ABSTRACT

INFLUENCE OF THE DEGREE OF MATCH BETWEEN COUNSELEE AND COUNSELOR IN TERMS OF EDUCATIONAL COGNITIVE STYLE AND COUNSELING STYLE ON THE OBJECTIVES OF THE EDUCATIONAL COUNSELING SITUATION

By

Ned Aulton Brodbeck

Purpose

The purpose of this study was to explore the effects of the Educational Sciences of cognitive style and counseling style, in the opinion of counselees and counselors, on the outcome of the objectives in an educational counseling situation.

Cognitive style and counseling style (together with teaching style and administrative style) constitutes two of the seven sciences included in the Educational Sciences which provide a conceptual framework and scientific language for the applied field of education. Cognitive style refers to the manner in which an individual derives meaning in the context of his symbolic orientation, i.e., the kinds of symbols he tends to use most in acquiring meaning, his cultural determinants, i.e., cultural factors which influence the meaning of symbols, and his modalities of inference, i.e., the form of reasoning processes most often used in

drawing conclusions. An individual's cognitive style is determined through a battery of tests, and is recorded in the form of a computer printout known as a cognitive style map. Counseling style refers to the manner in which the counselor approaches the counseling situation. The counselor's attitude toward who should set the goals and determine the approaches to the goals is basic to the determination of his counseling style. The counselor's Demeanor, i.e., directive, non-directive, or situational, his Emphasis, i.e., person, processes, or properties and his Symbolic Mode, i.e., theoretical predominance, reciprocity, or qualitative predominance determines his total counseling style.

Summary

The student sample employed in the study was drawn from the full-time students attending the Southeast Campus, Oakland Community College, during the academic year 1973-74. Almost all of the students were enrolled in General Orientation classes. Students were asked to participate on a voluntary basis and then were instructed as to the procedures they would follow in completing the instruments used and the possible problems to be discussed in the educational counseling situation. In similar fashion, counselors were chosen and informed of their role in the study. The instruments used were: 1) Cognitive Style Map, 2) Counselor Style Check List, 3) Preferred Counseling Style Questionnaire, 4) Counselor Questionnaire, and 5) Counselee Questionnaire.

Four general questions were posed in order to conduct the exploratory study effort. Major and minor matches were determined by a "matching" procedure to determine the degree of match between counselor and counselee in cognitive style and counseling style and answers to questions on a Counselor Questionnaire and Counselee Questionnaire were tabulated to determine the answers to the four general questions.

Findings

The analysis of data supports the following findings:

1. Responses by counselors to questions on the Counselor Questionnaire indicated that they were more often able to reach their objectives, in an educational counseling situation, when there was a major match in cognitive style and counseling style between the counselor and the counselee. When there was a minor match in cognitive style and counseling style between the counselor and counselee, they were less in agreement and more in disagreement regarding this matter.
2. Generally speaking, those counselees who have a major match with the counselor in cognitive style and preferred counseling style indicate a higher degree of satisfaction on the outcome of the educational counseling situation than do those counselees with a minor match in "styles" with the counselor.

3. Counselors indicate a higher degree of satisfaction, on the outcome of the counseling situation, when there is a major match in cognitive style between counselor and counselee than when there is a major match between counselor and counselee in counseling style and preferred counseling style.
4. Counseling style, in the opinion of counselors, has a greater influence on the outcome of the counseling situation when a minor match between counselor and counselee exists than does cognitive style.
5. There is little difference in the degree of satisfaction on the outcome of the objectives in the counseling situation, in the opinion of counselees, when major or minor matches exist between counselor and counselee in cognitive style or counseling style.

In the overall analysis of the findings it would appear that, in the opinion of counselors and counselees, the Educational Sciences of cognitive style and counseling style have an effect on the outcome of the counseling objectives when a major "match" between counselor and counselee exists on these variables.

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to

Carlene, Teresa, and Richard

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CHAPTER I

INTRODUCTION

The Problem

Counselors and counselor educators for many years have discussed the philosophical issues relevant to counselor techniques and methods or counselor style. Rogers favors a relationship which permits the client the most scope and in which the therapist intervenes as little as possible (non-directive), while Horney and Thorne advocate greater intervention and activity on the part of the therapist (directive).[1] Thorne further complicates the theories of counselor style when he introduces the "eclectic" as a counseling style.[2] In his article Thorne states,

> Now, we prefer to abandon all terms such as "directive," "non-directive," "psychoanalytic," etc., as tending to create artifical continua and semantic artifacts, and instead to substitute operational descriptions and nomenclature for the dynamics of any method. The term "eclectic" has value only to differentiate an approach which refuses to subscribe to any one operational viewpoint or method, and becomes entirely objectionable if given self-reflexive connotations such as "authoritarian."[3]

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[1]Fred E. Fiedler, "The Concept of an Ideal Therapeutic Relationship," Journal of Consulting Psychology, Vol. 14, (1950), p. 239.

[2]F. C. Thorne, "Principles of Personality Counseling," Journal of Clinical Psychology, Vol. 13, (1957), p. 235.

[3]Ibid., p. 238.

Assuming that Thorne and others are correct in stating that counselors tend to function in accordance with the counselor's self-concept, his goals and objectives, and the techniques and methods that he may use to achieve these objectives,[4] is in essence saying that counselor style is related to the personality of the counselor and the manner in which the counselor derives meaning.

Arbuckle suggests that the discrepancy between what the counselor verbalizes he should do, what he actually feels that he should do, and what he actually does in an operational situation would appear to be a measure of the individual's total personality, rather than something he has learned in his professional preparation at Chicago, or Boston, or New York.[5] Arbuckle and Wicas indicate that,

> A counselor does not become a "Rogerian" by attending Chicago, or, more recently, Wisconsin, nor does one become "Superian" or "Williamsonian" by attending Columbia or Minnesota."[6]

Background of the Study

In recent years various philosophies of counseling have emerged. These philosophies (e.g., Existentialism, Behavioralism, Humanism, Reality-Emotive Therapy) each should

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[4]Dugald S. Arbuckle, "Five Philosophical Issues in Counseling," Journal of Counseling Psychology, (1956), p. 211.

[5]Ibid., p. 213.

[6]D. S. Arbuckle and E. Wicas, "The Development of a Counseling Perception Instrument," Journal of Counseling Psychology, (1957), p. 310.

have meaning for the counselor. Whether the counselor will change his approach or techniques in the counseling situation is questionable. This is pointed out by Hosford in his review of Behavioral Counseling when he states:

> Environmental manipulation is the "key" to altering behavior. The behavioral counselor is interested not only in the variables that control behavior, but, more appropriately, in determining how these variables might be utilized to promote the client's desired change. Techniques utilized in behavioral counseling do not supplant those used in traditional counseling. There is nothing in behavioral counseling which restrains the counselor from offering the kinds of understanding and support stressed in traditional counseling.[7]

After a review of the literature one is led to believe that once a counselor has accepted a definition of counseling, the counselor will develop objectives and adopt a counselor style to reach these objectives, and the counseling style adopted by the counselor will be determined by the personality of the counselor, the counseling theory underlying his approach, and the manner in which he derives meaning.

