A SEMANTIC DIFFERENTIAL ANALYSIS OF THE CONNOTATIVE MEANING OF MENTAL HEALTH CONCEPTS FOR BUSINESS, ENGINEERING AND EDUCATION GRADUATE STUDENTS

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1971

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
December, 1974

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INTRODUCTION

Introduction to the Study

"According to the National Committee against Mental Illness, society's share of the over-all cost of mental illness in 1960 was $3,624,831,357" (McMurray, 1962). McMurray (1962) also notes that mental illness costs industry an additional 3 billion dollars due to high labor turnover, excessive absenteeism, substandard production, and poor employee morale. Thus the cost of mental illness in the United States is approximately 6 billion dollars a year. The scope of the problem is suggested by statistics released from the American Hospital Association in 1963. This report notes that 51 percent of the patients comprising the average daily census in all hospitals are patients under psychiatric care, i.e., approximately 700,000 people are hospitalized due to some form of mental illness (London and Rosenhan, 1968).

The incidence of mental illness in the general non-hospitalized population also indicates the scope of the mental illness problem. Several different incidence figures are available; London and Rosenhan (1968) suggest that "the more intensive the effort to discover psychiatric cases, the higher the resulting rates of mental disturbance" (p. 429).

For example, a study conducted in Baltimore during the early 1950's estimated that 11 percent of the non-institutionalized population

exhibited "obvious mental illness." However, an intensive study of the Midtown Manhattan population conducted at the same time as the Baltimore study found that 23 percent of the population was seriously impaired psychiatrically; this study also found that only 18 percent of the population studied was "essentialy free from symptoms!" (London and Rosenhan, 1968).

The exact incidence of mental illness is not important for the present study; but the reader should note that all incidence studies agree that mental illness is affecting a sizable proportion of the population of the United States.

In the last ten years community mental health centers have emerged as a viable force for the prevention, detection, and early intervention of mental illness. Community mental health centers are trying to break away from the pattern of sending the mentally ill away to large state hospitals. Under this pattern the mentally ill remain in the community for treatment. This approach necessitates that the mental health professionals become involved with local community organizations, e.g., churches, police, welfare agencies, industry, the courts, and public officials.

One of the chief aims of a community mental health center is to prevent and reduce the incidence of mental illness; these centers also strive to promote mental health in the community. It is customary to divide prevention into three areas: primary prevention, secondary prevention, and tertiary prevention (Zax and Cowen, 1972). There are two aspects of primary prevention; primary prevention involves preventing the development of mental disorders, and at the same time, it attempts to promote psychological health and emotional adjustment. Primary

prevention efforts are broadly directed at the whole community; they attempt to change the factors in a community which contribute to psychological dysfunction.

Sandford (1965), Cowan and Zax (1967), and Caplan (1964) "all agree that the core methodologies of secondary prevention are early identification of dysfunction in individuals and early effective treatment" (Zax and Cowen, 1972, p. 451). Thus secondary prevention hopes to reduce the incidence of mental dysfunction by shortening the duration of mental disorders which occurred in spite of efforts at primary prevention. "Ideally early detection should lead to prompt intervention. This objective lies at the very heart of the community mental health center approach" (Zax and Cowen, 1972, p. 541). Secondary prevention can be attempted in two different ways. If a client can be contacted early in a crisis or episode of dysfunction, it may be possible to reduce the severity of his dysfunction. The second approach is to contact the client early in his life, before the dysfunction becomes chronic (Zax and Cowen, 1972).

The aim of tertiary prevention is to restore mentally ill people to at least a minimal level of functioning. Tertiary prevention deals exclusively with already disturbed individuals. Zax and Cowen (1972) argue effectively that tertiary prevention is not really prevention at all. They are not arguing against tertiary prevention, but merely noting that calling it prevention leads to confusion.

Community mental health centers are designed primarily for primary and secondary prevention; thus for a community mental health center to be successful, it must deal with community members and local organizations. Zax and Cowen (1972) suggest that the average citizen is still

suspicious of the mental health profession, and that he is reluctant to admit to any mental health problems. Knowledge of mental health might eliminate this attitude.

Statement of the Problem

In the performance of his job, the community mental health specialist or the community psychologist must communicate with many of the inhabitants of the community. This dialogue will involve the concept of "mental health" and mental health related terms. Communication would be enhanced if all members of the community shared a common meaning for "mental health" and mental health related terms. However, it needs to be determined if community members share the same connotative meaning of "mental health."

A new community mental health center will have its first interactions with the community leaders; community leaders will also play a central role throughout the life of the community mental health center. Therefore, the present author selected three groups of community leaders for study: businessmen, educators, and engineers. These groups were chosen because of their diverse backgrounds and respective differences in familiarity with "mental health terms."

The present study will determine if businessmen, educators, and engineers share the same connotative meaning for mental health related terms. If a difference in the connotative meaning of mental health terms exists for different groups of community members, then the diverse groups chosen for the present study should exhibit this difference. The connotative meaning of "mental health" concepts was measured by the

subject's response to a semantic differential, and thus "meaning" in the present study will always refer only to connotative meaning.

The community psychologist not only needs to know if groups in his community share the same meaning for "mental health terms," but he also needs to know what the laymen in his community mean by mental health. Thus the present study will also describe what the connotative meaning of "mental health" is for different groups of laymen and also describe the attitude of these groups toward "mental health."

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter reviews the literature on mental health from four different perspectives: the psychological perspective, the educational perspective, the business perspective, and the engineering perspective.

The Psychological Perspective of Mental Health

Offer and Sabshin (1966) synthesize all of the perspectives on mental health into four functional perspectives which they feel account for most of the viewpoints of mental health. They use the term "normality" in place of the term "mental health." These four perspectives are: (1) "normality as health," (2) "normality as utopia," (3)"normality as average," and (4) "normality as process." These four perspectives provide a clear conceptual framework for mental health. They will be used as the basis for a review of the psychological perspective of mental health.

The normality as health perspective

> ...includes the traditional medical-psychiatric approach, which equates normality with health and views health as an almost universal phenomenon. Many investigators have assumed behavior to be within normal limits when no manifest pathology was present (Offer and Sabshin, 1966, p. 99).

This practice of making gross observations about the health of the patient grew out of nineteenth century medicine when epidemics were

still flourishing throughout the world. If a physician diagnosed that a patient was healthy, this indicated that the patient was functioning reasonably well; it did not indicate that the patient was in a state of optimal functioning. This definition of health has continued to the present and is a source of confusion. Theorists from the "normality as utopia" perspective use health to mean optimum functioning (Offer and Sabshin, 1966).

Redlich (1957) notes that psychiatrists do not agree amongst themselves about the meaning of "health." He believes this occurs because there is no universally accepted theory of human behavior. The prime weakness of the medical model, as applied to mental health problems, lies in the comparison of physical illness with psychological dysfunction (Zax and Cowen, 1972).

"Normality as utopia" is the second perspective proposed by Offer and Sabshin (1966); it is best typified by the psychoanalyst who "conceives of normality as that harmonious and optimal blending of the diverse elements of the mental apparatus that culminates in optimal functioning or 'self-actualization'" (Offer and Sabshin, 1966, p. 102). The goal of the psychoanalyst is to move the client toward a set of ideal goals, e.g., a healthy character structure, freer access to his unconscious, freedom from infantile conflicts, and development of his potential. These goals should be contrasted with the goals of the psychiatrist who accepts the "normality as health" perspective; the goal of the psychiatrist is to remove symptoms and to eliminate suffering.

The major distinguishing feature of the "normality as utopia" perspective is the assertion that the goals of therapy are ideals which

are rarely if ever attained, but these goals are still useful as a measure of the success of treatment. Proponents of this view are Freud, Jones, Eisler, and Money-Kryle.

Many psychologists would also agree with the basic assumptions of this perspective, e.g., Maslow, Rogers, Goldstein, Buhler, Shostrum, and Jahoda. For example, Rogers (1951) hopes that his client will become a "fully functioning person." The "fully functioning person" will have these characteristics:

1. He will be open to experience.
2. His self structure will be congruent with his experience.
3. His self structure will change as he assimilates new experience.
4. He will experience himself as the locus of evaluation.
5. He will have no conditions of worth.
6. He will live with others in the maximum possible harmony.

Jahoda (1959) has reviewed the psychological literature on mental health and has selected six cardinal aspects of "positive mental health" which she feels can be empirically proven. These characteristics are:

1. Self-perception, i.e. attitudes toward the self, self concept and identity
2. Self-actualization: growth, development, and the extent to which the individual uses his abilities
3. Integration, i.e., the extent to which the psychic forces are balanced
4. Autonomy
5. Perception of reality, i.e., relative freedom from need distortion
6. Environmental mastery, i.e., the ability to love, work, play, and adequacy in interpersonal relationships and efficiency in problem solving.

Wright (1971) attempted to verify empirically Jahoda's six characteristics. He used a sociometric rating scale to generate his data. He found that a four factor structure was consistently revealed by a factor analysis of the data. His first factor (perceptual effectiveness and task effectiveness) accounted for three of Jahoda's characteristics (self-perception, environmental mastery, and perception of reality). His second factor (autonomy and self-actualization) collapsed these two Jahoda characteristics into a single factor. None of his four factors used Jahoda's characteristic of integration. Wright's (1971) study also found two other factors: commitment and openness. This study provides only partial suuport for Jahoda's theory.

The "normality as average" perspective is the third perspective to be discussed. It is based on the statistical concept of normality, i.e., measurements on individuals will fall evenly below and above the mean and most of these measurements will cluster around the mean. This approach developed from the emphasis in psychology on tests and measurements. This approach assumes that normality is desirable. For example, a person can have either too much or too little affect or on the Rorschach he can respond with either too much or too little color. All of the above responses would be abnormal according to the "normality as average" perspective (Offer and Sabshin, 1966).

The "normality as average" perspective applies very well to biology and medicine. For example, a person will be ill if he has either too high a basal metabolism or too low a basal metabolism. The person will be classified normal or healthy if his metabolism falls in the middle range. However, the "normality as average" perspective does not fit well with psychological data. It is true that many human characteristics

fit a normal distribution, but a problem arises in the interpretation of a person's place in the distribution. For example, a high IQ is abnormal by definition, but this characteristic is not undesirable. It is this value judgment of desirability that makes the "normality as average" perspective ill suited to psychology (Offer and Sabshin, 1966).

The fourth perspective "normality as process"

> ...stresses that normal behavior is the end result of interacting systems that change over time.... Those who advocate this position insist that normality be viewed from the standpoint of temporal progression (Offer and Sabshin, 1966, p. 108).

This position is essentially a developmental one, i.e. the stress is placed on the fact that the characteristics of mental health change as the person ages. Erickson's eight stages of development and Havinghurst's developmental tasks are the best examples of this viewpoint (Offer and Sabshin, 1966).

The Educational Perspective of Mental Health

The school has a tremendous potential for influencing the mental health of students. The child spends several hours a day for 180 to 190 days a year in school--if the child graduates from high school, this is approximately 15,000 hours spent in school. "The care and training offered by the school is exceeded only by that provided by the home and is far beyond that offered by almost any other community agency" (Ringness, 1968, p. 23).

Mental health concepts can pervade the curriculum or the faculty might regard mental health concepts as foreign to the academic pursuits of school. The wide variability in the acceptance of mental health concepts in the schools has resulted in many educational perspectives

of mental health. The most important perspectives from the standpoint of the present study are those approaches which stress primary and secondary intervention.

Programs of secondary prevention are much more common than programs for primary prevention. Allinsmith and Goethals (1962) suggest four types of students which might be helped by secondary intervention. (1) Students with serious difficulties: It is difficult for school officials to ignore this type of student; he may be retarded or have severe emotional problems. In most cases he disrupts the normal classroom routine. (2) Students who are underachieving academically: These students often have emotional conflicts or motivational difficulties. (3) Students with emotional problems not interfering with school performance: "Included here are those troubled students whose torments can be readily ignored by the school since their behavior does not impede the school's instructional or custodial functions" (p. 40). (4) Students for whom there is a prospect of future illness: This includes students who have personality characteristics which are indicative of future problems or students with decision problems, e.g., vocational choice (Allinsmith and Goethals, 1962).

Allinsmith and Goethals (1962) review seven steps or levels of intervention which might be used in secondary prevention: detection, diagnosis and prognosis, first aid, referral, treatment, rehabilitation, and follow-up. Detection occurs when it is noticed that a child is disturbed, upset, chronically unhappy, functioning below his capacity or has characteristics that indicate future problems. The teacher, parents, peers, or the person himself are the most likely persons to detect dysfunction. Early detection is of prime importance.

> Many authorities believe that it is easier to treat childhood disturbances during the years before five or six when the child is amenable to outside influences because his neurotic ways of reacting are less crystalized (p. 43).
>
> A clear implication is that efforts of detection should not be solely passive. Rather than wait until a child's difficulties happen to be noticed or to become manifest, it is obviously desirable to be alert and notice purposefully (p. 44).

The best alternative would be to set up a systematic screening procedure to examine all of the children in a school (Allinsmith and Goethals, 1962).

Diagnosis and prognosis provide the basis for later decisions in the secondary prevention process.

> Diagnosis provides confirmation of detection and attempts to add a "because" statement: "The child is upset because." Prognosis constitutes a prediction about the course of the illness, e.g., the disturbance will go away by itself or that it will continue and have some adverse consequences in later years (p. 42)

When a diagnosis or prognosis are allowed to remain implicit, the chances for constructive action are lowered; this situation arises because the therapist does not completely explore the problem. Thus diagnosis and prognosis should always be made explicit (Allinsmith, and Goethals, 1962).

Allinsmith and Goethals (1962) note that psychological first aid is not usually included as an intervention procedure, but "it ought to be included in any discussion of emotional healing because many acts loosely considered as attempts at treatment or prevention are better viewed as first aid" (p. 55). First aid is usually performed by nonprofessional adults who have a rudimentary knowledge of mental health principles. Like physical first aid the goal of psychological first aid is to minimize suffering and to prevent the dysfunction from

becoming more serious. First aid is designed for normal children and adults who encounter normal developmental crises.

