0.1131	+0.2913	+0.2111	+0.239	+0.1339	+0.1118	+0.1494	+0.2867
76	141, 76 191	+0.1763	+0.71	+0.434	+0.3235	+0.1022	+0.2236	+0.2333	+0.20	+0.2327	+0.241
77	141, 77 193	+0.507	+0.75	+0.652	+0.1612	+0.1915	+0.408	+0.391	+0.34	+0.301	+0.574
78	141, 78 194	+0.612	+0.64	+0.2721	+0.159	+0.1129	+0.221	+0.1534	+0.1577	+0.111	+0.5647
79	141, 79 195	+0.064	+0.528	+0.677	+0.29	+0.1915	+0.275	+0.1350	+0.1991	+0.132	+0.153
80	141, 80 198	+0.308	+0.34	+0.64	+0.372	+0.297	+0.136	+0.398	+0.274	+0.390	+0.402
81	141, 81 199	+0.366	+0.63	+0.980	+0.340	+0.22	+0.2646	+0.179	+0.090	+0.257	+0.074
82	141, 82 200	+0.904	+0.174	+0.829	+0.414	+0.1915	+0.2718	+0.1535	+0.34	+0.599	+0.650
83	141, 83 202	+0.710	+0.396	+0.575	+0.411	+0.168	+0.274	+0.577	+0.391	+0.761	+0.163
84	141, 84 203	+0.607	+0.227	+0.413	+0.36	+0.09	+0.329	+0.194	+0.23	+0.63	+0.241
85	141, 85 204	+0.855	+0.769	+0.62	+0.494	+0.191	+0.612	+0.542	+0.718	+0.758	+0.481

	VAL. 51	VAL. 52	VAL. 53	VAL. 54	VAL. 55	VAL. 56	VAL. 57	VAL. 58	VAL. 59	VAL. 60
51 VAL. 51 140	1.0608									
52 VAL. 52 141	-1.5828	1.6502								
53 VAL. 53 142	-1.1430	-0.6464	1.0696							
54 VAL. 54 143	0.5163	0.0319	0.0918	1.1610						
55 VAL. 55 144	0.1149	0.4259	0.0902	0.3344	1.0070					
56 VAL. 56 145	0.4230	0.6421	0.1602	-0.1651	-0.3730	1.1130				
57 VAL. 57 146	-0.1112	0.2745	0.5991	-0.1706	0.0906	0.264	1.1000			
58 VAL. 58 147	0.5622	-0.0932	-0.1656	0.2901	-0.4117	-0.0438	0.2072	1.1030		
59 VAL. 59 148	0.163	-0.0651	0.5994	0.0174	0.0579	0.405	-0.1611	-0.1030	1.6000	
60 VAL. 60 149	0.4692	-0.4732	0.1602	0.425	-0.1717	-0.1354	-0.2759	0.1474	0.3502	1.0630
61 VAL. 61 150	0.1019	0.0194	0.1709	0.6594	0.1720	0.1220	0.163	0.1059	0.1459	0.1473
62 VAL. 62 151	-0.1065	0.5946	-0.0176	-0.1016	0.1308	0.202	0.326	-0.1621	-0.1542	-0.2435
63 VAL. 63 152	-0.1353	0.7754	-0.0211	-0.1412	0.2098	-0.1167	0.1733	-0.1916	-0.1500	-0.3477
64 VAL. 64 153	-0.0117	0.0661	0.5335	0.0270	0.5015	-0.1210	0.579	-0.1711	0.2298	0.0045
65 VAL. 65 154	0.0509	-0.2271	0.2259	0.4479	-0.0217	-0.2121	-0.1911	0.1371	0.0964	0.2798
66 VAL. 66 155	-0.2922	-0.1104	-0.0640	-0.1010	-0.1669	0.1945	-0.0527	0.1723	-0.0403	0.6197
67 VAL. 67 156	-0.2953	0.4112	0.5511	-0.1452	0.1680	0.0620	0.1293	-0.1025	0.1714	-0.0754
68 VAL. 68 157	0.6065	0.3796	-0.2961	0.6506	0.1174	-0.2719	-0.0140	0.1033	-0.1509	-0.0976
69 VAL. 69 158	0.0911	0.5552	0.1337	0.0212	0.2776	-0.1045	0.1599	-0.1621	-0.0039	-0.1597
70 VAL. 70 159	-0.3576	0.0741	0.0794	-0.1443	-0.1316	0.2224	0.1265	-0.0494	-0.3564	-0.5934
71 VAL. 71 160	0.0653	0.1134	-0.3249	-0.1549	0.1735	-0.1014	0.1025	0.1774	-0.1112	-0.1926
72 VAL. 72 161	-0.1013	0.2610	0.6109	-0.1454	0.2326	-0.1506	0.1000	-0.1994	-0.1102	-0.3754
73 VAL. 73 162	-0.0194	0.0374	0.1522	0.0207	-0.1534	-0.1352	0.1142	-0.1035	0.0395	-0.0328
74 VAL. 74 163	-0.1011	0.1624	-0.1497	-0.2211	0.0505	0.1729	0.1035	-0.1209	-0.2193	-0.2761
75 VAL. 75 164	0.2919	0.586	-0.2700	-0.1203	0.0454	0.1561	0.1529	-0.1390	-0.0431	-0.2121
76 VAL. 76 165	0.0991	0.0312	0.2165	0.0276	0.1197	-0.1361	0.1119	-0.1050	0.2493	0.1455
77 VAL. 77 166	0.0791	0.0225	0.3344	0.0706	0.1435	-0.1001	-0.0361	0.1461	0.012	0.5111
78 VAL. 78 167	-0.6471	0.137	-0.1011	-0.1791	0.0665	0.1315	0.1344	-0.1537	-0.1405	-0.1837
79 VAL. 79 168	0.1173	0.5064	0.1746	0.1165	-0.1277	-0.1447	0.1027	0.1977	0.2739	0.3302