Educational Cognitive Style and Counseling Style:

An interesting approach to some of the phenomena and some of the problems noted above is associated with certain

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[7]Ray E. Hosford, "Behavioral Counseling - - - A Contemporary Overview," The Counseling Psychologist, Vol. I, No. 4 (1969), p. 1.

aspects of what Hill termed "the Educational Sciences."[8] One of these "sciences," the one dealing with cognitive style, might provide a vehicle for analyzing a wide variety of activities and events associated with a counseling situation. The educational science of counseling style provides still another vehicle for exploring the counseling situation. Before discussing the possibilities, it is necessary to present, in general, what is meant by "educational cognitive style" and "educational counseling style."

Educational Cognitive Style:

The construct of cognitive style which has been developed as one of the educational sciences is different from those defined and described in the field of psychology. The concept of cognitive style is expressed as, what mathematicians call, a Cartesian product of sets. The Cartesian product designed to represent cognitive style is composed of the following four sets: 1) symbols and meaning, 2) cultural determinants of the meaning of symbols, 3) modalities of inference, and 4) electrophysiological, biochemical, and "concern" aspects of the memory function (recognition, retention, recall, and association). In set theory form the expression becomes:

$$g = S \times E \times H \times Y$$

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[8]Joseph E. Hill, "An Outline of the Educational Sciences," (unpublished manuscript, Wayne State University, Detroit, Michigan, July, 1968), p. 1.

where G, the Cartesian product, is comprised of the four sets S, E, H, and Y, where S indicates the set of elements representing theoretical and qualitative symbolic orientations, E designates the set of individuality, associates, and family cultural determinants of the meaning of symbols, H denotes the set of elements defining magnitude, difference, relationship, and appraisal of modalities of inference and Y indicates the elements of electrophysiological measurements, biochemical materials, and the persons, processes, or properties "concern" of the individual associated with his memory process expressed in terms of the functions of: recognition, retention, recall, and association.

The combined sets, S X E X H X Y, comprise the individual's "cognitive map." In actual practice, at the present time, the fourth set of memory-concern is omitted from the Cartesian product because of insufficient validation of the electrophysiological measurements and the vast multitude of biochemical elements that are probably involved in the memory process of an individual.[9] Under the circumstances, educational cognitive style is denoted by a Cartesian product of these sets as shown below:

$$g = S \times E \times H$$

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[9]Joseph E. Hill, The Educational Sciences, (Bloomfield Hills, Michigan: Oakland Community College Press, 1968), p. 14.

Educational Counseling Style:

The counseling process, as viewed through the conceptual framework called "the educational sciences," is considered to be a social system composed of the three generic elements of persons, processes, and properties. The demeanor of the counselor, i.e., directive, situational, or non-directive, interacting with his ordering of priorities for the persons, processes, or properties elements, combined with the symbolic mode of communication he employs to major and/or minor degrees determine his counseling style.[10]
In Cartesian product form counseling style becomes:

$$CS = \begin{bmatrix} \text{Directive (V)} \\ \text{Situational (U)} \\ \text{Non-Directive (O)} \end{bmatrix}_{\text{Demeanor}} \times \begin{bmatrix} \text{Persons (PN)} \\ \text{Processes (PC)} \\ \text{Properties (PT)} \end{bmatrix}_{\text{Emphasis}} \times \begin{bmatrix} \text{Qualitative Predominance (QP)} \\ \text{Reciprocity (RP)} \\ \text{Theoretical Predominance (TP)} \end{bmatrix}_{\text{Symbolic Mode}}$$

where CS, counseling style, is comprised of the three sets Demeanor, Emphasis, and Symbolic Mode, in which demeanor is denoted by the elements V, V' (directive), U, U' (situational), or O, O' (non-directive), emphasis by PN, PN' (persons), PC, PC' (processes), and PT, PT' (properties), where the value of PN, PC, PT exist in the range of values 6 - 9, inclusive; while PN', PC', PT' takes on values of 3 - 5, inclusive; from a total range 0 - 9 for each element,* and symbolic

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[10] Ibid., p. 18.

*This idea is explained further later in this section.

mode by the order of QP (qualitative predominance), RP (reciprocity), and TP (theoretical predominance).[11]

The "demeanor" of the counselor is determined by the counselor's attitude toward who should set the goals, the counselor or the counselee, and who should determine the approaches to attaining the goals.

The "emphasis" placed on the three elements, persons, processes, or properties, is determined by an "Emphasis Matrix" with a point scale of 0 - 9 on each axis. (Figure 1 shows the three dimensional frame of reference).

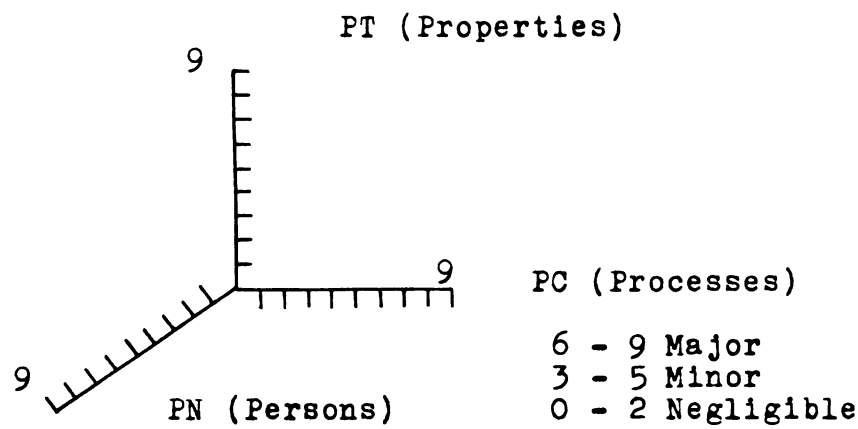

Figure 1. Three dimensional frame of reference for determining major and/or minor orientations in the emphasis-concern elements of persons (PN), processes (PC), or properties (PT).

Using this scale a score of 6 - 9 is considered a major, 3 - 5 a minor, and 0 - 2 negligible orientation, respectively, in these elements.

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[11]Hill, op. cit., p. 19.

"Symbolic mode" is the counselor's manner of communicating with the counselee where the "mode" may range from little response or a histrionic one, on the part of the counselor (qualitative predominance), to a give and take session between counselor and counselee (reciprocity), to the counselor being highly verbal (theoretical predominance).

Counseling style, as in cognitive style, is expressed in terms showing both major and minor orientations over the Cartesian product of the three sets: Demeanor, Emphasis, and Symbolic Mode. An example of a typical "Rogerian" counseling style might be:

$$CS = \begin{bmatrix} \underline{\text{Demeanor}} \\ O \\ \\ U' \end{bmatrix} \times \begin{bmatrix} \underline{\text{Emphasis}} \\ PC \\ (2, 7, 5) \\ PT' \end{bmatrix} \times \begin{bmatrix} \underline{\text{Symbolic Mode}} \\ QP \\ \\ RP' \end{bmatrix}$$

This style reflects in Demeanor a non-directive major orientation, occasionally tempered with a minor "situational" orientation, which is acted upon by a major "process" orientation (e.g., reflect the counselee) with occasional reference to a "properties" orientation, i.e., a minor orientation (e.g., one hour period of time free from interruption in an office comfortably furnished) in the Emphasis set, and the total interaction of the "style" being completed by a major Qualitative Predominance orientation (e.g., counselor must play the role of not reacting, i.e., qualitative code histrionic behavior), supported by a Reciprocity "minor."