First aid is generally called for in two types of situations: situations that cause physical injury or arouse the fear of injury or death and situations that cause the loss of a valued relationship or the threat of separation from needed or loved people. The major technique of first aid is reassurance and explanation; it is important to relieve the child of the stress of the immediate situation and to let him express rather than suppress his feelings (Allinsmith and Goethals, 1962).

Referral is the process of directing a client to a suitable person or agency who can help him with his problem. Referral is the next step in the intervention process. It is important that teachers and other community representatives, e.g., clergy, know where to refer people in need. This will reduce unnecessary delays and insure that the people in need will receive proper treatment. Allinsmith and Goethals (1962) recommend that a community or school program be inaugurated to instruct key personnel in the referral process.

Treatment is the next step in the intervention process; it is a broader term than psychotherapy and includes all actions possible in the management of a case. "Treatment becomes an issue when first aid has not solved the difficulty or is inapplicable because the disorder was not of recent origin" (p. 62). Allinsmith and Goethals (1962) list six general methods of treatment.

1. Reduce a person's feelings of tension and conflict (without necessarily changing their sources)--supportive therapy.

2. Eliminate external sources of tension and conflict.

3. Restrict the ways a person expresses his tensions and inner conflicts (without necessarily reducing their degree).

4. Help person acquire the skills or the understanding of a problem that will enable him to eliminate sources of his tension conflict.

5. Help person to see himself as others do so that he realizes his problem and becomes able to recognize occasions when his behavior is inappropriate.

6. Increase a person's self-understanding by helping him recognize more accurately his own feelings and motives.

Rehabilitation is the next step in the intervention process. It involves problems of returning the patient to his normal duties; e.g., the child who has been in a special program for remedial reading. Not all people who have been treated need rehabilitation. The need for rehabilitation depends on the patient and the type of treatment he has received (Allinsmith and Goethals, 1962).

Follow-up consists of following a case for a period of time without treatment. During this period the effects of the treatement are assessed. If treatment has been ineffective, treatment may be revised and continued. Follow-up is the last step in the intervention process and is often overlooked.

Cowen (1971) notes that

> Schools, as social institutions that significantly shape the development of all human beings in modern society, are potentially ideal settings for preventive intervention. Since the beginning of the current century, mental health professionals have been performing a variety of clinical services in American schools, reflecting two basic assumptions: (1) the schools have both the responsibility and the potential for promoting the child's psychological as well as his educational well being and (2) that these two spheres of development are intimately intertwined--i.e. psychological maladaptation encourages educational failure and vice versa (p. 723).

Glidewell and Swallow (1969) found that approximately 30 percent of all children have problems adapting to school which range from mild to severe. The magnitude of this problem indicates that new solutions must be tried. Cowen (1971) sensed this problem and began a long range program for the early detection and prevention of school maladaptation in 1958. This program, the Primary Mental Health Project (PMHP), has continued for the last 16 years. Traditionally mental health efforts had been at the secondary level; Cowen believed that his limited resources could be better used for early detection and prevention at the primary level.

The PMHP began with a school psychologist and a school social worker working full time in the primary grades of a single school in Rochester, New York. The students were divided into two clinical groups: children in the "red tag" group had already manifested some dysfunction or dysfunction seemed imminent for them. The non-red tag group had adjusted adequately to school. The designation of red tag was a private research diagnosis by which the researchers hoped to avoid labeling the child. About a third of the children were classified as red tag. Zax et al. (1968) found that without intervention the dysfunction of the red tag students continued.

Cowen (1971) modified the role of the mental hygiene personnel; in the initial and later stages of the PMHP the professional personnel abandoned the role of one-to-one therapy and began efforts to educate the school personnel, perform consulting functions, and act as resource people. Cowen (1971) notes:

> The two key conclusions emerging from our initial work were that (1) ineffective function can accurately be identified early in the child's school career and, without intervention, it has serious later consequences and (2) there are significant positive effects along several important dimensions of an early secondary prevention program (p. 725).

During the second phase of the PMHP, Cowen introduced non-professional aides into the program; these aides were hired on a half-time basis to work regularly with children who were experiencing difficulties. Six housewives who were "judged to be warm, natural, interpersonally adept, themselves effective mothers, with a strong interest in working with children," were selected as child-aides (Cowen, 1971, p. 726). An intensive six week training program was set up to give the aides an understanding of school adjustment problems. The training program emphasized a way of thinking about school adjustment problems and tried to minimize the aides anxiety about working with maladapting children.

The key to the success of this program was the strong commitment of the aides and the extended intimate contact with the children. The use of non-professional aides has several other advantages. Five aides can be employed for the same salary as one professional; thus five times as many children can be seen. This frees the professional to work with the child whom only he can treat; it also frees him for consultation and education. Also the children receive faster and more extensive help than would be possible otherwise. Sobey (1970) gives ample evidence that the non-professional aide performs well and improves service to the client.

The PMHP has been expanded in its latest phase to eleven primary schools in the Rochester area; this is approximately 4,100 students.

During the 1970-71 school year 700 students were seen by aides; this is about 17 percent of the total enrollment and includes most of the children who were having school problems (Cowen, 1971).

Despite the effectiveness of secondary prevention, e.g., the PMHP project, Caplan and Grunbaum (1967) note that:

> ...primary prevention is the most desirable and potentially effective solution of the problem of mental disorder in our communities. At the present, however, primary prevention is clearly more a hope than a reality (p. 332).

Bower (1964) notes three reasons for the lack of progress in primary prevention. Many experts believe the problem is of such extreme magnitude that nothing can be accomplished until our society has a complete overhaul. Also the public, in general, resists attempts at primary prevention because many of them feel that their personal privacy is being invaded. Finally the "work values" of our society are opposed to primary prevention, i.e., our society believes that hard work will be rewarded with success. The prevailing mores would hold that if a person is unsuccessful or unhappy, then he has only himself to blame.

Caplan and Grunbaum (1967) suggest a conceptual model for primary prevention. They note that a person's mental health is a function of both long term and short term factors which reduce a person's ability to adapt.

> Over the long term, the likelihood of psychological dysfunction is increased if specific basic resources are not adequately provided for the population; these resources may be classified as physical, psychological, and sociocultural. A program of primary prevention will seek to evaluate these resources and ensure their optimal provision in the population (p. 333).

The short term factors which this model includes are the patterns of adaptation the person exhibits to developmental and situational life crises.

> These crises represent transition points, at each of which the person may move nearer or further away from adaptive patterns of functioning. Primary prevention efforts are often directed toward modifying the field of forces at times of crisis in the belief that efforts may be more effectively and more efficiently applied at those times (Caplan and Grunbaum, 1967, p. 333).

Thus in the short term, primary prevention deals with crises. A crisis is a normal or unusual transition which necessitates interpersonal and intrapsychic readjustment. Sometimes an individual faces an immediate problem from which he cannot escape and which is beyond his capacity to solve. This results in a temporary disequilibrium and marked psychological upset. Some common crises are: bereavement, the reaction of parents to the birth of a child, surgery, moving into a new community, especially in a foreign country, newly married, birth of a sibling, entering school for the first time, being fired from your job.

A crisis usually arises from a marked change in a person's life which requires him to adapt.

> The internal changes may be developmental or due to illness or trauma, while the external changes involve (a) the loss of a significant person or source of need gratification, (b) the threat of loss, (c) a challenge which threatens to overtax adaptive capacities (Caplan and Grunbaum, p. 340).

Feelings of frustration and helplessness are common; a crisis can last for up to four to six weeks. It is important to note that the mechanism the person uses to cope with problems is likely to be used again. Thus the person has the potential for learning healthy responses from each crisis; guiding the person to choose the healthy response is one goal of primary prevention. The other goal is to reduce the severity of the crisis.

Bower (1964) suggests that the stress produced by a crisis be used to teach healthy coping behavior and thus raise the person's tolerance to stress. He outlines a program for moderating the stress involved in the child's first entrance to school.

Ojemann (1961) observed that the ordinary school child engages in what he called "surface thinking," i.e., the person reacts simply and automatically to the overt problem. In contrast to "surface thinking" Ojemann advocates the "causal approach;" in this approach the student looks beyond the surface of the problem and attempts to determine the causes of the problem. Then he systematically works out a plan of action to deal with the most crucial cause. Ojemann trained children in his methods and observed that these children had a greater capacity to persevere in the face of ambiguity and an increased tolerance for frustration when compared to children from a traditional curriculum.

Ojemann (1961) drastically redesigned the curriculum so that students could learn and practice his methods. This necessitates the question: Should mental health be one of the functions of the school? White (1965) argues that schools are for the acquisition of knowledge and cognitive skills. She stresses that we choose between mental health and education, noting that the position we choose depends upon our values. Allinsmith and Goethals (1962) label this position "neo-fundamentalism," i.e, "teachers are enjoined to stick to instruction and schools are urged to restrict their burgeoning nonacademic functions" (p. 37). They also discuss four other common viewpoints on mental health in the curriculum: (1) a focus on traditional subject matter; (2) an emphasis upon life adjustment, i.e., learning social and

vocational skills in order to earn a living; (3) the seeking of a healthy personality for every child, i.e., intellectual and vocational programs are secondary to making the student an integrated, mature person, and (4) the improvement of society through increased maturity of individuals, i.e., this approach carries approach (3) a step farther--if all students are integrated and clarify their values, these healthy individuals will not need war, and thus society and civilization will be saved.

Allinsmith and Goethals (1962) adopt none of these positions, but rather advocate that mental health and cognitive objectives coexist with more emphasis upon the cognitive objectives. They urge that the teacher play an important role in mental health, but they caution that his role be a restricted role in which the teacher is aware of his limitations. This is also the position adopted by the present author.

The Business Perspective of Mental Health

The mental health problems encountered by industry are different from the mental health problems of education. The major mental health problems of industry are: absenteeism, alchoholism, accidents, high job turnover rates, job dissatisfaction, the personality problems of employees. Lobon (1966) notes that "emotional illness causes more absenteeism than any other illness except the common cold" (p. 29). Levinson (1961) reports that absenteeism costs industry $9 billion dollars each year and suggests that at least half of this illness was psychosomatic.

Industrial accidents were not as expensive a problem as absenteeism (estimated cost of $3 billion each year), but industrial accidents were "responsible for 15,000 deaths and two million disabling injuries

each year" (Levinson, 1961, p. 36). Levinson (1961) also reports that 80 to 90 percent of these accidents were psychological in origin. Zimmerman (1960) reports that Caterpillar Tractor has adopted the policy of issuing sick leave to employees who seem disturbed. The management hopes this policy will result in fewer accidents and increased production.

The employee's personality is also a major industrial problem. Lobon (1966) notes that:

> Eighty percent to 90 percent of dismissals today are attributed to social incompetence, the inability to get along with people. Ten percent to 20 percent are defined as technical incompetence (p. 29).

Gaudet and Carli (1957) agree and suggest that personality factors are significant causes of an industrial manager's job failure.

However, Gaudet (1962) notes that certain personality disturbances also result in job success. For example, the obsessive-compulsive who works for quality control, accounting, or drafting. Gaudet (1962) urges that we pay less attention to the individual's pathology and pay more attention to the defenses the person uses to cope with his pathology. He suggests that these defenses may be assets instead of liabilities.

Levinson (1961) suggests:

> ....that so long as work is a central organizing point of a man's life, as it presently is in our society, where and how he works will have a significant effect on his mental health. What management does or does not do in every sphere of activity involving employees affects their mental health as surely as the motor of an automobile affects the way the whole car functions (p. 41).

Industry's efforts to improve the mental health of its employees have been concentrated on secondary prevention; little has been done in the

area of primary prevention. Industrial efforts at secondary prevention have been meager in comparison to education's efforts and in comparison to the scope and cost of the problem.

There has been a philosophical change in the industrial viewpoint of mental illness. Until recently industry believed that mental illness was the individual's personal problem and that the "blame" or responsibility for this problem rested with the individual. Levinson (1961) notes that industry is beginning to acknowledge that mental health is a function of the individual's working environment and his own personality. The present author suggests that this attitude change is a necessary prerequisite before industry will spend money and effort on the mental health problem.

Industry has made several efforts at secondary prevention. Caterpillar Tractor's policy of sick leave for emotional problems has already been discussed. In some cases policy changes can improve the employee's mental health and the working environment. For example, Zimmerman (1960) tells about one company which was plagued by a very high accident rate. This company had the rigid policy of firing an employee after one accident. When this policy was rescinded, the employees relaxed, and the accident rate declined. Zimmerman (1960) also suggests that the employees be provided with individualized treatment; this might be accomplished by setting up "inter-company groups to employ and use the services of a full time psychiatrist" (p. 6). Dauw (1968) also argues for early detection and intervention for neurotic executives.

Dauw (1968) suggests that corporations control powerful reinforcers and that unconsciously these reinforcers are applied to shape attitudes, values, and behavior. Dauw (1966) urges that these reinforcers be

consciously controlled, and used as socializing forces. For example, Dauw suggests that top executives could be motivated to accept therapy through fear of being fired.

The work environment plays an important part in an employee's mental health. However, Lobon (1966) argues that changes in the work environment should not be made lightly. For example, moving the employees to new offices can have some unexpected effects: Often employees develop helping relationships with other employees, i.e., someone you turn to when you need help. If your office is moved two blocks away, you no longer have easy access to this person and must cultivate new relationships. A different kind of environmental change is assigning a new boss to a group of employees. The employees must change their work methods to satisfy this new boss. This problem is exagerated even more if the new boss is brought in from outside the company.

One of the few examples of primary prevention in the business literature was discussed by Menninger (1960). Menninger advocates regular emotional checkups for executives similar to regular physical checkups. The purpose of these checkups would be to evaluate his mental health and to give the executive food for thought. Menninger would evaluate four areas: (1) the quality of his personal relationships, (2) how does he deal with reality and accept frustration, (3) how free is this person of anxiety and tension, and (4) does this person receive satisfaction from giving of himself and can he accept help when he needs it?