80	145.	8: 198	.3473	.3724	-.6263	.1775	.4365	-.4094	.0472	-.1041	-.0095	-.2339
81	149.	8: 199	.2363	.4393	-.2027	-.0506	.3025	-.0297	.1314	-.1334	-.1152	-.3934
82	144.	6: 200	.4154	.5556	-.4734	.1611	.1724	-.3751	.0005	-.2716	-.0055	-.1151
83	146.	8: 202	.5934	.1221	-.4456	.0607	.1164	-.1927	-.1913	.1217	-.2531	-.1250
84	148.	7: 203	.5003	.0778	-.6641	.1011	.2500	-.3404	-.3551	-.3093	-.0415	.6021
85	144.	8: 204	.4293	.1761	-.5303	.1309	.1025	-.1073	-.1098	-.1211	-.1269	-.1912

	V14, 71	V46, 72	V46, 73	V46, 74	V46, 75	V46, 76	V46, 77	V46, 78	V46, 79	V46, 80
71 V14, 71 178	1.1303									
72 V14, 72 180	.2125	1.0000								
73 V14, 73 187	-.1333	.5477	1.0000							
74 V14, 74 188	.3350	.3753	.1335	1.0000						
75 V14, 75 189	.1113	.6227	.1619	.2045	1.0000					
76 V14, 76 191	-.2339	-.1352	.1381	-.1430	-.1677	1.0000				
77 V14, 77 193	-.3353	.1355	.1334	.1627	.1609	.1964	1.0000			
78 V14, 78 194	.2186	.4564	-.1333	.1622	.1717	-.1553	.1969	1.0000		
79 V14, 79 195	-.1393	-.1243	-.1310	-.2770	-.1263	.1609	.1465	-.1333	1.0000	
80 V14, 80 198	.3723	.3629	.6005	.1474	-.1247	.1645	.1451	.1394	-.1362	1.0000
81 V14, 81 199	.2633	.3514	.6090	.2546	.1711	-.1643	.1529	.2710	-.1403	.6025
82 V14, 82 200	.1143	.2767	.1098	.0076	-.1464	-.1129	.1308	.1024	-.1453	.6816
83 V14, 83 202	.4324	.2617	-.10745	.1985	.1035	-.12991	.1290	.2732	-.12451	.3610
84 V14, 84 203	.3122	.1149	.0329	-.1160	-.1169	.1182	.0764	.0904	-.10338	.4710
85 V14, 85 204	.3162	.2137	.0627	.1750	.0493	-.1345	.1790	.1034	-.11954	.5578

APPENDIX D

THREE FACTOR VARIMAX SOLUTION

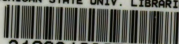
VARIABLE ROTATION ANALYSIS.
 ROTATED FACTOR LOADINGS

				FACTOR 1	FACTOR 2	FACTOR 3	COMM.
1	VAP.	1	3	.1712	-.0799	.6134*	.4109
2	VAP.	2	6	-.2662	-.1401	.4896*	.3305
3	VAP.	3	10	.0450	-.2350	-.5254*	.3315
4	VAP.	4	11	-.1061	.0577	.3157*	.1412
5	VAP.	5	14	-.2422	-.2591*	-.0500	.1282
6	VAP.	6	16	-.0058	.2075	.3284*	.2023
7	VAP.	7	17	.0887	.5677*	-.3838	.4546
8	VAP.	8	19	.0063	-.0242	.1538*	.0265
9	VAP.	9	23	.0315	.2262	.5769*	.3850
10	VAP.	10	24	.2576	.5725*	.1402	.5362
11	VAP.	11	29	.4222	-.5005*	-.0116	.5378
12	VAP.	12	33	.2882	-.6099*	-.3522	.6069
13	VAP.	13	35	.5252*	-.3130	.1276	.5064
14	VAP.	14	42	.3178*	.0252	-.0256	.8437
15	VAP.	15	44	.3028*	.0935	.2336	.7070
16	VAP.	16	50	.8700*	.0562	-.3515	.9004
17	VAP.	17	52	.8207*	.0047	.0659	.7270
18	VAP.	18	60	.8070*	.0501	-.2727	.7224
19	VAP.	19	62	.5725	.0688	-.6764*	.7000
20	VAP.	20	67	.6657*	.0425	-.4023	.6063
21	VAP.	21	68	.7262*	.0032	.0574	.5317
22	VAP.	22	69	.3602*	-.0098	.1393	.7330
23	VAP.	23	70	.0511*	.0661	-.1662	.7480
24	VAP.	24	72	-.1521	.1310	.5770*	.3600
25	VAP.	25	73	.1066	-.1343	.5772*	.3891
26	VAP.	26	74	.4672*	.1236	-.0096	.2200
27	VAP.	27	75	-.4041	.1301	-.4196*	.3555
28	VAP.	28	77	.1274	-.4134*	-.2687	.7677