It should be noted that this counseling style is the one that probably, according to Roger's Theories, could be employed most effectively to attain the counseling objective of a client-centered outcome for the session.

Purpose of the Study

The purpose of the study is to explore the influence of the degree of match between counselee and counselor in terms of Educational Cognitive Style and Educational Counseling Style on the objectives of the counseling situation. Operationally, the purpose of the study is to explore the influence of a major match between cognitive styles of a counselor and a counselee and a major match between the counseling style of the counselor and the "preferred" counseling style of a counselee to determine if that degree of match has more positive effects on realizing the objectives of a counseling situation, than would major matches in cognitive style and minor matches in counseling style and "preferred" counseling style, or the reverse of those matches, i.e., "minor" match in cognitive style, major match in counseling style and "preferred" counseling style, or where minor matches exist between both cognitive styles and counseling style and "preferred" counseling style.

Significance of the Study

The study is intended to be of value to counselors and student personnel workers in helping them understand the nature of a problem they have indicated to be of major

concern, that of interactions between counselors and counselees and the contributions of these interactions to the establishment of client satisfaction.

The significance of the study is mainly based on its ability to add information that might be used to improve the counseling situation. By contributing to a better understanding of how one achieves the counseling objectives in a counseling situation, and what part counseling style, cognitive style, and preferred counseling style plays in the process, the study adds information to the educational sciences and contributes to the application of cognitive style to the counseling situation. Utilization of a student's cognitive map to gather information which will enhance the chances of client satisfaction, in the counseling situation, will be a valuable counseling tool.

Cognitive maps have a prescriptive value in career counseling.[12] The study will add to present knowledge and the findings of other research projects currently under way concerning cognitive style and counseling style which tend to enhance the counseling situation.

The study can contribute to a better understanding of cognitive style and counseling style and, perhaps, help explain certain contradictory findings with regard to

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[12]James R. Gural, "A Cognitive Style Approach to the Reconceptualization of a Curriculum for Vocational Guidance and Counseling," (unpublished doctoral dissertation, Wayne State University, Detroit, Michigan, 1972), p. 180.

counseling style and client satisfaction found in earlier studies of these and related matters.

If the present study can establish that there is a major match between counselee and counselor in terms of educational cognitive style and counseling style on the objectives of the counseling situation, then the study can provide important information for use in the counseling process.

General Questions To Be Explored

In order to realize the purpose of the study, exploratory in nature, i.e., an investigation which is not designed to test a research hypothesis but rather to "generate" such, answers to the following general questions were sought:

1. Are the objectives* of a counseling situation reached more easily, in the counselor's opinion, when there is a major match between cognitive style of the counselor and counselee and a major match between the counseling style of the counselor and the preferred counseling style of the counselee than when minor matches between these variables exist?
2. Are the objectives of a counseling situation more easily reached, in the opinion of the counselee, when there is a major match between the cognitive style of the counselor and the counselee and a major match between the counseling style of the counselor and the preferred counseling style of the counselee than when minor matches between these variables exist?

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*In this context purposes may be substituted for objectives.

3. Which "style," cognitive or counseling, seems to have the greatest influence on whether the objectives of a counseling situation are reached (expressed in terms of the opinions of the counselor and the counselee) in the case of those students with a major match with the counselor?
4. Which "style," cognitive or counseling, seems to have the greatest influence on whether the objectives of a counseling situation are reached (expressed in terms of the opinions of the counselor and the counselee) in the case of those students with a minor match with the counselor?

Underlying Assumptions

In any research design it is necessary to make certain assumptions. The underlying assumptions of this study are as follows:

1. That counseling in education is an important and necessary function.
2. The reliability and validity indices of the battery of tests associated with the empirical mapping processes employed in the study are based upon previous studies which are similar to the present study, therefore, they are assumed to be sufficient for the purpose of producing the cognitive style maps that are employed in the study.
3. The responses to the test items on the battery of tests and questionnaire are honest responses.

Students and counselors involved in the study were selected on a voluntary basis, therefore, it can be assumed that those who participated did their best when tested and in their responses to the questions on the questionnaire.

4. The reliability and validity of the scale used to determine counseling style, as a part of the educational sciences, are sufficient for the method employed in developing the scale which was used to determine counseling style.

Definitions of Key Terms

Cognitive Map

A computer print out of an individual's cognitive style derived from a battery of cognitive style tests.

Cognitive Style

An individual's mode of behavior in searching for meaning and acquiring knowledge. Cognitive style is comprised of the ways in which one derives meaning from his symbolic orientation, through the influences of cultural determinants, his manner of reasoning, and his memory and concern functions. Cognitive style may be expressed as the Cartesian product of the sets: $g = S \times E \times H \times Y$. (see Chapter II for detailed description.)

Counseling

Counseling is a learning-oriented process, carried on in a simple, one-to-one social

> environment, in which a counselor, professionally competent in relevant psychological skills and knowledge, seeks to assist the client by methods appropriate to the latters needs and within the context of the total personnel program, to learn more about himself, to learn how to put such understanding into effect in relation to more clearly perceived, realistically defined goals to the end that the client may become a happier and more productive member of his society.[13]

Counseling Style

The counseling style of an individual is determined by the counselor's attitude toward who should set the goals, the client or himself, who should determine the approaches to attaining the goals, the student or himself, and the counselor's order of priority for the three generic elements comprising a social system; namely, "persons," "processes," and "properties." (see Chapter II for detailed description.)

Cultural Determinants

Environmental factors which influence the meanings one assigns to symbols in deriving meaning and acquiring knowledge. The three determinants inventoried in the second set of the Cartesian product of cognitive style are: family (F, F'), associates (A, A'), and individuality (I, I').

Education

Education is the process of searching for meaning.

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[13]J. W. Gustad, "The Definition of Counseling," in Roles and Relationships In Counseling, ed. by R. F. Berdie, Minnesota Studies in Student Personnel Work, No. 3, 1953.

Educational Sciences

A conceptual framework and universe of discourse for the applied field of education comprised of the sciences of: 1) Symbols and their meanings, 2) Cultural Determinants of the meanings of symbols, 3) Modalities of Inference, 4) Selected Biochemical and Electrophysiological aspects of memory, 5) Cognitive styles of individuals, 6) Teaching styles, Administrative styles, and Counseling styles, and 7) Systemic Analysis Decision-making.

Major Orientation

Means that the person scored between the 50th and the 99th percentile and is symbolized by a capital letter such as "T." Thus, a T(VL) would mean that one demonstrated above average ability to use words that one sees.

Minor Orientation

Means that the person scored between the 25th and the 49th percentile and is symbolized by a capital letter with a prime. Thus, a T'(VL) would mean that one scored below the upper half and above the lower quarter.

Modalities of Inference

The modes of reasoning individuals use in deriving meaning and acquiring knowledge, which include the four inductive processes of magnitude (M, M'), difference (D, D'), relationship (R, R'), and appraisal (L) or evaluation, as well as the deductive process (K).