Menninger (1960) also offers a prescription for mental health. (1) Have a periodic emotional checkup. (2) Take time to review the past and evaluate the present in terms of goals. (3) Schedule vacations

and hobby time. (4) Understand himself better--especially how he handles his hostile feelings.

Advertising Age (1973) reported an interesting attempt at primary prevention. The River Region Mental Health Project persuaded local industry to donate nearly one million dollars in free advertising time. The ads will run on television and in newspapers for 60 weeks. The purpose of the ads is to teach people how to deal with day to day emotional problems or to seek help in the early stages of emotional distress.

The Engineering Perspective of Mental Health

Because of the close association between engineers and business, many of the articles contained in the business perspective could have appeared in the present section, and conversely, all of the articles in this section could have been included in the business perspective. For example, Burke (1969) investigated the relationship between aging, skill obsolescence, and stress on engineers who were the managers of their departments. Burke (1969) found that for these subjects, aging and feelings of skill obsolescence were signficantly related to measures of stress, strain, and lack of mental health. Burke concluded that age alone was not a sufficient explanation for the result that feelings of skill obsolescence were related to poor mental health.

Aldridge (1970) discusses some of the environmental aspects of the managerial and professional sectors of business which contribute to emotional illness. The factors discussed by Aldridge are: (1) selecting personnel who are incompatible with their jobs or assigning job functions to an employee which are incompatible with his

personality, (2) insufficient definition of responsibility and authority within the management structure, (3) frequent movement of personnel from one geographic location to another, and (4) frequent and lengthy travel.

McLean (1966) notes that:

> The emerging field of occupational mental health is concerned with both the psychiatrically ill employee and with factors in the work environment which stimulate mentally healthy behavior (p. 961).

Most of the present review has concentrated upon the ill employee and little attention has been focused upon environmental factors. Engineering and industry have not used mental health as a criteria for designing the work environment, and that is why the present review focused mainly upon the ill employee.

Hypotheses

The present review of the literature suggested the following hypotheses:

1. Because of their different professional backgrounds and frames of reference, the three groups of subjects will have different connotative meanings for each "mental health related term." Thus null hypothesis one is: There will be no difference between the three groups of subjects in the connotative meaning of the six concepts used in the semantic differential.
2. Null Hypothesis Two: The conceptual structure of mental health related terms will be different for the three groups of subjects.

CHAPTER III

METHODOLOGY AND DESIGN

The present study was conducted in two phases: (1) during phase one the concepts used in the semantic differential were selected; and (2) during phase two the semantic differential was constructed and administered to ninety subjects. This chapter will begin with a brief disccusion of the semantic differential and then proceed to a discussion of phase one and phase two.

The Semantic Differential

The semantic differential was chosen to measure the meaning of mental health related concepts. However, the concept of "meaning" itself, is difficult to define. Meaning can be divided into two categories: denotative meaning and connotative meaning. Denotative meaning applies to the referent of a word, i.e., words are only symbols of "objects;" they are not the objects to which they refer. Two people share the same denotative meaning for an object when they both agree upon which object they are talking about. For example, if two people can look at a bolt of lightning and talk about the lightning then they must share the same denotative meaning for lightning (Osgood, 1969).

The connotative meaning of a word is the implicit meaning of the word, i.e, the emotional or other reactions which are linked to the

word. For example, these two people might share the same denotative meaning for lightning, but each one might react to, or feel differently about the lightning. Individual "A" might find it frightening, while the other could find the lightning exciting.

The semantic differential technique measures the connotative meaning, i.e., the implicit, psychological meaning, of a concept. Because meaning is one of the most important determinants of human behavior, the semantic differential is an extremely useful approach to investigating human behavior. The semantic differential is based on the premise that the connotative meaning of any concept may be represented as a point in semantic space. "Semantic space is a region of some unknown dimensionality, and Euclidian in character" (Osgood, Suci, and Tannenbaum, 1957, p. 25). They suggest that if you know the dimensions of semantic space, and if you can measure a concept in relation to these dimensions, then the concept's coordinates on these dimensions will measure the meaning of the concept.

Osgood et al. (1957) have measured the dimensions of semantic space and found as many as eight dimensions. However, three dimensions account for most of the common variance, i.e., not much is gained by using all eight dimensions, so only three dimensions of semantic space are commonly used. The three dimensions most commonly resulting are: Evaluation, Activity and Potency. Thus when a concept is differentiated with respect to these three factors, the concept may be located in a three dimensional semantic space. For example, a semantic differential might find that a HOUSE is good, powerful, and passive; thus the concept HOUSE has been located in semantic space.

> The meaning of a concept for a subject or a group of subjects can also be defined, and more efficiently and usefully, as that point in the semantic space identified by its coordinates on several factors (Osgood et al., 1957, p. 89)

Since the present study used three factors in the construction of the semantic differential, each of the six concepts in the semantic differential can be represented in three dimensional Euclidian space by a tri-variate vector (Evaluation, Potency, Activity). This vector contains the factor scores for the Evaluation dimension, the Potency dimension, and the Activity dimension. These factor scores are the coordinates for this concept in three dimensional space. Thus a concept can be represented as a single point in three dimensional space (Osgood et al., 1957).

A factor score was computed by averaging the responses each individual made to the four scales which represented each semantic differential dimension. For example an individual's Evaluation factor score was computed by averaging his response to the four Evaluation scales, e.g., Good (1), Valuable (2), Pleasant (2), and Beautiful (3). The average of these scale responses is 2.0, so the person's evaluation factor score on concept X would be 2.0.

Once it is possible to locate a concept in semantic space by using the subject's factor scores as coordinates, it is also possible to locate another concept in the same semantic space, and then determine the similarity of connotative meaning of the two concepts.

Osgood, Suci and Tannenbaum (1957) suggest that the similarity between the meaning of concepts can be measured by calculating the linear distance between the points in semantic space. This distance is similar to the distance you might calculate between cities on a map.

Concepts which have a small distance between them are very similar in meaning; concepts which have a large distance between them have a different meaning.

Osgood, Suci, and Tannenbaum (1957) suggested that the generalized distance formula of solid geometry could be used to calculate the linear distance between two concepts in semantic space. The distance D between two concepts is calculated by finding the difference between the concepts' respective factor scores, squaring this difference, summing the squared differences and finding the square root of this sum, i.e., D equals $((\text{sum(differences)}^2)^{\frac{1}{2}}$.

For example, the distance between Concept A (1.0, 2.5, 4.0) and Concept B (2.0, 1.5, 6.0) is (1.0^2 plus -1.0^2 plus $2.0^2)^{\frac{1}{2}}$, and $(6.0)^{\frac{1}{2}}$ equals 2.45. The minimum distance D between two concepts is always 0.0, which indicates that the two concepts are identical. The maximum distance depends on the maximum value of your measuring instrument; for the semantic differential with a seven point scale, the maximum distance is 10.4. So, it can be seen that concepts A and B are fairly similar in meaning.

Reliability and Validity

Two properties which any measuring instrument, e.g., the semantic differential, should have are reliability and validity. Reliability refers to the consistency with which repeated measurements of the same object produce the same results. An instrument is valid when it measures what it intends to measure. For example, the semantic differential intends to measure the meaning of concepts, however, simply assuming that the semantic differential measures meaning does not prove that it

does measure meaning. The semantic differential is a valid measure of meaning to the extent that it can be shown to measure meaning.

The reliability of the semantic differential can be measured in three different ways: item reliability, factor score reliability, and concept-meaning reliability (Osgood, Suci, and Tannenbaum, 1957). Item reliability refers to the reproducability of each concept-scale pair, i.e., does the subject give the same rating to an item at two different times. Factor-score reliability refers to the reproducability of factor-scores under retest conditions. Concept-meaning reliability refers to the reproducability of points in semantic space when the same measure operation is applied.

Osgood, Suci, and Tannenbaum (1957) use the error of measurement as an indication of reliability; the smaller the error of measurement, the better or more reliable the measurement is. Luria (1953), Bopp (1955), and Osgood, Suci, and Tannenbaum (1957) all report item reliabilities, i.e., errors of measurement, of approximately .70 scale units. Each semantic differential scale ranges from one to seven and the distance between any two whole numbers in this scale is called a scale unit. Osgood, Suci, and Tannenbaum (1957) state that "from the most conservative viewpoint, the average error of measurement with the semantic differential is no more than one scale unit" (p. 135). That is, a person is not likely to change his response to an item by more than one scale unit.

Osgood, Suci, and Tannenbaum (1957) report that factor score errors of measurement are even smaller than the errors of measurement for the individual items. In reporting on the results of Howe's and Osgood's (1954) study, they state that:

> Here we do not find any appreciable difference between factors in terms of reliability. Cultural meanings of concepts prove to be very stable--for any factor, a shift of only about .4 scale units is significant at the 5 per cent level (p. 139).

All of the above findings indicate that the semantic differential is a reliable measuring instrument.

Is the semantic differential a valid measuring instrument?

> Ideally, we should correlate semantic differential scores with some independent criteria of meaning--but there is no commonly accepted quantitative criterion of meaning. In lieu of such a criterion, we have fallen back on what is usually called "face validity" (Osgood, Suci, and Tannenbaum, 1957, p. 140).

Face validity refers to the fact that a measuring instrument makes the same kind of distinctions about the data that an observer would make without the aid of the measuring instrument. Osgood and Luria (1954) and Howes and Osgood (1954) both report high face validity. Osgood, Suci, and Tannenbaum (1957) state that:

> Throughout our work with the semantic differential we have found no reasons to question the validity of the instrument on the basis of its correspondence with the results to be expected from common sense (p. 141).

It has been mentioned that no commonly accepted criterion for meaning exists, but in several cases validity criteria of a specific nature are available. For example, Suci (1952), Reeves (1954), and Osgood, Suci, and Tannenbaum (1957) all report high validity coefficients. Thus there seems to be considerable evidence that the semantic differential is a valid measuring instrument for connotative meaning.

Since the present study is very similar to many of the above semantic differential studies, the present author can see no reason to question the assumption that the present semantic differential is both

a reliable and valid measurement of the connotative meaning of mental health concepts.

Phase One

The most important task in the development of the semantic differential was the identification of the concepts which were used in the analysis (Osgood et al., 1957). The present study required the selection of six concepts which were related to the concept of "mental health." These six concepts were chosen from a list of concepts generated by a Q-sort which was administered to three groups of graduate faculty members.

Subjects for Phase One

The three groups of laymen selected for study were engineers, educators, and businessmen. These groups were chosen for three reasons: (1) The members of each group are professionals, and thus, are likely to be the leaders in a community. The community leaders are the first people a community mental health center would have to communicate with. (2) Each of these groups has a different degree of familiarity with the concept of "mental health." "Mental health" is a commonly used term in education, a moderately used term in business, and a seldomly used term in engineering. (3) These three groups have different professional orientations; the present author expected that if "mental health" had a different meaning for different groups of people, then this difference would be seen in these three groups of subjects.

Target Population and Sampling. The present author planned to use four volunteers from the graduate faculty of the College of Education,

the College of Business Administration, and the College of Engineering. These faculty members could provide a better estimate of the range of mental health related concepts used in their professions than the present author could. It was decided that four subjects from each group were adequate for generating a list of acceptable concepts.

Two factors interacted to make it impossible to obtain four subjects from each professional area. First, the present study was conducted during the Summer Session of Oklahoma State University. Either the faculty were not present at the time the study was conducted or the present author was unable to contact the faculty members who were present because they had unusual office hours. Second, the Q-sort was not an attractive task. Five subjects who agreed to take the Q-sort reneged; two of these subjects said they did not have the time, and the remaining three subjects felt that the Q-sort was too difficult for them to complete. Thus phase one was conducted with three subjects from each of the three professional areas. Only one of these faculty members was female.

Materials. The only material used in phase one was a Q-sort of mental health concepts. A Q-sort is a technique developed by Stephenson (1953) for reducing a set of objects to a smaller number of subsets; the objects in each subset should be similar in some way. The objects sorted in the present study were concepts related to "mental health."

Each subject was requested to list all of the words which he could think of that were related to the concept "mental health." Next the subject was instructed to place all the words which were similar in some way together in groups. Finally, each subject was instructed

to place a name above each group of words. (See Appendix A for the complete Q-sort booklet.)

Thus each subject generated a list of group names; unfortunately, these group names were not what the present author intended. The subjects produced group names such as "popular descriptions of mental disorders," "informal class descriptors," and "constructive mental abilities." (See Appendix B for a complete list of group names.) Since these terms were not what the present author was interested in, it was decided to use the "words related to mental health" from part one of the Q-sort to generate a list of concepts for use with the semantic differential.

All of the responses to part one of the Q-sort for each of the education faculty members were grouped together to form a list of mental health related words for education. A list was generated in the same way for business and engineering faculty. These three lists were used to select concepts for the semantic differential. (See Appendix C for a list of the words generated by each faculty.)

Procedure. The main purpose of the Q-sort was to give the experimenter an idea of the range of terms used by the three groups of subjects. Each group of subjects generated a list of "mental health related terms." If the experimenter generated the lists of concepts himself, he might have restricted the range of concepts included in each list and thus introduced an experimenter bias into the experiment. The Q-sort technique reduced experimenter bias in the selection of concepts for the semantic differential. However, experimenter bias was not totally eliminated since ultimately the experimenter selected the six concepts used in the semantic differential.

The concepts for the semantic differential were chosen on the basis of the following three criteria: (1) If possible the concept was familiar to all three groups, i.e., the concept was included in each of the three lists of concepts; (2) when criterion one was met, the concepts which occurred most frequently were chosen; and (3) concepts which were familiar to each group, but which occurred infrequently, were also included. Criterion three was included to insure that the concepts chosen for the semantic differential covered the entire semantic space (Osgood et al., 1957).