22	VAF	22	80	.0765	-.2065	-.5637*	.3426
20	VAF	20	85	-.5637*	.1665	-.1012	.1073
21	VAF	24	90	-.2065	-.4528*	-.3446	.3055
22	VAF	22	91	-.5610*	-.1550	-.1562	.1200
33	VAF	33	94	.3131	.5610*	.2275	.4645
24	VAF	24	98	-.0876	.2705	-.5674*	.4250
25	VAF	25	101	.2023	-.7126*	-.1008	.6076
36	VAF	26	104	.4137	-.4641	-.5199*	.6376
37	VAF	27	105	-.5637*	-.2749	.0842	.4408
28	VAF	28	108	.0056*	.0991	-.1340	.9379
29	VAF	29	110	.4729*	.0128	-.2832	.8526
40	VAF	40	112	.2171*	.3173	-.0760	.9672
41	VAF	41	113	.7022*	.0555	-.4096	.7094
42	VAF	42	114	.0067*	-.0055	.1417	.7034
43	VAF	43	115	.0073*	-.0012	.2173	.8453
44	VAF	44	125	.2276*	.0322	-.1360	.8727
45	VAF	45	130	.7660*	.0431	-.7748	.6709
46	VAF	46	131	.7830*	.0560	-.4608	.8364
47	VAF	47	132	.5079*	.0687	-.5422	.7698
49	VAF	49	135	.1190*	.0027	.1097	.7664
49	VAF	49	136	.1190*	.0313	-.3648	.5744
50	VAF	50	139	.0872*	.0174	.0637	.7846
51	VAF	51	140	.2250*	.0161	-.0331	.7681
52	VAF	52	141	-.2176	-.5973*	.0666	.5246
53	VAF	53	142	-.0372	-.0735	.5120*	.7888
54	VAF	54	144	.2277*	.2200	.0160	.2034
55	VAF	55	148	.0095	-.4797*	.7125	.3761
56	VAF	56	149	-.5067*	.0879	-.0676	.2691
57	VAF	57	154	-.2271	-.2422	.1708	.1666
58	VAF	58	157	.2551	.5689*	-.2031	.5610

59	VAF.	59	163	.0424	.0852	.0020*	.2610
60	VAF.	60	164	.0076	.5227*	.1594	.7360
61	VAF.	61	165	.1212*	-.0224	.0179	.0028
62	VAF.	62	166	-.1077	-.2780*	-.1447	.1362
63	VAF.	63	169	-.1769	-.7100*	-.0110	.5040
64	VAF.	64	170	-.0237	.1210	.5870*	.7000
65	VAF.	65	172	.4212*	.0190	.1077	.2531
66	VAF.	66	173	-.7465*	.1587	-.2230	.2247
67	VAF.	67	174	-.3240	-.0043	.4733*	.7022
68	VAF.	68	175	.7162	-.4293*	-.3086	.7708
69	VAF.	69	176	.1071	-.5005*	.2263	.7097
70	VAF.	70	177	-.5172*	.0263	.0643	.2723
71	VAF.	71	178	.1047	-.2600	-.5126*	.3418
72	VAF.	72	180	-.2167	-.6565*	.0094	.4790
73	VAF.	73	187	.2155	-.0159	.1651*	.0278
74	VAF.	74	188	-.2574	-.7736*	-.3620	.3360
75	VAF.	75	189	-.7022*	-.1194	-.1608	.1042
76	VAF.	76	191	.0824	.1497	.5371*	.7175
77	VAF.	77	193	.0005	-.0424	.1051*	.0103
78	VAF.	78	194	.2120	-.2719	-.755*	.1490
79	VAF.	79	195	.1577	.4212*	.2513	.2553
80	VAF.	80	198	.7410	-.7330*	.1756	.6058
81	VAF.	81	199	.2556	-.7515*	-.1694	.6598
82	VAF.	82	200	.4745	-.6189*	.1365	.6266
83	VAF.	83	202	.7064	-.4221	-.5495*	.6773
84	VAF.	84	203	.5453*	-.3062	.0777	.4143
85	VAF.	85	204	.7200*	-.4093	-.3227	.6430
86	HT, L, AD.			.7276	-.7515	-.6764	
87	DOOR, VAF.			.2556	.1070	.1066	
88	CUY, C, V.			.2556	.3675	.4791	

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