Negligible Orientation

A negligible orientation means that a person scored below the 25th percentile, therefore, the element does not appear on the person's map.

Qualitative Symbol

A qualitative symbol is that symbol which presents, and then represents to the nervous system, that which the symbol itself is to the individual.

Symbolic Orientation

The theoretical and qualitative symbols employed by an individual in deriving meaning and acquiring knowledge. Theoretical symbols may be either visual or qualitative. There are nine major qualitative symbols--empathetic, esthetic, ethic, histrionic, kinesics, kinesthetic, proxemics, synnoetics, and transactional. In addition there is the programmatic or "sixth sense" known as proprioceptiveness, and the five sensory skills--auditory, olfactory, savory, tactile, and visual.

Theoretical Symbol

A theoretical symbol presents to the nervous system something different from that which the symbol itself is. For example, the spoken word "car," is a theoretical auditory linguistic symbol.

Overview of the Study

The first chapter has introduced the study, background, purpose, significance, and general questions to be explored, as well as the assumptions and definitions of key terms. A review of the related literature is found in the next chapter, and the research design is found in Chapter III. The analysis of data and findings are presented in Chapter IV. The conclusions, implications, and recommendations for further study are included in the final chapter.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to review the literature related to educational counseling style. This type of "style" is defined by the elements included in three sets of information which form the Educational Science of Counseling Style. Categorically, the three sets of information pertain to the demeanor, emphasis, and symbolic mode aspects of counseling style and are composed of the elements shown in the following Cartesian product of sets:

$$CS = \begin{bmatrix} \underline{\text{Demeanor}} \\ \text{Directive (V)} \\ \text{Situational (U)} \\ \text{Non-Directive (O)} \end{bmatrix} \times \begin{bmatrix} \underline{\text{Emphasis}} \\ \text{Persons (PN)} \\ \text{Processes (PC)} \\ \text{Properties (PT)} \end{bmatrix} \times \begin{bmatrix} \underline{\text{Symbolic Mode}} \\ \text{Qualitative Predominance (QP)} \\ \text{Reciprocity (RP)} \\ \text{Theoretical Predominance (TP)} \end{bmatrix}$$

"Demeanor" is determined by the attitude of the counselor toward who should set the goals and determine the approaches to employ in order to achieve the goals established for the counseling situation. The elements in the "Emphasis" set pertain to the counselor's preference for clinically analyzing persons, employing particular processes, or desiring certain properties (e.g., counseling setting) during the counseling session. The elements in the set "Symbolic Mode"

are determined on the basis of the mode of communication the counselor tends to prefer to employ with counselees during counseling sessions.

A review of the literature related to counseling tends to confuse the reader as to the differentiation between counseling theory and counseling style or technique. Wilson Van Dusen indicates that, "...there is no accepted technique of therapy, the technique varies with the analyst."[14] Edward A. Dreyfus states:

> ...there are many approaches to counseling and psychotherapy which legitametly may be termed existential. The existential approach is not a system of techniques, but rather an underlying attitude which transcends all techniques.[15]

From a behavioral counseling point of view Hosford writes:

> Techniques utilized in behavioral counseling do not supplant those used in traditional counseling. There is nothing in behavioral counseling which restrains the counselor from offering the kinds of understanding and support stressed in traditional counseling.[16]

These views as stated by Dreyfus and Hosford have implications for the present study in that they imply that

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[14]Wilson Van Dusen, "Existential Analytic Psychotherapy," The American Journal of Psychoanalysis, Vol. XX, No. 11, (1960), p. 38.

[15]Edward A. Dreyfus, "An Existential Approach to Counseling," in In Guidelines for Guidance: Readings in the Philosophy of Guidance, ed. by Carlton E. Beck, (Dubuque, Iowa: Wm. C. Brown Company, 1966), p. 269.

[16]Hosford, op. cit., p. 193.

there is a need for an approach to counseling that provides an opportunity for the counselor to apply the particular theory to which he subscribes.

What is the appropriate theory or technique to apply in educational counseling? One criterion for a good theory is that it has to be useful. Hansen, Stevic, and Warner Jr. observe:

> Many practicing counselors seem to question the efficacy of using theory in their day to day work. The reasons for this situation may lie in the fact that many of the presently constructed theories of counseling are not useful; it may be that many of our theories are nothing more than descriptive in nature with no real plans for action, or it may be that counselors have simply not understood the theories as presented.[17]

Regarding this matter, Hansen, Stevic, and Warner Jr. further observe:

> As Brammer and Shostrum (1968) indicate, a counselor who does not have a solid foundation in the current thinking and research in the field, as well as a solid set of assumptions upon which to base his counseling, is doing nothing more than applying cookbook techniques to help clients solve their problems.[18]

The present study does not attempt to determine which counseling theory the counselor should follow but it provides a method for applying the concepts included in any counseling theory to the counseling situation.

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[17]James C. Hansen, Richard R. Stevic, and Richard W. Warner Jr., Counseling: Theory and Process, (Boston: Allyn and Bacon, Inc., 1972), p. 18.

[18]Ibid., p. 19.

The problem in the application of counseling theory to counseling can be alleviated through the application of the educational sciences of cognitive style and counseling style, respectively, to the counseling situation. The educational sciences provide a conceptual framework and scientific language that can be employed in the field of guidance and counseling.

The following areas related to the present study are explored through a review of related literature:

1. Counseling Theories/Styles or Techniques
2. Counselor Effectiveness
3. Educational Sciences of Cognitive Style and Counseling Style, respectively

Counseling Theories/Styles or Techniques

Reviewing the literature on counseling theories/styles or techniques is a rewarding though sometimes confusing experience. This section will be devoted to examining some of the basic theoretical approaches to counseling. Within these broad categories will be included the various individual theories and techniques as they apply to the broader category.

Psychoanalytic (Clinical) Theory:

The psychoanalytic or the clinical approach to counseling is probably the widest known theory of counseling. This theory was first introduced by Freud and his followers Adler,

Rank, and Jung, who later broke away to form their own branches of psychoanalytic thought.[19]

Freud's theories grew out of his practice with people having psychosomatic illnesses. His observations led him to believe that man was by nature, basically amoral, selfish, and irrational.

Much of what is known as classical psychoanalytic theory is based on three major assumptions about the nature of man. These assumptions are listed by Kagan and Havermann as follows:

1. The first five years of an individual's development are the most important and largely determine the adult behavior of the individual.

2. Sexual impulses are generally interpreted to mean the need for each individual to gratify all bodily pleasures.

3. Much of an individuals behavior is controlled by unconscious determinants.[20]

Freud and his followers believed that psychoanalytic man is dominated by instinctual biological drives and by unconscious desires and motives. Although man is driven by his inner desires and impulses, he is essentially a reactive organism, conditioned by his early experiences.

An early development in the field of psychoanalytic theory was the formation of the thoughts of a number of

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[19]Ibid., p. 26.