The six concepts chosen for the semantic differential were stability, self-confidence, adjusted, self-control, crazy, and mental health. For the semantic differential, "stability" was changed to "emotional stability" to make the concept less ambiguous. Crazy was included as an infrequent term under criterion three above. At least three of the subjects included terms like crazy, insane, sick, and psychotic in their lists of mental health related words. In order to cover the entire semantic space of mental health related terms, "crazy" was included as a concept in the semantic differential. (See Table I for the frequencies of the selected concepts).

Phase Two

Phase two consisted of constructing and administering the semantic differential to ninety graduate students from the Colleges of Engineering, Education, and Business Administration.

TABLE I

THE FREQUENCY OF CONCEPTS SELECTED FOR THE SEMANTIC DIFFERENTIAL FROM THE Q-SORTS OF EACH GROUP OF SUBJECTS

Concept	Engineering	Education	Business	Total
(Emotional Stability) Stability	2	1	1	4
Self Confidence	0	1	3	4
Adjusted	2	1	0	3
Self Control	1	1	1	3
Crazy--or (Similar Term)	1	0	1	2
Mental Health	4	5	7	16

Target Population and Sampling

The present author planned to take three samples of thirty subjects each from the Graduate Colleges of Engineering, Education and Business Administration. Graduate students were used to approximate the responses of professionals in the above fields because it was impossible to obtain the necessary number of subjects in each field without using students. Rather than mix professionals and students, it was decided to use only graduate students from Oklahoma State University. Faculty were chosen in phase one to correspond to the graduate students used in phase two.

The responses of graduate students were a reasonable approximation to the responses of professionals for two reasons: (1) in many cases the graduate students had returned to school after having worked in

field of interest for a number of years. Thus these students were similar in many ways to the professionals working in the field. (2) Graduate students who had not worked in their field yet, still have had ample time to absorb the frame of reference of their profession and their connotative meaning of mental health terms should be similar to the connotative meaning adopted by professionals in their field. (See Table II for characteristics of the sample subjects.)

Materials

The semantic differential was the only material used in phase two. The semantic differential consisted of a set of concepts which were chosen during phase one and a set of scales chosen during phase two. The subject was instructed to rate each concept on each bipolar scale. The major problem of phase two was to select the appropriate scale for the semantic differential.

A scale consisted of a bipolar adjective pair, e.g., good-bad, with each scale ranging from one to seven. One indicates extremely good; seven indicates extremely bad. Two criteria were used in the selection of scales for the semantic differential: (1) The scale was relevant to the concepts being judged. If the scale was irrelevant to the concept being judged, the subject gave the concept a neutral rating of four on that scale and no information was gained by using that scale. (2) Each scale was related to only one factor, i.e., the scale was factorially pure.

Osgood et al. (1957) identified eight dimensions or factors of semantic space. Three of these dimensions accounted for 97 percent of the variance in the semantic space: Evaluation, Activity, and Potency.

TABLE II

CHARACTERISTICS OF THE SAMPLE OF SUBJECTS WHO RESPONDED TO THE SEMANTIC DIFFERENTIAL

Descriptor	Engineering	Education	Business
SEX			
Male	27	15	17
Female	1	17	11
Non-Response	1	0	0
TOTAL	29	32	29
AGE			
21	1		1
22	4		2
23	4	4	3
24	1	3	2
25	3	2	2
26	2	3	4
27	2	3	
28	2	2	4
29	5	2	1
30		2	
31	2		
32			
33		1	3
34	1	1	1
35 or greater	1	2	2
Non-Response	1	1	4
TOTAL	29	32	29
MAJOR			
General Engineering	2		
Industrial Engineering	12		
Electrical Engineering	2		
Mechanical Engineering	11		
Civil Engineering	1		
Agricultural Engineering	1		
English Education		1	
ABSED		5	
Higher Education		12	
Secondary Education		7	
Elementary Education		3	
Curriculum and Instruction		3	
Business Education			13
General Business			4
Accounting			5
M.B.A.			5
Management			1
Non-Response	0	0	1
TOTAL	29	32	29

The present experiment used only these three dimensions. Thus for a scale to be considered for the present experiment, it had to have a high factor loading on one of the above dimensions and low loadings on the other two dimensions. (See Table III for a list of the scales chosen for the semantic differential and their respective factor loadings.)

TABLE III

SEMANTIC DIFFERENTIAL SCALES
AND FACTOR LOADINGS

Scale	Factor Loading		
	Evaluation	Potency	Activity
Good-Bad	.88	.05	.09
Valuable-Worthless	.79	.04	.13
Pleasant-Unpleasant	.82	-.05	.28
Beautiful-Ugly	.86	.09	.01
Strong-Weak	.19	.62	.20
Heavy-Light	-.36	.62	-.11
Rugged-Delicate	-.42	.60	.26
Ferocious-Peaceful	-.36	.62	.41
Sharp-Dull	.23	.07	.52
Hot-Cold	-.04	-.06	.46
Active-Passive	.14	.04	.59
Fast-Slow	.01	.00	.70

SOURCE: Osgood, et al., 1957

Procedure

The semantic differential was administered to the subjects either at the beginning or end of a class period. Directions for completing

the instrument were included with the test form; the instrument was designed to be self-administering. The subjects rarely asked questions about completing the semantic differential, and the subjects rarely took over five to ten minutes to complete the instrument. (See Appendix D for the complete semantic differential.)

CHAPTER IV

RESULTS

Hypothesis One

Null hypothesis one stated that there would be no difference between the three groups of subjects in the connotative meanings of each concept, i.e., do the six concepts have the same meaning for each of the three groups of subjects? Null hypothesis one was tested with an X^2 test of independence (Connover, 1971). The X^2 test actually tested the hypothesis that the three distributions of factor scores were selected from the same population. Since there were six concepts in the semantic differential and each concept was measured by three factors, then each subject produced eighteen factor scores. It is the distribution of these individual factor scores which was tested with an X^2 test. (These individual factor scores are contained in Appendix E.)

Eighteen X^2 tests of independence were calculated; one X^2 was calculated for each of the eighteen factor scores. (See Table IV.) Each concept had an Evaluation factor score, a Potency factor score, and an Activity factor score.

The X^2 values from each of the three factor scores on each concept were added together to produce an overall X^2 test for each concept. These six X^2 tests are contained in Table IV. The results of these overall X^2 tests suggest that there is no difference between the

TABLE IV

EIGHTEEN X^2 TESTS OF INDEPENDENCE BETWEEN THE THREE GROUPS OF FACTOR SCORES AND EACH CONCEPT ADDED TOGETHER TO FORM AN OVERALL X^2 TEST FOR EACH CONCEPT

Concepts	Evaluation	Activity	Potency	Overall X^2	d.f.
MENTAL HEALTH	16.67	12.03	11.48	40.18*	24
probability level	.033	.149	.175	.05	
EMOTIONAL STABILITY	6.49	6.74	9.98	23.22	24
probability level	.59	.56	.265	.70	
SELF CONTROL	7.21	9.23	10.84	27.29	24
probability level	.51	.32	.21	.30	
SELF CONFIDENCE	5.10	8.83	6.12	20.05	24
probability level	.74	.35	.63	.80	
ADJUSTED	6.61	3.50	7.60	17.71	22
probability level	.58	.89	.27**	.50	
CRAZY	8.97	13.95	11.60	34.52*	22
probability level	.34	.082	.075**	.05	

*Significant at the .05 probability level

**One concept category was pooled so these X^2 are based on 6 degrees of freedom. All other individual X^2 tests are based on 8 degrees of freedom. Thus two concepts are based upon 22 d.f. (8 + 8 + 6).

distributions of the combined factor scores for the three groups on the following concepts: EMOTIONAL STABILITY, SELF CONTROL, SELF CONFIDENCE, and ADJUSTED. Only two of the overall X^2 tests were significant. The probability level for CRAZY was less than .05 and the probability level for MENTAL HEALTH was less than .05.

Since the factor scores represent the location of a concept in semantic space, i.e., the meaning of a concept is represented by its factor scores, the present author concludes that there is no difference in the connotative meaning of the following concepts for the engineering, education, and business subjects: EMOTIONAL STABILITY, SELF CONTROL, SELF CONFIDENCE, and ADJUSTED. Thus each of the three groups of subjects shares a common meaning for each of the above concepts.

However, the present author concludes that CRAZY and MENTAL HEALTH do have a different meaning for each of the three groups of subjects. This is indicated by their significant overall X^2 tests. For both of these concepts all possible pairwise comparisons between the three groups were computed using a X^2 test. The probability level for all six pairwise comparisons was less than .05 in all cases. Thus it is concluded that the engineering, education, and business subjects have different connotative meanings for the concepts MENTAL HEALTH and CRAZY.

Hypothesis Two

It has been mentioned in Chapter III that the similarity in connotative meaning of two concepts can be measured by their distance D in semantic space. If the distances between all six concepts are calculated, these distances can be placed in a six by six matrix. The D

matrix represents the conceptual structure of the set of six concepts; it indicates the similarity of all concept pairs used in the semantic differential. D matrices for engineering, education, and business were calculated. (See Table V) The D's were calculated from the average Evaluation, Potency, and Activity factor scores for each group. These average factor scores are listed in Table VI.

TABLE V

THE D MATRICES FOR ENGINEERING, EDUCATION, AND BUSINESS SUBJECTS CONTAINING THE LINEAR DISTANCE BETWEEN EVERY PAIR OF CONCEPTS

Concept	1	2	3	4	5	6
			Engineering			
1. MENTAL HEALTH	-	.654	.690	.975	.470	3.308
2. EMOTIONAL STABILITY		-	.232	.372	.693	3.770
3. SELF CONTROL			-	.169	.652	3.788
4. SELF CONFIDENCE				-	.805	3.424
5. ADJUSTED					-	3.141
6. CRAZY						-
			Education			
1. MENTAL HEALTH	-	.465	.481	.448	.282	2.702
2. EMOTIONAL STABILITY		-	.221	.054	.379	3.149
3. SELF CONTROL			-	.217	.294	2.196
4. SELF CONFIDENCE				-	.378	3.129
5. ADJUSTED					-	2.885
6. CRAZY						-
			Business			
1. MENTAL HEALTH	-	.767	.609	.651	.392	3.918
2. EMOTIONAL STABILITY		-	.444	.337	.498	4.188
3. SELF CONTROL			-	.343	.475	4.020
4. SELF CONFIDENCE				-	.692	4.268
5. ADJUSTED					-	3.745
6. CRAZY						-

TABLE VI

THE MEAN FACTOR SCORES AND MEAN STANDARD DEVIATION FOR EACH GROUP OF SUBJECTS ON EACH CONCEPT

Concept	Evaluation		Activity		Potency	
	Mean Factor Score	s.d.	Mean Factor Score	s.d.	Mean Factor Score	s.d.
			Engineering			
MENTAL HEALTH	2.27	1.26	3.12	1.13	3.96	.88
EMOTIONAL STABILITY	1.95	.80	3.15	.75	3.58	.94
SELF CONTROL	2.00	.68	2.99	.81	3.45	.81
SELF CONFIDENCE	1.87	.66	2.91	.81	3.37	.70
ADJUSTED	2.64	.98	3.10	.87	3.53	.63
CRAZY	5.59	1.33	3.90	.68	4.12	.95
			Education			
MENTAL HEALTH	2.50	1.14	3.32	.60	3.82	.55
EMOTIONAL STABILITY	2.08	1.12	3.21	.76	3.67	.61
SELF CONTROL	2.32	1.13	3.24	.77	3.64	.77
SELF CONFIDENCE	2.10	1.44	3.19	.76	3.67	.66
ADJUSTED	2.29	.96	3.50	.96	3.77	.54
CRAZY	5.15	1.29	3.95	.76	3.85	.96
			Business			
MENTAL HEALTH	2.01	.82	3.01	.95	3.92	.95
EMOTIONAL STABILITY	1.75	.65	2.93	.74	3.70	.84
SELF CONTROL	1.82	.59	3.24	.57	3.38	.58
SELF CONFIDENCE	1.68	.61	2.93	.72	3.37	.74
ADJUSTED	2.09	.89	3.30	.82	3.77	.66
CRAZY	5.61	1.20	3.62	.99	4.57	1.19

The D matrix for each group represents the conceptual structure of "mental health" for each group. If two conceptual structures are very similar, the two groups will perceive the concepts in a conceptual structure as being alike. Hypothesis two states that the conceptual structure of "mental health" concepts will be different for the three

groups, i.e., uncorrelated. This hypothesis was tested by correlating the corresponding cells in the D matrix for two groups. There are fifteen different D values in each matrix; fifteen ordered pairs (D_{ab}, D_{ab}'....D_{ef}, D_{ef}') were correlated with a Pearson product moment correlation. This correlation matrix is listed in Table VII.

TABLE VII

PEARSON PRODUCT MOMENT CORRELATIONS BETWEEN THE D MATRICES FOR EACH PAIR OF GROUPS SAMPLED WITH THE SEMANTIC DIFFERENTIAL

	Engineering	Education	Business
Engineering	1.00	.9908***	.9914***
Education		1.00	.9978***
Business			1.00
Mean D[a]	1.34	1.20	1.69
Standard Deviation[a]			

N equals 15
***Significant at the .0001 level
[a]These means and standard deviations provide additional evidence of between group similarities.

Since the correlation for all pairs of conceptual structures is at least .990, with 14 degrees of freedom, the null hypothesis that there is no linear relationship between the three possible pairs of groups must be rejected for each pair of groups. The probability level for each pair of groups is .0001. Thus it is concluded that all pairs

of conceptual structures are significantly related, i.e., the conceptual structures for all three groups are very similar.

Comparison of the Connotative Meaning of Concepts Between and Within Groups

What connative meaning do the mental health concepts have for each group? Within each group, do concepts have similar meanings? How are the three groups of subjects different in their connotative meanings? These three questions will be answered descriptively; no statistical proof will be offered. A casual glance at Table V reveals that for each group, five concepts are very similar in meaning: MENTAL HEALTH, EMOTIONAL STABILITY, SELF CONTROL, SELF CONFIDENCE, and ADJUSTED. Similarity is indicated by the very small D's between each of these concepts. The largest D for any of three groups is .97; even this D is still very small.