[20]Jerome Kagan and Ernest Havermann, Psychology: An Introduction, (New York, Chicago, San Francisco, Atlanta: Harcourt Brace Jovanovich, Inc., 1968, 1972), p. 26.

theorists referred to as Neo-Analysts. Theorists included in this group are Adler, Horney, Jung, Rank, Sullivan, and Fromm. Ego-counseling is based largely on classical psychoanalytic theory with its main emphasis on the functioning of the ego. In contrast to Freud, the ego-analyst's major emphasis is on normal or healthy behavior. According to Hansen, Stevic, and Warner Jr., one of the most important events in the development of the normal ego is the development of communication skills. It is this development that allows the person to deal in abstractions. A child learns to differentiate between the symbol for apple and the actual apple itself. He learns that the latter will satisfy his need for food, while the symbol itself will not.[21] Other factors which contribute to the development of the ego are: 1) the development of language skills, 2) the development of the ability to delay termination or control over one's drives, and 3) the influences of significant others with which the individual comes into contact. Fromm calls it the process of socialization.[22]

Hummel expands on this theory and states:

> The techniques of counseling are not a set of prescribed methods that the ego-counselor must follow rigidly. Rather, they are a set of preferred attitudes and strategies to be

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[21]Hansen, Stevic, and Warner Jr., op. cit., p. 41.

[22]Ibid., p. 42.

used flexibly by the counselor while he respects the client's right to be himself.[23]

In his study Hummel outlines a series of steps that a typical counselor and client might follow from an ego-counseling frame of reference. The problem of the client presented in the following illustration is of an academic study.

1. The first step is to help the client examine his feelings about his life in school, his role in the school, his performance in school, and other school-related tasks.

2. The client is then encouraged to project himself into the future. The counselor endeavors to get the client to discuss his career and life goals. The counselor then attempts to have the client see some relationship between his present behavior and his future goals.

3. The counselor then attempts to discuss with the client those obstacles to the client's reaching his goals and how these obstacles might be removed.

4. As the discussion of obstacles is continued, the counselor, through interpretation and reflection, attempts to get the client to examine himself and his external circumstances. Further, the counselor attempts to have the client see the interrelated nature of his feelings and behaviors.

5. Finally, the counselor helps the client establish a revised set of intentions in relation to academic study, and then, if possible, get him to rehearse his new behaviors. The rehearsal involves having

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[23]Raymond C. Hummel, "Ego-Counseling in Guidance: Concept and Method," Harvard Educational Review, Vol. 32, No. 4, (1962), p. 465.

> the client envision how he will behave in various hypothetical situations, such as how he might set up a study schedule.[24]

Hummel further states:

> In effect, the purpose of ego-counseling is not just to produce changes in specific behavior; better grades; but in...the complex of meanings and organizing principles which guide the counselee in his transactions within the sector of academic study.[25]

Ego-counseling is designed to help individuals develop the coping aspects of the personality. It is designed to help the individual cope with the realities of the world through the building of the ego functions.

To the extent that educational cognitive style and that of educational counseling style permits the counselor to analyze the counselee and bring about many of the outcomes realized by counselors who employ the Freudian psychoanalytic approach, the present study is considered to be related to literature associated with these efforts. To be sure, the psychoanalytic approach is recognized to be broader, and more profound than educational cognitive style and that of counseling style in the types and the nature of problems with which it can deal.

Adler was the first major individual to break away from Freud and establish his own school of thought. "Individual Psychology" represents Adler's conception of man as a wholistic individual. He saw each individual as a consistent

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[24]Ibid., pp. 479-80.

[25]Ibid., p. 481.

and unified whole, which acted in total toward a chosen life goal: A goal that each individual chooses for himself and for which each individual develops his own characteristic ways of attempting to reach that goal.[26] Adler believed that the way to understand an individual was to determine what his goal was and what life style the individual had developed to reach that goal. This idea or position is very different from Freud's belief that man's behavior was determined by innate drives largely out of his conscious control. The Adlerian position places much more emphasis on the importance of the individual and his interaction with his environment. Hansen, Stevic, and Warner Jr. support this theory when they state:

> Adler's emphasis was on neither the environment nor heredity as determiners of behavior: rather, it was on the interaction of the environment, heredity, and the individual as the determiner of behavior.[27]

Adler like Fromm placed a great deal of emphasis on the importance of the social context of human behavior. Driekurs, a student of Adler's, emphasizes this thinking when he writes:

> In effect, all of man's behavior is, in reality, an interaction with other beings. For this reason, we can presume one basic

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[26]H. L. Ansbacker and R. R. Ansbacker, The Individual Psychology of Alfred Adler, (New York: Harper Torchbooks, 1964), p. 238.

[27]Hansen, Stevic, and Warner Jr., op. cit., p. 55.

> desire in all human beings; the desire to belong, which Adler called "social interest."[28]

The educational science of cognitive style relates to this theory through the use of cultural determinants and qualitative codes in determining how persons derive meaning.

The basic goal of counseling, as seen by Adlerians, is to help the individual change his concept of himself. This basic goal is broken down into three more specific goals.

1. help the individual reduce his negative evaluation of himself--his feelings of inferiority.
2. help him correct his perceptions of events, and at the same time help him to develop a new set of objectives toward which he can direct his behavior.
3. redevelop within the individual his inherent social interest with its accompanying social interaction.[29]

The importance of the social relationship is also emphasized by Adler in his recognition of the importance of the social relationship between the counselor and his client. The initial step in counseling, according to Adler, is to develop a good relationship with the client in which communication between the counselor and client can be free and accepted by the client.

Recognizing that the counseling efforts effected by both the Freudian and the Adlerian groups pertain to the

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[28]Rudolf Driekurs, "The Adlerian Approach to Therapy," in Contemporary Psychotherapies, ed. by M. I. Stein, (New York: The Free Press, 1961).

[29]Ansbacker and Ansbacker, op. cit., pp. 240-41.

total psychological life-space, and the psyche, of the individual, while the educational science of cognitive style and counseling style, respectively, are designed to deal only with the educational aspects of the individual's life-space, the present study effort is found to be related to these respective counseling "syndromes" in these areas (e.g., school problems) where their domains of activity intersect.

Humanistic (Client Centered) Theory:

The major contributors to the Humanistic or sometimes called the "Self" theory of man are Allport, Maslow, Murray, and Rogers. Their thinking has been influenced by the psychoanalytic and behavioristic models of counseling, however, they disagree with both models. The followers of the humanistic model view the behavioristic model with its emphasis on the stimulus situation as an oversimplification: they feel that it needs to be balanced by a consideration of the internal psychological make-up of the individual.[30] At the same time, the humanists do not concur with the negative and pessimistic psychoanalysts. The humanists emphasize the essentially positive and rational propensities of man and view him as having some measure of freedom for self-direction. Kagan and Havermann describe the humanistic model as follows:

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[30]Kagan and Havermann, op. cit., p. 30.

> The humanistic model has a positive approach or view of man, its utilization of the concept of self, its emphasis on the uniqueness of the individual, and its recognition of man's concern with values and self-actualization--has had an important and increasing influence upon our contemporary view of man.[31]

The humanistic model relates to the present study through the emphasis placed on the uniqueness of the individual. The educational science of cognitive style recognizes the importance of the individual and his value by developing a profile for each individual based on his concept of his "self."

Foremost among the humanistic or self theorists is Carl Rogers. His model of personality has been stated in a series of propositions which are summarized by Strupp:

1. Each individual exists in a private world of experience--the phenomenal field--of which he is the center.

2. A portion of this total field becomes differentiated as the conscious self--as the I, me, or myself--and is the individual's most valued possession.

3. The most basic striving of the individual is toward the maintenance, enhancement, and actualization of the self.

4. The individual's perceptions and interpretations determine his behavior. He reacts to "reality" as it is perceived by him.

5. The individual behaves in ways that are consistent with his concept of himself and tends to reject or distort incoming

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[31] Ibid., p. 31.

information that is inconsistent with or threatening to the self.

6. Perceived threat to the self is followed by defense--including the narrowing and rigidification of perception and coping behavior.

7. Maladjustive behavior results where the individual feels too threatened to acknowledge his own experiences and to be himself.

8. The individual's tendencies are toward growth and wholeness, and when his experiences and alternatives are clarified, he choses the path of personal growth.[32]

Many counselors subscribe to this philosophy.

The counseling process as implemented by Rogers is described by him as the "client-centered" approach to counseling. The central concept of client-centered counseling is a belief in the importance of certain conditions in the process of counseling. If the conditions exist or are provided, then change will take place in the client. The conditions Rogers believes are both necessary and sufficient for counseling are:

1. An essential condition in the process of counseling is that two people be in contact.

2. It is essential that the client be in at least a minimum state of anxiety, vulnerability or incongruence.

3. The counselor must basically be an integrated or whole person, one whose conception of self allows him to be

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[32]Hans H. Strupp, "An Objective Comparison of Rogerian and Psychoanalytic Techniques," Journal of Consulting Psychology, Vol. 19, (1969), p. 4.

aware of all his behaviors and to experience them in accurate awareness. The counselor must be a "genuine" person.

4. The counselor must have an unconditioned and positive regard toward the client. The counselor must accept the individual for what he is regardless of his behaviors.

5. The counselor must experience empathic understanding of the client's internal frame of reference. Only the individual can fully understand fully his internal frame of reference however, the counselor must try to understand him as if he were the individual.

6. The client must perceive, at least to some degree, the counselor's unconditioned positive regard for him as well as the counselor's empathic understanding.[33]

Given these conditions, it is expected that the client will increasingly feel free to express himself and his feelings. Since the educational counselor, who might wish to employ Rogerian techniques, must employ a particular "style" of counseling, and must also employ certain profiles defined in educational cognitive style, the present study effort can be considered to be related to the Rogerian syndrome of studies. It should be noted that educational cognitive style and educational counseling style information does not provide a theory of counseling. The elements of these "styles" can be used, however, to analyze how certain theories of counseling may be translated into effective operation in the arena of both private and public educational institutions.

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[33]Buford Stefflre, Theories of Counseling, (New York: McGraw Hill, 1965), p. 49.

Behavioristic Theory:

The behavioral approach to counseling and guidance makes the basic assumption that client problems are problems in learning. According to Michael and Meyerson:

> "Pathological" self defeating and disorganized behavior as well as "healthy" behavior are seen as lawful phenomena whose laws can be discovered. In addition, there appears to be general agreement that the crucial behavior of human beings is learned. The critical questions in counseling and guidance, therefore, seem to relate to how behavior is learned and how it may be unlearned or altered.[34]

The literature related to the behavioral approach to counseling is related to the present study in that the educational counselor must be familiar with learning theory.

Krumboltz, in his article, "Behavioral Goals for Counseling," states, "In effect, the counselor is a special kind of learning specialist."[35]

Behavioristic theory stems from the early work of John Watson. Watson concluded that if psychology were to become a science of behavior, it must limit itself to the study of events that could be observed objectively. Starting with this basic assumption, Watson changed the focus of psychology from inner psychic processes to outer behavior which is

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[34]Jack Michael and Lee Meyerson, "A Behavioral Approach to Counseling and Guidance," Harvard Educational Review: A Special Issue: Guidance--An Examination, Vol. 32, No. 4, (1962), p. 395.

[35]John D. Krumboltz, "Behavioral Goals for Counseling," Journal of Counseling Psychology, Vol. 13, No. 2, (1969), p. 153.

objectively observable.[36] Hosford pursues this idea further when he writes:

> Environment manipulation is the "key" to altering behavior. The behavioral counselor is interested not only in the variables that control behavior, but, more appropriately, in determining how these variables might be utilized to promote the client's desired behavior change.[37]

This idea is related to the present study in that the thinking is mutual in relation to promoting behavior, however, the approaches may be different. The educational scientists claim that a person's cognitive style changes throughout his life time and can be augmented. As an example, the type of augmentation which is done to the reading skills by remedial reading exercises is well known and need not be documented here.

Michael and Meyerson submit that:

> The entire field of guidance, counseling, and psychotherapy might benefit considerably if all workers considered seriously just one behavioral principle and its corollary, namely, that behavior is controlled by its environmental consequences and that an effective procedure for producing behavioral change is the manipulation of the environment so as to create consequences that will produce the desired behavior.
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> One advantage of this kind of formulation is that it is explicit, teachable, and testable. Another advantage is that it tells the counselor what has to be done and allows

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[36]Kagan and Havermann, op. cit., p. 28.

[37]Hosford, op. cit., p. 395.

> him to monitor progress within an objective rather than an intuitive framework.[38]

The present study through the use of educational cognitive style and counseling style provides a procedure for assessing objectively the manner in which the counselee derives meaning from his environment.

The counseling goals of the behaviorist are not very different from those of the self-theorists or the psychoanalytic theorists. Rotter has stated his goals of counseling as,

> ...helping the patient to lead a more constructive life, to contribute to society, to maximize his potential for achievement, to maximize his feelings of affection or contribution to others.[39]

These are broad goals and although in the broader sense they would be acceptable, most behaviorists would insist that the goals be stated in more specific terms. From this frame of reference it is necessary that both the client and the counselor decide on the goals of counseling. Both must agree that this is a goal they want to achieve.

Behavioral theorists view the counseling process as a learning situation. The role of the counselor is one of facilitating the learning process and once the problem has been identified, applies the laws of learning. This idea does not necessarily imply that the counselor has at his

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[38]Michael and Meyerson, op. cit., p. 396.

[39]Hansen, Stevic, and Warner Jr., op. cit., p. 114.

command a learning theory that will apply to every problem or situation. It should be understood that prior to the clarification of the problem the counselor must be made to feel at ease and that the counselor is empathic and holds the counselee in high regard. When this type of relationship has been attained, the counselee will feel free to communicate with the counselor and a clear understanding of the problem will develop. At this point in the counseling process, the counselee's concerns can be defined in more specific terms. As an example,

> ...it is not enough for the counselee to recognize his problem as having a poor self concept, the behavioral counselor attempts to have the counselee define the concern in specific terms such as "I am unable to relate to individuals of the opposite sex."[40]

In behavioral counseling the counselor becomes involved in the counseling process. The counselor helps the counselee define the specific concern that has provided a need for a counseling situation and the counselor assumes responsibility for the course of action to be taken in the counseling situation. As Krumboltz states,

> ...once the counselor has agreed to work with the counselee, the responsibility for the outcome of counseling is largely his. It is the counselor's responsibility to launch his counselee on a course of action that will eventually help that counselee reach a resolution of his difficulty. In order to accomplish this end, the counselor must control the counseling process. This

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[40] Ibid., p. 117.