Examination of the D matrices in Table V also indicates that all three groups perceive CRAZY as being different from the remaining five concepts. However, the present author was surprised that the distance between CRAZY and the other concepts was not larger. Remember, the maximum D possible is 10.4; the largest D between CRAZY and any of the other concepts was 4.2.

Evidence for differences between the groups has already been presented in Table IV. It was noted here that each group had a different connotative meaning for two out of the six concepts: MENTAL HEALTH and CRAZY. The three groups shared the same connotative meaning for the remaining four concepts. Examination of the standard deviations in Table VI reveals that the three groups are equally variable in their

connotative meanings. The only clearcut difference in variability between the groups is on the evaluation factor score. Education subjects have more variability in their factor scores than either the Business or Engineering subjects.

It should also be noted at this point that despite a significant difference in connotative meaning between groups for the concepts MENTAL HEALTH and CRAZY, that the magnitude of this difference was not very large. The largest difference between two average factor scores was .72 scale units, i.e., two groups perceived the concept differently but on a semantic differential seven point scale, this difference in meaning would be slightly less than one scale point.

Finally, the connotative meanings of the different concepts need to be described. This description will be drawn from the average factor scores in Table VI. Table VI actually gives the most accurate description of the concept's connotative meanings, but a verbal description might also be useful.

Figure 1 is a graphical presentation of the data in Table VI; the factor scores have been transformed from numbers to points on a bar graph. The three different factor scores (Evaluation, Activity, and Potency) are presented by three different symbols. Thus each concept has three bar graphs associated with it. These bar graphs are on the same line and to the right of the concepts. Each bar represents the interval which just includes all three groups' factor scores. For example, the average MENTAL HEALTH, Evaluation factor scores for each group were: Engineering (2.47), Education (2.50), and Business (2.01). The interval which includes all three factor scores is from 2.01 to 2.50; thus the bar graph for the MENTAL HEALTH Evaluation factor extends

from 2.01 to 2.50. This interval could have been read approximately from the semantic differential scale at the bottom of Figure 1. However, the graph was not intended for this purpose.

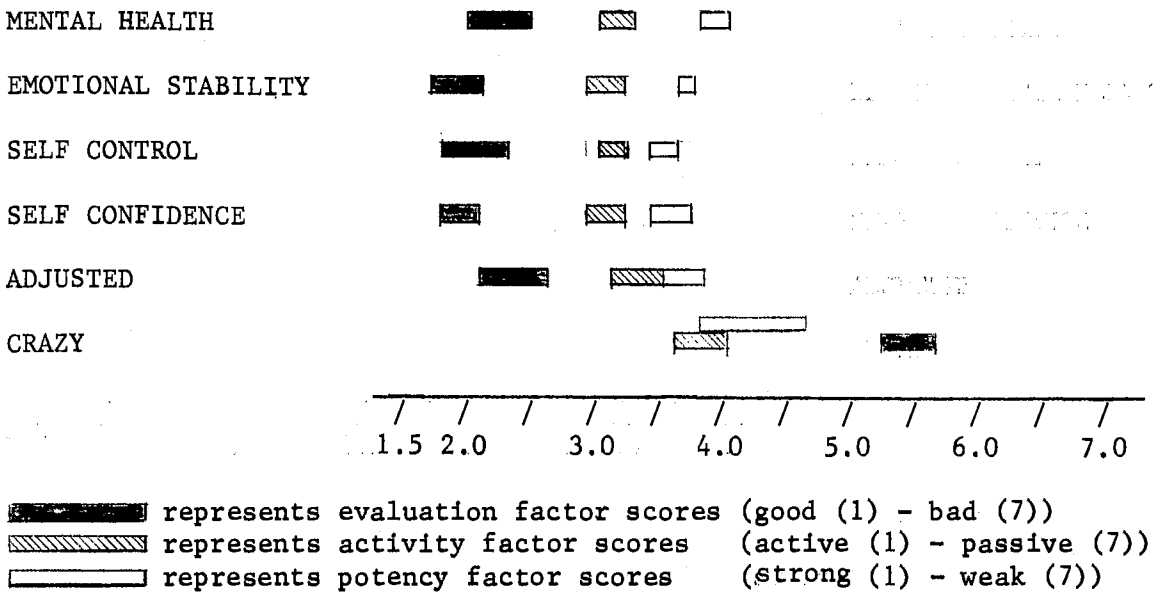

Figure 1. Bar Graph of Average Factor Scores for Each Concept in Table VII. Each Bar Represents an Interval which Includes the Average Factor Score for Each Group

Figure 1 was designed to illustrate graphically the connotative meaning of each concept while ignoring differences in meaning between groups. It is reasonable to ignore group differences for two reasons: (1) there was no statistical differences in connotative meaning for four of the six concepts and (2) when the meaning of a concept was different for two groups, the magnitude of the difference was not large enough to make a meaningful verbal distinction.

If the reader will accept the assumption that for practical purposes the three groups of subjects had similar meanings for each concept,

then the factor scores for each group of subjects can be averaged together. The midpoint of each bar graph gives a rough approximation to this group average.

If the reader will look at the midpoint of the bar graph for the evalatuion dimension, he will notice that five of the six concepts cluster about the point 2.1, and that the evaluation dimension, for all five concepts, could adequately be described as "moderately good." (The quantity 2.1 is actually the grand mean for all concepts on the evaluation dimension, excluding the concept CRAZY.) A similar analysis could be performed for the remaining two dimensions.

Figure 1 indicates that the concept CRAZY has a distinctly different meaning from the other five concepts. Therefore, the concepts other than CRAZY can be grouped together to form a cluster of similar concepts; this cluster will be referred to as cluster one. The concept CRAZY can be placed in a cluster by itself which will be referred to as cluster two. The grand means for each dimension in cluster one are: Evaluation (2.11), Activity (3.11), and Potency (3.64); the grand means for each dimension of cluster two are: Evaluation (5.46), Activity (4.13), and Potency (3.83).

These grand means provide an excellent way to verbally describe the approximate connotative meaning of the concepts used in the semantic differential. Grand means of 1.0 or 7.0 will be described as "very X". Grand means of 2.0 or 6.0 will be described as "moderately X" and 3.0 or 5.0 as "slightly X." Osgood, Suci, and Tannenbaum (1957) suggest that scores which cluster around 4.0 are meaningless to the subject. The concepts in cluster one resemble Jahoda's (1958) concept of positive mental health; cluster one will be referred to as Positive Mental Health. Cluster two will be referred to as Crazy.

Thus the subjects from all three groups perceived Positive Mental Health as moderately good (2.11) and slightly active (3.11); it was not meaningful to the subjects to describe Positive Mental Health in terms of the potency dimension (3.64), i.e., Positive Mental Health was not perceived as being either strong or weak. The subjects perceived Crazy as slightly to moderately bad (5.46). The potency (3.83) and activity dimensions (4.13) of Crazy were not meaningful to the subjects.

The reader can assign the above word values to the factor scores from Table VI. When this is done, the above verbal description fits fifty of the fifty-four observations in Table VI. The four observations which do not fit the above verbal description are only in error by half of a scale unit. Thus the above verbal description provides a good summary of the data with only a small loss in accuracy.

Summary of Results

This analysis produced three types of results: (1) comparison of the meaning of concepts between and within the three groups of subjects; (2) comparison of the conceptual structure of the three groups of subjects; and (3) a description of the connotative meanings of the "mental health related terms."

Comparisons of Concepts Between and Within Groups

Hypothesis one (There will be no difference between groups of subjects in the connotative meanings of each concept.) was rejected at the .05 significance level with 24 degress of freedom. It was concluded that Engineering, Education, and Business subjects have

different connotative meanings for the concepts MENTAL HEALTH and CRAZY. There was no difference between the three groups in the connotative meanings of EMOTIONAL STABILITY, SELF CONFIDENCE, SELF CONTROL and ADJUSTED.

The three D matrices in Table V provide a qualitative indication that within each group of subjects, MENTAL HEALTH, EMOTIONAL STABILITY, SELF CONTROL, SELF CONFIDENCE, and ADJUSTED all have similar connotative meanings. Within each group of subjects CRAZY has a connotative meaning which is different from the other five concepts.

Comparisons Between Conceptual Structures

The set of factor scores for a concept are the coordinates for that concept as a point in semantic space. The pattern of these concept points in semantic space represents the conceptual structure of a group or of an individual.

Hypothesis two (The conceptual structure of mental health concepts will be different, i.e. uncorrelated, for each group.) was rejected at the .0001 significance level with 14 degrees of freedom. Thus it is concluded that the conceptual structures for all three groups of subjects are very similar.

When you consider that these groups of subjects have different professional backgrounds and dissimilar connotative meanings for some concepts, it is surprising to find conceptual structures which are so similar. These observations indicate that each group of subjects employs essentially the same frame of reference in making judgments about "mental health concepts," i.e., they have the same set of values; they make the same types of discriminations with respect to "mental

health." For example, if two people share the same frame of reference, they will judge things by the same standards or same values. Thus in choosing a leader they might agree that a leader should be strong, dynamic, and creative; but they are still likely to rate two leaders differently because they perceive the two leaders differently, not because their frames of reference are different.

Description of the Meaning of "Mental Health Terms"

The factor scores in Table VI give the most specific descriptions of the connotative meanings of all concepts. However, it is difficult to make verbal distinctions between such factor scores as 2.05 and 2.30. Figure 1 was designed to illustrate the factor scores in Table VI and also to provide the basis for a more parsimonious description of the factor scores.

Figure 1 ignores between group differences and illustrates how grand means for the three semantic differential dimensions provide a more parsimonious description of connotative meaning. Between group differences can be ignored for two reasons: (1) there was no difference in meaning for four of the six concepts and (2) where a difference in meaning between groups existed, the magnitude of the difference was not large enough to make a meaningful verbal distinction between the two group's connotative meanings.

Inspection of Table VI and Figure 1 revealed that the six concepts could be divided into two clusters of concepts. Cluster one was called Positive Mental Health and included all the concepts except CRAZY. Cluster two contained only the concept CRAZY and thus was called Crazy. Grand means for each dimension and each cluster were computed. The

grand means lead to the following description of the connotative meaning of the "mental health related concepts." The subjects in all three groups perceived Positive Mental Health as "moderately good" (2.11) and "slightly active" (3.11). Positive Mental Health was not perceived as either strong or weak by the subjects, i.e., the potency dimension (3.64) was meaningless in relation to the Positive Mental Health cluster. The subjects perceived Crazy as "slightly to moderately bad" (5.46); the potency (3.83 and activity dimensions (4.13) were not meaningful to the subjects.

CHAPTER V

DISCUSSION

The main purpose of the present study was to determine if Education graduate students, Business graduate students, and Engineering graduate students have different connotative meanings for a set of mental health related concepts. If these groups of students do have different meanings for mental health terms, then it suggests that mental health professionals might have difficulty working with individuals from these groups because they do not share a common frame of reference.

In general the results of the present study suggest that the three groups of students do have different connotative meanings for some concepts, e.g., MENTAL HEALTH and CRAZY. However, these groups shared the same meaning for four of the six concepts, i.e., EMOTIONAL STABILITY, SELF CONFIDENCE, SELF CONTROL and ADJUSTED. Will this difference in connotative meaning cause a communication problem for mental health professionals? Two lines of evidence lead the present author to believe that these perceptual differences will not cause a communication problem.

The first line of evidence is contained in Table VI; observe the average factor scores of each group for MENTAL HEALTH and CRAZY. These factor scores are significantly different for each group of students as measured by a X^2 text of independence. For example, the Business MENTAL HEALTH Evaluation factor score (2.01) is significantly different

from the Education MENTAL HEALTH Evaluation factor score (2.50). But note that these factor scores are of the same magnitude as the other concepts. That is, there is not a wide discrepency in the perceptions of the three groups with regard to MENTAL HEALTH. The three groups are in general agreement that MENTAL HEALTH is "moderately good," despite the fact that there is a significant difference in meaning for the three groups. If the Business subjects perceived MENTAL HEALTH "very good," and Education students perceived MENTAL HEALTH as "very bad," then communication problems about MENTAL HEALTH would be likely to occur.

Thus the data in Table VI suggest that the discrepancies in perception observed between the three groups are not large enough to cause practical problems.

The second line of evidence is drawn from the results of hypothesis two. When this hypothesis was tested, it was found that the three groups of students had very similar conceptual structures of mental health concepts. This indicates that the three groups of students have essentially the same frame of reference for mental health concepts. This similarity can only aid in the communication process.

Relation of Findings to Previous Research

The author found no research which related directly to the research hypotheses. However, the two clusters of concepts which were formed offer some support for Wright's (1971) investigation. Because the concepts in cluster one were similar to the concepts which Jahoda (1959) used to describe her concept of "Positive Mental Health," this cluster was called Positive Mental Health, e.g., SELF CONTROL is similar to

"autonomy," SELF CONFIDENCE is similar to "self perception," ADJUSTED and EMOTIONAL STABILITY are similar to "integration."

Wright (1971) tried to verify Jahoda's six characteristics empirically. He showed that Jahoda's six characteristics could be represented by two independent factors. Six of Jahoda's characteristics collapsed into the two factors found by Wright (1971), but Wright could not find any factor which represented Jahoda's characteristic of "integration." The present study reduced the five Mental Health Concepts to one cluster as opposed to the two factors which Wright (1971) found. The reader should be reminded that this is a very gross type of support for Wright (1971). The two studies had very different methodologies and worked with two different types of data, i.e., connotative meaning as opposed to sociometric-behavioral data.

Implications and Future Research

All of the concepts in cluster one were positively evaluated. This suggests that subjects from these groups might be motivated to work toward these concepts. If this were true, these subjects might help set up primary prevention programs in the community or have emotional checkups for themselves and their families. These subjects seem to value "positive mental health;" this attitude should make it easier for them to learn new mental health behaviors.

A positive attitude toward mental health should aid in the process of improving mental health. However, it needs to be determined how much it will aid. For example, is factual information about mental health, e.g., from the newspaper, enough to get the person to change

his behavior? Or would group or individual counseling also be necessary? These are important questions for future research.

Future research should also be directed toward broadening the areas in which mental health concepts are applied. For example, mental health principles are rarely utilized in engineering, despite the fact that they have many potential uses. Industrial engineers design machines and factories so that they are efficient and safe; aesthetic criteria are also used. Mental health principles could also be used as criteria; many environmental stresses could be designed out of existence if mental health were a criterion, e.g., noise levels, monotonous work, jet lag for executives, the bio-rythmic imbalances caused by night shifts.

Civil engineers design public buildings and public works like roads and parks. Much basic research needs to be done in this area before mental health principles can be applied. For example, do the shapes of rooms or buildings have an effect upon tension levels? Would a public park nearby help a person to relax? What effect will an urban renewal project have upon the emotional health of the resident?

Mental health principles could also be used as criteria for management decisions. For example, what effect will company relocation have upon the employees' morale? Psychological sick days could be recognized as legitate reasons for staying home. Stress levels in many executive positions could be reduced by redefining the job demands to include non-stressful and relaxing functions.

The present study assumed that mental health communication problems were based mainly upon differences in connotative meanings. Future research should investigate differences in denotative meaning as well as connotative meaning to assess the effects of each upon communication.

The data from the present study might have been improved by using a different set of subjects or by using two sets of subjects to evaluate two different aspects or dimensions of group differences. The present study evaluated highly educated subjects on the dimension of familiarity with the concepts. Future research should also evaluate the education dimension at the same time. This would allow the investigator to evaluate the effect that education has on the general familiarity of concepts.

The present study raised three important questions which need to be answered before practical applications will result from work in this area:

1. Frequent experience or use of a concept will speed up the process of concept formation and produce a concept which is highly differentiated with respect to denotative meaning. Does the same process of concept formation work to differentiate connotative meaning?
2. How far apart in connotative meaning do two concepts have to be before there is difficulty in communication? Also, how far apart in meaning do two denotative concepts have to be before there is difficulty in communication?
3. When people share the same frame of reference, does this enhance their ability to communicate within this frame of reference?

Limitations of Study

The major limitation of the present study was the sampling procedure for subjects. Although the present author believes that the graduate students used in the study provide an adequate approximation of the

target population, i.e., professional businessmen, educators, and engineers working in their respective fields, the conclusions from the present study can only be applied to the survey population, i.e., graduate students from Oklahoma State University in the fields of Education, Engineering, and Business. The present author believes that future studies of this nature should sample directly from the populations of interest.

Two extraneous variables which could have influenced the results of the present study were sex and education. Sex could not be controlled for because of the limited number of women engineers. Educational level could not be controlled because of the narrow limits of the survey population, i.e., graduate students. By definition these subjects will have a bachelor's degree and not a doctoral degree.

Due to the results of the cluster analysis the present author does not believe that the concepts chosen for the semantic differential covered the entire semantic space of "mental health related terms." Future research should include more concepts in the semantic differential, perhaps as many as twenty and should include a wider variety of concepts.

Finally, one aspect of phase one needs to be called to the reader's attention because it limits the generalizability of the present study and also suggests a direction for future research. During phase one the present author observed a good deal of variability in the attitudes with which the professors approached the task of completing the Q-sort. None of the Education professors felt that the Q-sort would be difficult to complete; however, two education professors did not complete the Q-sort because they did not have the time.

In general, both the Business and Engineering professors appeared intimidated by the Q-sort task. They seemed to be insecure about working with the concept of mental health rather than insecure about using the Q-sort technique which was unfamiliar to them. Many of these professors refused to take the Q-sort saying that they didn't know anything about mental health. They still refused even when it was explained that the study was interested in the laymen's opinion, not an expert opinion.

The attitudes of these professors toward mental health is in sharp contrast to the attitudes of the graduate students who took the semantic differential. The graduate students from all three fields cooperated with the experimenter and none of them mentioned that they lacked expertise in the area of mental health.

These contrasting attitudes can be explained by the nature of the tasks which the two sets of subjects performed. The semantic differential is a structured task with limited responses; structured tasks are usually much less anxiety producing than unstructured tasks. The Q-sort is an unstructured task with unlimited response possibilities.

There were only a few between group differences in meaning on the semantic differential; the above observation suggests that if connotative meaning was measured by a more unstructured task than the semantic differential, that the between group differences in connotative meaning might be larger, i.e., between group differences were minimized by the structured nature of the semantic differential. A more unstructured task might maximize the between group differences. So the reader is reminded to be cautious in interpreting the results of the present study, since the nature of the task studied might be influencing the results.

CHAPTER VI

SUMMARY

Mental health professionals will need to deal with many different kinds of people in the course of establishing and maintaining a community mental health center. The success of the center will depend largely upon the cooperation of community leaders; thus it is important that the mental health professionals at the center be able to communicate effectively with the community leaders. If community leaders share a common connotative meaning for "mental health," the communication process will be enhanced. Or if "mental health" has different connotative meanings for different groups in the community, then the mental health professionals could use this knowledge to fill in the gaps in communication and augment the communication process.

The main purpose of the present study was to determine if three groups of potential community leaders had different connotative meanings for a set of mental health related concepts. A difference in connotative meanings might indicate a communication problem because the subjects perceive the concepts differently.

Hypotheses

Two major hypotheses were tested in the present study; however, these hypotheses can be summarized into two main questions: (1) Do the three groups of subjects have similar connotative meanings for

mental health concepts, i.e. do the subjects perceive mental health in the same way? and (2) Do the three groups of subjects have similar conceptual structures of mental health, i.e., do the subjects share the same frame of reference for mental health concepts?

Target Population and Method of Sampling

The target population for the present study was businessmen, engineers, and educators in the Stillwater area during the summer of 1974. Thirty subjects from each group was the desired sample size. It would have been extremely difficult to obtain this many subjects from each group because of the size of Stillwater and because it was summer. Thus the survey population only approximated the target population. The survey population consisted of three professors from each of the Colleges of Business, Education and Engineering for phase one and approximately 30 graduate students from each of the Colleges of Business (29), Education (32), and Engineering (29) for phase two.

Treatment and Design

A semantic differential was used to measure the connotative meanings of mental health related concepts for the three groups of subjects used in phase two. Six mental health concepts were chosen with a Q sort technique for use in the semantic differential during phase one. The Q-sort was administered to three professors from each of three colleges mentioned above. The Q-sort used was modified in order to obtain meaningful results. The six concepts chosen were: MENTAL HEALTH, EMOTIONAL STABILITY, SELF CONFIDENCE, SELF CONTROL, ADJUSTED, and CRAZY.

During phase two the scales for the semantic differential were selected by the experimenter and the semantic differential instrument was constructed and administered to the three groups of subjects. The semantic differential was administered to the subjects either at the beginning or end of a class period; the subjects took from five to ten minutes to complete the instrument. (Note, subjects for both phase one and phase two were volunteers.)

Results

The connotative meaning for four of the concepts used in the analysis was similar for each group, i.e., all of the subjects had similar perceptions of EMOTIONAL STABILITY, SELF CONTROL, SELF CONFIDENCE and ADJUSTED for the three dimensions measured by the semantic differential: Evaluation, Potency, and Activity (X^2 less than 27.3 with 24 d.f., observed significance level greater than .20). However, the three groups perceived MENTAL HEALTH and CRAZY differently on the dimensions measured (observed significance level less than .05).

The conceptual structures of mental health for each group were very similar (Rho at least .9908). This indicates that the subjects share the same frame of reference for mental health concepts.

Discussion

The above results indicate that the three groups of subjects perceive some concepts differently, but that these three groups of subjects all use the same frame of reference when they are using mental health concepts, i.e., they use the same values and make the same kinds of discriminations. Thus these three groups of subjects all make the same

kinds of judgments, but arrive at different judgments because they perceive the mental health situation differently.

The present author concludes that these perceptual differences, i.e. differences in connotative meanings, will not cause difficulty in communication about mental health between the three different groups of subjects because the magnitude of differences in meaning is not very large in a practical sense even though the difference is statistically significant.

The greatest limitation of the present study is the lack of correspondence between the survey population and the target population. The results of the present study can only be generalized to the survey population, i.e., graduate students in the Colleges of Business, Engineering, and Education at Oklahoma State University.

Educational and psychological research has repeatedly found that the sex of the subject can be a major determinant in the subject's performance. It is unfortunate that the samples of subjects selected for the present experiment did not contain enough females to explore a sex difference in performance; this places a major limitation on the findings.

The subjects from all three groups placed a positive evaluation on the Positive Mental Health cluster of concepts, i.e., these subjects held a positive attitude toward mental health. This attitude should aid them in improving their mental health. Future research should investigate the degree to which a positive attitude or a negative attitude toward mental health influences the rate of change of the subject's behavior in various mental health settings, e.g., factual information about mental health, group counseling, and individual counseling.

Future research should also be directed toward broadening the areas in which mental health concepts are applied, e.g., criteria for industrial or civil engineering projects or as criteria for management or personnel policies.

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APPENDIX A

Q SORT BOOKLET FOR CONCEPTS

Q-Sort

Name: _____

Part 1:

The purpose of the following experiment is to generate a list of terms which are related to the concept "Mental Health." In the space provided on page 2, write every word which you can think of which is related to "Mental Health." Your list should look something like a thesaurus entry for the term "Mental Health." Both synonyms and words other than synonyms should be included in your list.

For example, if the experimental concept were "House," you might include synonyms such as domicile, dwelling, home, abode, habitation. Or you might include related terms which are types of houses, e.g. cottage, bungalow, mansion, shack, shanty, hut. Or you might include terms which do not refer to the structural properties of a house, but to other properties of a house, e.g., ancestry, lineage, family, legislature, firm, organization, company.

The central purpose is to generate a list of terms which are related to the concept of "Mental Health." You want to examine "Mental Health" from all aspects and to look at it from several different perspectives. You might start your list by writing down as many synonyms for "Mental Health" as you can think of. Then you might look at each of these synonyms and find words which are related to them.

When you have written all the terms which you can think of which are related to "Mental Health," read the instructions for part 2. Now turn to page 2 and begin your list in the space provided at the top of the page.

 Name: _____

Write your answers to part 1 here.

Part 2:

Take all the terms which you have listed in part 1 (above), and separate these terms into as many groups as you think necessary. Group together those words which you think belong together. If a word does not belong in any of your groups, then place it in a new group by itself. For example, shack, shanty, and hut might all be classed together in one group. (Note, the group headings below are only for your convenience; you do not have to put a term in each group. Use only as many groups as you need; if necessary you may make more than 10 groups by placing your group on the back of this page.)

Group 1 Group 2 Group 3 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10

Name: 69

Page 3

Part 3:

Now, look at the words you have placed in each of your groups. Notice how the words in each group seem similar. Now what word or phrase could you use to describe all the terms in group 1. Write this word or phrase in the space provided at the bottom of this page. Now do the same thing for each of the remaining groups on page 2. (Note, you do not have to use all the lines provided.)

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

APPENDIX B

THE GROUP NAMES FOR MENTAL HEALTH CONCEPTS PRODUCED BY A Q SORT FROM EACH GROUP

Business

1. popular descriptions of mental disorders
2. persons with mental disorders
3. places for treatment of mental disorders
4. attitudes relating to mental health
5. persons involved in treatment of people with mental disorders
6. types of mental disorder
7. types of treatment for mental disorder
8. human relations needs and characteristics
9. characteristics of a positive self image
10. mental competence
11. mental alertness and perseverence
12. mental confidence and stability: freedom to question and examine
13. constructive mental abilities
14. positive social awareness.

Education

1. responses
2. impressions
3. relations
4. informal class descriptors
5. formal class descriptors
6. feelings about self
7. reactions
8. personality characteristics
9. personal interaction
10. happy
11. sane
12. active
13. satisfied
14. fully functioning

Engineering

1. conditions of good mental health
2. conditions of bad mental health
3. means of overcoming problems or attaining good mental health
4. places for help
5. fields or organizations associated with mental health
6. maturity, strength, resistence to adversity
7. drive
8. control of emotions
9. generosity to others
10. ability to interact socially
11. ability to recognize own latent creativity
12. crazy
13. retarded

APPENDIX C

A LIST OF MENTAL HEALTH RELATED TERMS

COMPILED FROM THE Q SORT RESPONSES

OF EACH GROUP OF SUBJECTS

Engineering

1. happy
2. well
3. well adjusted
4. sick
5. nuts problem
6. funny farm
7. hospital
8. psychology
9. bi-state
10. psychiatry
11. self-actualizing
12. confidence
13. discipline
14. motivation
15. stability
16. calmness
17. honesty
18. contentness
19. relaxed
20. concentration
21. resistence to pressure
22. benevolence
23. undefensive
24. creativity
25. positive outlook
26. ability to work in peer groups
27. capable of accepting criticism
28. ability to engage in dialogue
29. crazy
30. retarded

Business

1. unsound mind
2. crazy
3. insane
4. retarded
5. lunatic
6. imbecile
7. idiot
8. deviate
9. asylum
10. hospital
11. institution
12. anxiety
13. tension
14. fear
15. faith
16. optimism
17. pessimism
18. self-confidence
19. self-esteem
20. love
21. hate
22. happy
23. sad
24. depression
25. psychiatrist
26. psychologist
27. doctor
28. minister
29. courts
30. lawyers
31. judges
32. phobia
33. psychosis
34. paranoia
35. schizophrenia
36. hypochondria
37. analysis
38. therapy
39. security
40. goal identity
41. motivation
42. interest
43. confidence
44. friendship
45. friendship
46. control
47. persistence
48. integrity
49. love
50. rationalize
51. project
53. self-image
54. communication
55. determination
56. empathy
57. enthusiasm
58. success
59. attitude about own ability
60. self-improvement
61. self-diagnosis
62. maturity
63. conflict handling
64. ability
65. courage of convictions
66. ability
67. knowledge
68. capability
69. intelligence
70. vitality
71. vigor
72. strength
73. endurance
74. balance
75. stability
76. equanimity
77. composure
78. confidence
79. independence
80. harmony
81. enjoyment
82. wholesomeness
83. morale
84. constructiveness
85. fairness
86. understanding
87. openmindedness
88. sympathy

Education

1. stable
2. predictable
3. consistent
4. flexible
5. unstable
6. unpredictable
7. inconsistent
8. rigid
9. adjusted
10. secure
11. controlled
12. untroubled
13. at ease
14. coping
15. maladjusted
16. insecure
17. uncontrolled
18. troubled
19. anxious
20. evading
21. tolerant
22. unthreatened
23. intolerant
24. threatened
25. odd
26. strange
27. queer
28. nuts
29. funny
30. buggy
31. neurotic
32. psychotic
33. schizophrenic
34. catatonic
35. sadistic
36. masochistic
37. secure
38. acceptance of self
39. good self-concept
40. positive attitude
41. contentment
42. sense of humor
43. self-fulfillment
44. self-respect
45. adjusted
46. self-control
47. emotional stability
48. accepts the inevitable
49. absence of neurosis
50. sound mind
51. varied interests
52. seeks alternatives
53. doesn't brood over mistakes
54. dares to try
55. unafraid to meet realities
56. accepts challenge
57. clear set of values
58. capacity to love
59. interest in others
60. happy
61. pleasant
62. non-neurotic
63. sane
64. active
65. striving
66. satisfied
67. self-actualizing
68. fully-functioning

APPENDIX D

THE SEMANTIC DIFFERENTIAL OF MENTAL HEALTH CONCEPTS

Student Number_____ Class_____
Sex_____ Age_____

The purpose of this study is to measure the meaning certain concepts have for different people. You are being asked to rate six concepts on a series of descriptive scales. In taking this test, please make your judgments on the basis of what these concepts mean to you. On the next three pages you will find six concepts. Beneath each concept you will find a set of descriptive scales. You are to rate each concept on each of the scales.