> is not an arbitrary manipulative control that goes against the client's wishes, rather it is a control specifically designed to meet the goals of the client.[41]

This approach is sometimes frowned upon by counselors as being too directive. Since the present study is concerned with the effect of matching cognitive styles, counseling style and "preferred" counseling styles of counselors and counselees (students), on attaining the objectives of the counseling session, the literature of the behavioral theorists regarding counseling can be considered to be related to the endeavor.

Behavioral counseling or learning theory counseling follows one of two models or an overlapping of the two; 1) the Classical Model and 2) the Operant Model. Both Patterson[42] and Hansen, Stevic, and Warner Jr.[43] indicate that psychotherapy consists of the application of three methods namely, assertive responses, sexual responses, and relaxation responses which are associated with the Classical Model. The implication in the Classical Model is that the need for counseling is brought on by anxiety caused by stimuli that are objectively harmless. The role of the counselor is to break down the learned response to the

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[41]Krumboltz, op. cit., p. 156.

[42]C. H. Patterson, Theories of Counseling and Psychotherapy, (New York, Evanston, London: Harper & Row, Publishers, 1966), p. 161.

[43]Hansen, Stevic, and Warner Jr., op. cit., p. 118.

stimuli so that a more appropriate response can occur.[44] Assertive responses are used by getting the client to be more assertive in his responses in the counseling situation and then instructing him to be more assertive in his relations outside the counseling situation. When a client has anxiety connected with sexual situations, the counselor instructs the client to participate in sexual activities only when there is no anxiety accompanying the situation. The critical issue is to motivate the client to follow the instructions of the counselor. Techniques used in relaxation responses were developed by Jacobsen. His techniques train the client to relax and he tells the client that relaxation directly opposes anxiety.[45]

This summary of the methods or techniques used in the Classical Model are simplified because they are more appropriate for use in psychotherapy than in educational counseling. They are considered to be related to the present study effort in that the counseling sessions in each domain, that is, life-problem counseling and education, seek to attain established objectives. For a more detailed account of these techniques, the reader is referred to Patterson's book, Theories of Counseling and Psychotherapy,

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[44]Ibid., p. 119.

[45]Patterson, op. cit., p. 162.

or Hansen, Stevic, and Warner Jr. who refer the reader to the writings of Joseph Wolpe, Andrew Salter, and Albert Bandura.[46]

The Operant Model or operant conditioning involves the modifying of behavior through the use of reinforcement. The reinforcement may be positive or negative, verbal or nonverbal with the goal of the counselor being one of encouraging the client to change his behavior in the right direction.

Hosford has outlined four considerations in the use of operant conditioning in counseling.

1. The counselor must be sure that the reinforcement he is using is strong enough to motivate the counselee to perform the desired behavior.

2. The counselor must use the reinforcement in a systematic manner.

3. There must be a contingency between the demonstration of the desired response and the application of the reward.

4. The desired response must be first elicited by the counselor.[47]

Operant conditioning involves the guiding of the clients behavior toward the desired behavior. The reinforcement must be strong enough to motivate the client and be applied consistently in close proximity to the desired response. To the extent that the vehicles of educational cognitive style and counseling style can be used to yield data that might

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[46]Hansen, Stevic, and Warner Jr., op. cit., p. 122.

[47]Hosford, op. cit., p. 396-97.

help the counselor determine what information might be used as reinforcements for the counselee, the literature of operant conditioning counseling can be considered to have relevance for the present study effort.

Existential Counseling:

Especially influential in existential thought in the United States has been the work of Rollo May. Existentialists are concerned about the social predicament of modern man. They emphasize the breakdown of traditional faith, the depersonalization of man in a standardized mass culture, and the loss of meaning in human existence. In such a situation it becomes the task of the individual to stand on his own identity, and to make his existence meaningful, to make his life count for something, not on the basis of philosophical or scientific abstractions but through his own experiences.[48] A basic theme in existentialism, according to Kagan and Havermann is that,

> ...the individual's existence is given, but that what he makes of it--his essance--is up to him. It is his responsibility to shape the kind of person he is to become and to live a meaningful life. "Being" is seen as a commitment to increased self-awareness.[49]

In this sense man has to be concerned with values and evaluation, and must accept responsibility for making choices and directing his own destiny.

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[48]Kagan and Havermann, op. cit., p. 32.

[49]Ibid., p. 33.

The aim of existential counseling, as stated by Van Kaam,

> ...is to make the client feel at home in his real world by reshaping his phenomenal world, to make his real situation bearable by making it bearable phenomenologically. The counselee reconditions his behavior in his real world by reconditioning his behavior in his phenomenal universe.[50]

The role of the counselor is to translate these objectives into meaningful attitudes for the counselee to bring about his self-awareness. Since educational cognitive style and educational counseling style provide the counselor with a means of analyzing the counseling situation, self, and the counselee, and to translate this information into attitudes held by the counselee to emphasize self-awareness, the present study effort can be considered to be related to existential counseling.

Counseling Techniques:

Counseling techniques vary as do counseling theories. The most common techniques are classified as directive, non-directive, and eclectic. While each technique has its differences, a similar element is apparently common to each--that element being a form of communication. Margaret Smith in her work, Guidance--Personnel Work: Future Tense, lists ability to communicate as one of the three essential

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[50]Adrian Van Kaam, "Counseling From the Viewpoint of Existential Psychology," Harvard Educational Review, Vol. 32, No. 4, (Fall, 1962), p. 403.

aspects of counselor preparation.[51] Wrenn adds another dimension to the concept of communication in his emphasis on the effectiveness of "body language." A counselor, he says,

> ...can reinforce his words by leaning forward, by facial expressions, and by directions and intensity of gaze to such a degree that his body movements become a powerful technique almost frightening in its effectiveness.[52]

In counseling theory "empathy" is basic to all theories, while in the various counseling techniques communication is a basic concept.

Directive Approach:

It is difficult to assign specific counseling theories to distinct approaches as there is overlapping of belief's shared by the various theorists. Generally speaking, the directive approach is associated with clinical counseling and behavioralistic (learning theory) counseling. In clinical counseling the counselor assumes most of the responsibility in the counseling situation and stresses the past, the history of the problem and direction or decision making responsibility, while the behavioralist or learning theory counselor believes essentially in manipulating the environment to bring about changes in behavior.

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[51]Margaret Ruth Smith, Guidance--Personnel Work: Future Tense, (New York, N. Y.: Teachers College Press, 1966), p. 21.

[52]C. Gilbert Wrenn, "The Counselor in a Changing World," American Personnel and Guidance Journal, (April, 1962), p. 58.

E. G. Williamson has been an important figure in conceptualization of student personnel principles, including counseling theory and has recommended six steps in clinical counseling.

1. Analysis - collecting data from many sources about attitudes, interests, family background, knowledge, educational progress, aptitudes, etc., by means of both subjective and objective techniques.

2. Synthesis - collating and summarizing the data by means of case study techniques and test profiles to "high light" the students uniqueness or individuality.

3. Diagnosis - describing the outstanding characteristics and problems of the student, comparing the individual's profile with educational and occupational ability profiles, and ferreting out the causes of the problems.