Here is how you are to use the scales. For example, lets rate the concept HITLER on the following scales. If you feel that HITLER is very closely related to one end of the scale, then you should place your checkmark as follows:

1 1. fair X : : : : : : unfair
1 2 3 4 5 6 7

or

7 1. fair : : : : : : X unfair
1 2 3 4 5 6 7

Write the number under your answer in the space at the left.

If you feel that HITLER is quite closely related to one or the other end of the scale (but not extremely) should place your checkmark as follows.

2 2. strong : X : : : : : weak
1 2 3 4 5 6 7

or

6 2. strong : : : : : X : weak
1 2 3 4 5 6 7

If HITLER seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

3 3. active : : X : : : : passive
1 2 3 4 5 6 7

or

5 3. active : : : : X : : passive
1 2 3 4 5 6 7

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the concept which you are judging.

If you consider the concept to be neutral on the scale, i.e., both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, i.e., unrelated to the concept, then you should place your checkmark in the middle space.

4 4. safe : : : X : : : dangerous
1 2 3 4 5 6 7

IMPORTANT

1. Place your checkmark in the middle of spaces, not on the boundaries.

this not this
safe : X : : : X : dangerous
1 2 3 4 5 6 7

2. Be sure you check every scale for every concept.

3. Never put more than one checkmark on a single scale.

Work at fairly high speed through this test. Do not worry or puzzle over individual items. It is your first impression, the immediate feelings about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

Now turn to page three and begin the test.

MENTAL HEALTH

____1.	good	:	:	:	:	:	:	bad
		1	2	3	4	5	6	7
____2.	fast	:	:	:	:	:	:	slow
		1	2	3	4	5	6	7
____3.	heavy	:	:	:	:	:	:	light
		1	2	3	4	5	6	7
____4.	valuable	:	:	:	:	:	:	worthless
		1	2	3	4	5	6	7
____5.	rugged	:	:	:	:	:	:	delicate
		1	2	3	4	5	6	7
____6.	active	:	:	:	:	:	:	passive
		1	2	3	4	5	6	7
____7.	pleasant	:	:	:	:	:	:	unpleasant
		1	2	3	4	5	6	7
____8.	strong	:	:	:	:	:	:	weak
		1	2	3	4	5	6	7
____9.	hot	:	:	:	:	:	:	cold
		1	2	3	4	5	6	7
___10.	ferocious	:	:	:	:	:	:	peaceful
		1	2	3	4	5	6	7
___11.	sharp	:	:	:	:	:	:	dull
		1	2	3	4	5	6	7
___12.	beautiful	:	:	:	:	:	:	ugly
		1	2	3	4	5	6	7

EMOTIONAL STABILITY

___13.	good	:	:	:	:	:	:	bad
		1	2	3	4	5	6	7
___14.	fast	:	:	:	:	:	:	slow
		1	2	3	4	5	6	7
___15.	heavy	:	:	:	:	:	:	light
		1	2	3	4	5	6	7
___16.	valuable	:	:	:	:	:	:	worthless
		1	2	3	4	5	6	7
___17.	rugged	:	:	:	:	:	:	delicate
		1	2	3	4	5	6	7
___18.	active	:	:	:	:	:	:	passive
		1	2	3	4	5	6	7
___19.	pleasant	:	:	:	:	:	:	unpleasant
		1	2	3	4	5	6	7
___20.	strong	:	:	:	:	:	:	weak
		1	2	3	4	5	6	7
___21.	hot	:	:	:	:	:	:	cold
		1	2	3	4	5	6	7
___22.	ferocious	:	:	:	:	:	:	peaceful
		1	2	3	4	5	6	7
___23.	sharp	:	:	:	:	:	:	dull
		1	2	3	4	5	6	7
___24.	beautiful	:	:	:	:	:	:	ugly
		1	2	3	4	5	6	7

SELF CONTROL

___25. good : : : : : : bad
1 2 3 4 5 6 7

___26. fast : : : : : : slow
1 2 3 4 5 6 7

___27. heavy : : : : : : light
1 2 3 4 5 6 7

___28. valuable : : : : : : worthless
1 2 3 4 5 6 7

___29. rugged : : : : : : delicate
1 2 3 4 5 6 7

___30. active : : : : : : passive
1 2 3 4 5 6 7

___31. pleasant : : : : : : unpleasant
1 2 3 4 5 6 7

___32. strong : : : : : : weak
1 2 3 4 5 6 7

___33. hot : : : : : : cold
1 2 3 4 5 6 7

___34. ferocious : : : : : : peaceful
1 2 3 4 5 6 7

___35. sharp : : : : : : dull
1 2 3 4 5 6 7

___36. beautiful : : : : : : ugly
1 2 3 4 5 6 7

SELF CONFIDENCE

___37.	good	:	:	:	:	:	:	bad
		1	2	3	4	5	6	7
___38.	fast	:	:	:	:	:	:	slow
		1	2	3	4	5	6	7
___39.	heavy	:	:	:	:	:	:	light
		1	2	3	4	5	6	7
___40.	valuable	:	:	:	:	:	:	worthless
		1	2	3	4	5	6	7
___41.	rugged	:	:	:	:	:	:	delicate
		1	2	3	4	5	6	7
___42.	active	:	:	:	:	:	:	passive
		1	2	3	4	5	6	7
___43.	pleasant	:	:	:	:	:	:	unpleasant
		1	2	3	4	5	6	7
___44.	strong	:	:	:	:	:	:	weak
		1	2	3	4	5	6	7
___45.	hot	:	:	:	:	:	:	cold
		1	2	3	4	5	6	7
___46.	ferocious	:	:	:	:	:	:	peaceful
		1	2	3	4	5	6	7
___47.	sharp	:	:	:	:	:	:	dull
		1	2	3	4	5	6	7
___48.	beautiful	:	:	:	:	:	:	ugly
		1	2	3	4	5	6	7

ADJUSTED

___49.	good	:	:	:	:	:	:	bad
		1	2	3	4	5	6	7
___50.	fast	:	:	:	:	:	:	slow
		1	2	3	4	5	6	7
___51.	heavy	:	:	:	:	:	:	light
		1	2	3	4	5	6	7
___52.	valuable	:	:	:	:	:	:	worthless
		1	2	3	4	5	6	7
___53.	rugged	:	:	:	:	:	:	delicate
		1	2	3	4	5	6	7
___54.	active	:	:	:	:	:	:	passive
		1	2	3	4	5	6	7
___55.	pleasant	:	:	:	:	:	:	unpleasant
		1	2	3	4	5	6	7
___56.	strong	:	:	:	:	:	:	weak
		1	2	3	4	5	6	7
___57.	hot	:	:	:	:	:	:	cold
		1	2	3	4	5	6	7
___58.	ferocious	:	:	:	:	:	:	peaceful
		1	2	3	4	5	6	7
___59.	sharp	:	:	:	:	:	:	dull
		1	2	3	4	5	6	7
___60.	beautiful	:	:	:	:	:	:	ugly
		1	2	3	4	5	6	7

CRAZY (INSANE)

___61.	good	:	:	:	:	:	:	bad
		1	2	3	4	5	6	7
___62.	fast	:	:	:	:	:	:	slow
		1	2	3	4	5	6	7
___63.	heavy	:	:	:	:	:	:	light
		1	2	3	4	5	6	7
___64.	valuable	:	:	:	:	:	:	worthless
		1	2	3	4	5	6	7
___65.	rugged	:	:	:	:	:	:	delicate
		1	2	3	4	5	6	7
___66.	active	:	:	:	:	:	:	passive
		1	2	3	4	5	6	7
___67.	pleasant	:	:	:	:	:	:	unpleasant
		1	2	3	4	5	6	7
___68.	strong	:	:	:	:	:	:	weak
		1	2	3	4	5	6	7
___69.	hot	:	:	:	:	:	:	cold
		1	2	3	4	5	6	7
___70.	ferocious	:	:	:	:	:	:	peaceful
		1	2	3	4	5	6	7
___71.	sharp	:	:	:	:	:	:	dull
		1	2	3	4	5	6	7
___72.	beautiful	:	:	:	:	:	:	ugly
		1	2	3	4	5	6	7

APPENDIX E

FACTOR SCORES FOR EACH OF THE 90 SUBJECTS

APPENDIX E

FACTOR SCORES FOR EACH OF THE 90 SUBJECTS

APPENDIX E

FACTOR SCORES FOR EACH OF THE 90 SUBJECTS

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FACTOR SCORES FOR ALL SUBJECTS

OBS	MENTAL E	MENTAL A	MENTAL P	EMOT E	EMOT A	EMOT P	CONTRL E	CONTRL A	CONTRL P	CONFID E	CONFID A	CONFID P	ADJUST E	ADJUST A	ADJUST P	CRAZY E	CRAZY P	CRAZY A
1	1.00	2.50	2.00	1.00	2.50	1.75	1.00	3.25	2.50	1.00	3.25	2.50	2.25	4.00	4.00	4.75	4.00	4.00
2	1.75	3.00	4.50	1.25	3.25	4.50	1.25	3.00	3.50	1.00	2.00	2.50	1.50	3.25	4.00	5.75	4.50	3.50
3	1.75	3.25	3.75	1.50	3.25	3.25	2.00	3.50	3.00	2.25	2.50	2.75	2.75	3.50	4.00	6.25	3.50	4.50
4	2.25	2.25	4.25	2.75	3.25	2.75	2.25	2.75	3.25	1.75	3.50	3.25	2.75	3.75	3.75	4.00	3.75	4.50
5	1.00	3.25	4.50	1.00	2.25	2.75	1.00	3.50	3.25	1.25	2.50	3.00	1.00	2.50	3.00	6.50	1.00	5.75
6	1.00	1.50	5.25	1.00	1.50	5.00	1.00	2.00	3.75	1.00	2.00	4.00	1.00	1.75	4.75	7.00	2.50	7.00
7	1.00	2.50	4.00	1.00	4.00	4.00	1.00	3.25	4.00	1.00	1.75	4.00	1.00	2.50	4.00	7.00	3.25	5.50
8	3.25	3.25	3.25	1.75	2.50	5.00	1.00	3.25	2.50	1.00	1.75	3.00	1.00	3.25	2.50	5.50	1.75	5.50
9	1.00	1.75	4.00	1.50	2.75	3.25	1.75	3.25	3.75	1.25	3.50	4.25	2.00	3.75	3.50	7.00	4.00	7.00
10	1.00	3.25	4.75	1.25	3.00	4.50	1.00	3.50	4.00	1.00	2.75	2.50	1.00	2.50	5.00	7.00	2.00	4.75
11	2.75	3.00	3.00	1.00	3.75	3.75	2.25	3.75	3.00	1.25	3.00	3.50	1.00	3.00	3.25	7.00	3.25	5.50
12	3.50	5.25	6.50	1.00	1.75	3.00	1.75	3.25	2.75	1.00	3.00	3.75	1.75	3.75	5.00	6.25	4.50	6.50
13	3.00	4.50	5.00	1.75	3.25	4.00	1.25	4.25	4.00	1.50	3.75	4.00	1.00	3.50	4.25	6.00	4.00	4.75
14	2.00	2.75	3.75	2.50	2.75	4.25	2.00	3.00	3.75	1.50	2.50	4.25	1.75	3.00	3.75	4.50	3.25	3.75
15	2.75	2.75	3.50	3.25	2.50	4.50	2.75	3.25	2.75	2.75	3.50	4.00	3.50	3.50	4.00	4.75	4.00	3.00
16	1.75	1.75	4.25	1.75	1.75	4.00	1.75	3.25	3.25	1.00	1.75	3.25	1.00	1.75	3.25	3.00	3.00	2.25
17	3.00	3.75	3.75	2.00	3.25	3.50	1.50	3.75	4.00	2.25	3.50	3.50	2.00	4.50	3.50	7.00	5.25	6.00
18	2.00	3.00	4.25	2.00	3.75	4.00	2.00	4.00	3.75	2.50	4.00	3.75	2.00	4.00	3.75	4.25	4.75	4.25
19	2.50	4.50	4.75	2.00	3.50	4.50	2.75	3.25	2.75	1.75	4.00	4.00	2.00	4.50	4.50	5.00	4.25	4.00
20	1.00	3.25	4.50	1.50	4.00	3.75	2.25	3.75	3.50	2.75	2.50	2.00	2.25	4.75	3.25	7.00	4.00	2.75
21	2.25	2.75	3.25	2.00	3.00	3.50	2.00	3.00	3.50	2.25	3.25	3.75	2.25	3.50	4.00	5.25	4.50	4.50
22	2.00	2.50	4.50	1.75	3.50	4.75	1.50	3.50	4.00	1.25	3.50	4.25	2.75	4.00	3.25	4.25	3.50	3.25
23	3.25	4.00	4.25	2.75	4.00	4.50	2.50	2.25	3.50	2.25	2.50	4.00	2.50	2.00	3.25	5.50	4.00	4.25
24	2.00	2.50	3.50	2.50	4.00	3.25	2.00	4.00	3.75	2.25	4.00	3.50	3.75	4.00	4.00	4.00	4.00	4.00
25	3.00	3.50	4.25	2.50	3.00	4.00	2.50	3.50	4.00	2.75	3.50	4.00	3.75	4.00	3.75	5.00	4.00	4.25
26	1.25	2.50	2.75	1.75	2.50	3.50	2.50	3.25	4.00	1.75	3.25	4.00	2.75	2.75	4.00	6.25	4.25	5.50
27	1.25	2.75	2.50	1.00	1.50	1.75	1.50	1.50	1.75	1.75	1.75	1.50	1.25	2.00	2.75	6.75	5.00	4.25
28	1.00	3.50	4.25	1.25	4.00	3.75	1.50	2.25	2.50	2.25	3.25	4.00	1.25	3.25	3.25	3.25	2.50	2.50
29	2.75	2.75	4.00	1.50	1.75	2.50	2.00	2.25	2.00	6.50	3.25	2.75	2.25	3.50	4.00	5.50	4.75	3.75
30	2.75	3.25	4.25	2.00	3.00	4.00	3.00	3.50	4.00	3.00	3.50	3.75	3.00	3.75	4.00	4.00	3.25	3.50
31	3.50	4.25	3.75	3.25	2.75	3.50	1.75	2.25	4.50	3.75	2.75	4.50	2.75	3.25	4.25	3.00	4.25	3.50
32	2.75	3.00	3.00	2.75	3.00	3.00	2.50	3.00	3.00	2.25	3.00	3.00	2.50	3.00	3.00	3.75	3.00	3.50
33	3.75	4.25	3.50	2.50	2.75	3.50	2.00	3.25	3.75	1.00	3.75	2.50	1.50	1.75	2.75	7.00	4.25	4.75
34	1.00	2.75	4.75	1.25	3.25	4.50	1.00	2.75	4.50	1.00	2.50	4.25	1.75	3.00	4.00	5.50	5.25	4.00
35	4.00	4.00	4.00	1.75	3.25	3.25	2.50	3.25	3.25	1.75	4.00	3.50	1.75	4.00	4.00	4.00	4.00	4.00
36	4.00	3.25	4.00	2.75	3.50	3.50	2.00	3.50	3.25	1.50	3.00	3.25	2.25	2.50	3.75	6.00	4.50	4.00
37	1.25	2.50	5.50	1.75	4.00	5.00	1.50	3.75	3.50	1.00	2.50	3.75	2.25	2.75	3.25	7.00	3.25	5.00
38	1.75	4.00	3.00	1.75	4.00	4.25	2.00	4.00	3.25	2.00	3.00	3.50	1.75	4.00	3.50	7.00	4.00	4.00
39	1.00	3.25	3.25	1.00	1.00	4.00	1.00	1.00	5.50	1.00	2.50	4.00	1.00	2.50	3.25	7.00	4.00	3.25
40	2.00	2.25	3.25	1.25	2.50	3.00	1.00	1.75	2.75	1.00	1.50	3.25	1.25	1.50	3.25	7.00	4.00	2.50
41	2.25	3.75	3.75	2.00	3.75	3.75	2.25	3.75	3.50	1.50	3.75	3.50	2.25	3.75	3.75	4.75	4.75	4.00
42	2.75	3.25	4.00	2.75	3.50	3.50	2.50	3.75	4.00	2.00	3.75	3.75	3.50	4.00	4.00	4.50	4.00	3.50
43	4.00	3.25	3.25	6.25	4.75	4.00	7.00	5.50	5.50	7.00	5.50	5.50	4.75	6.25	4.00	4.00	4.00	4.00
44	1.25	3.00	3.25	1.00	3.00	3.75	3.00	3.25	3.25	1.50	3.25	4.00	3.25	3.00	3.75	4.50	4.00	4.25
45	2.50	3.25	4.25	1.25	2.50	4.00	3.25	3.75	4.00	2.25	3.50	3.50	1.75	2.75	3.00	4.50	5.00	4.50
46	1.75	3.25	3.25	2.00	3.75	4.25	2.75	3.00	2.75	1.00	2.00	2.25	2.75	5.00	4.00	3.25	4.50	3.75
47	1.50	3.25	4.25	1.00	3.50	4.75	2.50	3.25	4.00	1.25	3.25	3.50	1.25	3.25	4.75	5.75	4.00	3.25
48	3.25	3.75	4.25	3.75	4.00	3.50	2.50	3.75	3.50	1.75	3.50	3.75	3.25	4.00	4.00	6.50	1.75	1.50

FACTOR SCORES FOR ALL SUBJECTS

OBS	MENTAL E	MENTAL A	MENTAL P	EMOT E	EMOT A	EMOT P	CONTRL E	CONTRL A	CONTRL P	CONFID E	CONFID A	CONFID P	ADJUST E	ADJUST A	ADJUST P	CRAZY E	CRAZY P	CRAZY A
49	1.00	2.75	3.50	1.00	2.50	3.75	1.00	3.00	4.50	1.00	1.75	3.50	1.00	2.25	4.00	7.00	2.50	7.00
50	3.75	3.75	3.75	3.00	3.75	3.50	2.75	3.50	3.50	2.50	3.50	4.00	3.75	3.75	4.00	3.75	3.75	3.50
51	4.75	4.75	4.50	1.25	2.25	2.50	1.50	3.50	3.00	2.00	3.50	2.75	1.50	3.75	2.75	6.25	5.25	5.25
52	3.75	3.50	4.25	3.00	3.75	4.50	3.25	3.50	4.25	3.00	3.50	4.25	3.75	3.75	4.00	4.00	4.00	4.00
53	1.25	2.00	3.25	1.00	2.50	2.50	1.00	3.25	3.25	1.00	3.25	3.25	1.25	4.00	4.00	6.25	4.00	4.00
54	2.75	3.25	4.00	1.75	3.25	4.25	2.50	2.75	3.50	1.50	3.00	4.75	2.75	3.00	3.50	5.50	4.00	3.75
55	3.25	3.50	3.25	3.50	3.50	3.50	1.50	4.00	3.25	1.00	4.00	3.25	1.00	4.00	3.25	4.00	4.00	4.00
56	1.75	3.50	4.00	1.50	3.50	3.00	1.75	3.25	3.50	1.75	3.00	3.50	2.00	4.00	3.50	5.00	4.00	4.75
57	3.25	3.50	4.00	2.50	3.25	3.25	3.25	3.25	4.00	3.25	3.25	3.50	3.50	3.25	4.00	4.00	4.00	4.00
58	1.50	3.25	3.75	1.50	3.75	3.75	2.50	3.50	3.50	2.00	3.75	3.25	2.00	3.50	3.75	5.00	4.25	4.00
59	1.00	1.00	3.25	1.00	2.50	3.25	1.00	1.75	3.25	1.00	2.50	3.00	1.00	1.75	3.25	1.00	3.25	1.75
60	1.50	3.50	3.50	1.25	3.50	3.75	2.00	3.50	4.00	2.00	2.25	3.25	1.25	3.25	3.50	6.75	4.50	4.00
61	2.25	2.50	3.50	4.25	3.50	2.50	3.00	2.25	3.75	3.00	3.25	3.75	2.25	1.75	2.75	4.25	3.50	2.75
62	1.75	2.00	3.75	1.50	3.75	2.50	1.75	3.25	2.50	1.50	2.50	2.75	2.75	3.50	3.75	6.75	4.75	4.75
63	3.50	3.75	3.00	2.25	3.25	3.25	2.25	3.75	3.50	2.25	2.25	2.75	2.75	3.75	3.75	7.00	4.50	5.25
64	2.25	2.00	5.00	2.00	2.50	4.75	1.75	1.50	4.50	2.00	2.00	3.00	1.75	1.75	3.50	5.00	3.25	3.00
65	2.50	4.00	4.50	2.00	4.00	4.00	4.00	4.00	4.00	2.75	4.00	3.75	3.00	3.75	4.00	4.75	4.00	4.00
66	4.75	2.25	2.75	4.25	3.25	2.75	2.50	2.25	3.00	1.75	2.50	3.75	3.00	2.00	3.50	3.75	4.00	3.50
67	1.25	2.25	3.25	1.50	2.25	3.25	2.00	2.00	2.75	1.50	2.00	2.75	2.75	3.25	3.75	4.25	4.25	5.25
68	2.50	2.25	5.00	3.00	4.25	4.25	2.50	3.25	3.75	2.50	3.25	2.75	3.25	3.75	4.00	6.50	3.50	5.00
69	2.50	2.50	5.25	1.25	2.50	4.00	2.50	2.50	3.50	3.75	4.00	4.75	2.00	2.75	3.25	5.75	3.50	4.50
70	1.75	3.00	3.25	1.75	3.50	4.25	1.75	1.75	2.50	1.00	4.00	3.75	1.25	3.25	3.25	5.50	3.00	4.00
71	5.00	3.00	3.50	2.25	3.25	3.50	2.50	3.25	2.50	2.25	2.50	2.50	3.25	3.00	3.75	6.50	3.50	3.75
72	1.25	4.25	4.50	1.25	4.00	4.00	2.75	3.00	3.75	1.75	3.25	3.75	4.75	5.25	4.00	6.50	3.50	4.00
73	1.75	3.00	4.50	2.25	3.75	4.50	2.50	3.25	3.50	1.75	2.75	3.75	2.25	3.00	3.25	5.50	4.00	3.25
74	2.50	2.50	3.75	1.00	2.00	6.00	1.50	3.50	4.75	1.00	1.50	3.00	3.75	4.00	4.00	7.00	3.25	4.00
75	2.75	3.25	3.50	1.50	2.50	3.50	1.25	3.25	3.25	1.50	2.50	3.50	2.25	2.75	3.50	4.50	4.75	5.00
76	1.00	1.75	2.75	1.00	2.00	3.00	1.00	3.25	2.75	1.75	2.50	2.75	1.00	2.75	4.00	7.00	3.25	4.75
77	4.00	4.00	4.00	1.75	4.00	3.25	1.00	4.00	4.00	1.00	4.00	4.00	3.25	4.00	4.00	5.50	4.00	4.00
78	2.00	3.25	3.25	1.75	3.25	3.25	2.00	3.25	3.00	2.00	2.75	3.00	3.25	4.00	3.75	5.75	3.25	4.75
79	1.00	2.50	4.25	1.75	2.50	4.25	1.75	3.75	4.00	1.75	3.50	3.25	2.50	3.00	3.50	7.00	4.00	4.00
80	4.00	4.00	4.00	2.25	4.00	3.50	2.25	4.00	3.50	2.50	4.00	4.00	4.00	4.00	4.00	5.25	4.00	4.00
81	1.25	4.00	4.00	1.75	4.00	3.00	1.75	4.00	4.25	1.75	4.00	3.50	4.00	4.00	4.00	6.25	4.75	4.00
82	3.50	3.00	4.25	2.75	3.75	4.00	2.75	3.75	4.00	2.25	3.50	4.00	3.00	3.75	4.00	6.50	3.50	3.75
83	3.50	3.50	4.75	2.25	3.25	3.25	2.25	2.75	3.50	2.50	3.25	3.50	2.50	3.25	3.50	5.25	5.00	5.00
84	1.25	2.25	3.50	1.50	2.50	3.25	3.00	3.25	3.75	1.25	2.00	4.75	2.25	5.50	5.50	4.00	2.75	2.25
85	4.00	3.75	3.00	3.25	3.75	3.50	3.25	3.50	3.50	3.25	3.75	4.00	3.25	3.75	4.00	6.25	4.00	3.25
86	1.50	2.00	2.25	1.25	2.25	3.25	2.50	3.25	3.75	1.50	3.25	2.25	4.75	3.50	4.50	6.50	2.25	4.50
87	2.50	3.25	5.25	1.75	2.75	4.00	2.00	1.75	4.50	1.50	2.75	4.75	3.00	2.25	4.25	5.25	4.50	3.50
88	1.50	1.25	2.00	2.25	2.00	1.75	1.50	2.50	3.50	1.75	2.00	3.50	2.00	1.75	2.50	7.00	4.00	6.25
89	5.50	7.00	5.50	1.75	1.75	1.50	1.25	1.75	1.00	1.25	1.25	1.25	1.00	2.00	1.00	4.00	2.50	2.50
90	1.75	3.25	5.25	1.50	4.00	5.25	1.25	4.00	4.50	1.25	4.00	4.00	4.00	2.75	3.25	6.25	5.50	5.25

VITA

Robert Roland DeGuglielmo, Jr.

Candidate for the Degree of

Master of Science

Thesis: A SEMANTIC DIFFERENTIAL ANALYSIS OF THE CONNOTATIVE MEANING OF MENTAL HEALTH CONCEPTS FOR BUSINESS, ENGINEERING AND EDUCATION GRADUATE STUDENTS

Major Field: Psychology

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Personal Data: Born in Boston, Massachusetts, January 9, 1947, the son of Robert Roland and Evelyn Dare DeGuglielmo.

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