4. Prognosis - judging the probably consequences of problems, the probabilities for adjustments, and thereby indicating the alternative actions and adjustments for the students consideration.

5. Counseling - or treatment - cooperatively advising with the student concerning what to do to effect a desired adjustment now or in the future.

6. Follow-up - repeating the above steps as new problems arise and further assisting the student to carry out a desirable program of action.[53]

The clinical counselor emphasizes the here and now as does the client-centered counselor, however, the clinical counselor reviews the past to determine what steps he can take that

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[53]E. G. Williamson, "The Clinical Method of Guidance," Review of Educational Research, Vol. 9, 1939, p. 215.

will help the client better understand himself. The directivist may believe that the client knows the behavior that he wishes to engage in, but is unaware of how to accomplish the behavior. In such cases it may be appropriate for the counselor to instruct him as to what to do.

Non-Directive Approach:

The non-directive approach to counseling is usually associated with client-centered theory of which Rogers is a major contributor. A basic difference in the non-directivist approach and the directivist approach is that the non-directivist does not assume responsibility for decision-making in the counseling situation, while the directivist, as was pointed out earlier, assumes most of the responsibility for decision-making. McDaniel states,

> A basic dimension upon which Rogerian theory seems to differ from the generally "directive" points of view is that of the relative responsibility of the counselor and counselee for making decisions during the course of counseling. Rogers and the non-directivists take the position that the client has the basic responsibility for making all decisions and that the counselor must strive to maintain his role as a catalyst and non-decision maker.[54]

The non-directivist places great importance on this relationship between counselor and counselee. The importance of the relationship between counselor and counselee is further demonstrated by the non-directivist's use or lack of use

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[54]H. B. McDaniel, John E. Lallas, James A. Saum, and James L. Gilmore, Readings In Guidance, (New York, N. Y.: Holt, Rinehart and Winston, Inc., 1963), pp. 175-76.

of the case history and diagnosis in the counseling situation. McDaniel refers to this as follows:

> The client-centered counselor does not consider the diagnosis and case history particularly useful in enabling him to assist the counselee further, and he certainly does not accept the position that there must be a diagnosis from which he can direct the course of the interviews. Rogers felt that the case study contributes to the mental set of the client by conveying to him the implication that in return for the extensive submiting of material, the counselor will use it to effect a solution to the client's problem. This handicaps the client-centered counselor because the client may be unwilling to take any lead, and when the counselor tries to indicate his role, the client may feel the counselor is deliberately withholding answers.[55]

Rogers designates the following as characteristic steps in the therapeutic process.

1. The individual comes for help.
2. The helping situation is usually defined.
3. The counselor encourages free expression of feelings in regard to the problem.
4. The counselor accepts, recognizes, and clarifies these negative feelings.
5. When the individual's negative feelings have been quite fully expressed, they are followed by the faint and tenative expressions of the positive impulses which make for growth.
6. The counselor accepts and recognizes the positive feelings which are expressed, in the same manner in which he has accepted and recognized the negative feelings.

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[55] Ibid., p. 176.

7. This insight, this understanding of the self and acceptance of the self, is the next important aspect of the whole process.

8. Intermingled with the process of insight is a process of clarification of possible decisions, possible courses of action.

9. The initiation of minute, but highly significant, positive actions.

10. Development of further insight.

11. Increasingly integrated positive action on the part of the client.

12. Decreasing need for help, and recognition on the part of the client that the relationship must end.[56]

This approach has sometimes been classified as lacking structure and causing inactivity in the counseling interview and has been partly responsible for dissatisfaction on the part of the counselee.[57]

Eclectic Approach (situational):

The eclectic approach cannot be considered as a single approach but an approach that may use the unstructured procedures of the non-directive counselor or at other times the structured procedures of the directive counselor. The eclectic counselor should not use this approach as an escape or an excuse for using procedures advocated in other theories. The eclectic counselor must be competent in all approaches as is indicated by Brammer when he states,

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[56]Carl R. Rogers, Counseling and Psychotherapy, (Boston: Houghton Mifflin, 1942), p. 115.

[57]K. Heller, J. D. Davis, and R. A. Meyers, "The Effect of Interviewer Style in a Standardized Interview," Journal of Consulting Psychology, Vol. 30, (December, 1966), p. 503.

> The emerging eclectic is a skilled observer in the scientific behaviorial tradition; he knows the history of counseling theory and contemporary views; he is aware of his unique style and counseling setting. From there he forges his own comprehensive evolving view of behavior change.[58]

Many counselors consider themselves eclectic because of the freedom they feel it provides in the counseling situation. Brammer rejects this thinking and responds by stating,

> A counselor's task is to know his own personality thoroughly. The counselor must be aware of his values, need distorted perceptions, and potentials and limitations with particular kinds of clients. In other words, he must know his unique style of interaction with people. His counseling reflects his style as much as his stated theory and method.[59]

In summary it is evident that the eclectic approach requires a high degree of expertise in determining the appropriate procedures to pursue in the counseling situation.

According to Patterson, F. C. Thorne has done more to determine and develop an eclectic approach to counseling than any other single individual.[60] In his writings Thorne outlines a basic method of the eclectic approach to counseling.

1. Adequate diagnostic studies, which involves complete case history,

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[58]Lawrence M. Brammer, "Eclecticism Revisited," The Personnel and Guidance Journal, Vol. 48, No. 3, (November, 1969), p. 214.

[59]Ibid., p. 218.

[60]Patterson, op. cit., p. 61.

clinical examinations, psychometric and projective studies, and laboratory procedures, such as electroencephalography.

2. Preparation of a descriptive formulation of the psychodynamics of each case, including etiology, clinical status, personality resources, and prognosis.

3. Outline of an individual plan of therapy with client-centered orientation that is specifically related to the needs of the individual case.

4. Genuine eclecticism is therapeutically utilizing all the technical resources, either directive or nondirective, which are available at the time and place.

5. Utilization of the principles of experimental science wherever applicable at all levels of case handling, and especially in etiological studies and psychodiagnosis.[61]

It should be noted that Thorne being an M.D. integrates the basic medical sciences into his system or approach to counseling.

Since the elements included in the set called "demeanor" in the Cartesian product of the three sets that defines educational counseling style are those of Directive, Nondirective, and Situational (Eclectic), the relationship between the literature pertaining to counseling techniques and the study effort is obvious.

Counselor Effectiveness

According to many writers the most important aspect of the counseling situation is the relationship between

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[61] F. C. Thorne, Directive and Eclectic Personality Counseling, Six Approaches to Psychotherapy, (New York: Henry Holt, 1955), p. 244.

the counselor and the counselee. Earlier in this chapter the necessary conditions for therapeutic personality change as stated by Rogers were discussed. Briefly restated these conditions are, two people must be in psychological contact, the counselor must have positive regard for the client, the counselor must be empathic, the counselor and counselee must be congruent in their relationship. Rogers refers to these as facilitative conditions in the relationship. Although these conditions have been stated by Rogers and are associated with client-centered therapy, most theories of counseling include similar conditions. A study by Pohlman and Robinson substantiates this thinking. In their study of student likes and dislikes in the counseling situation, the students reported as displeasing those behaviors which would indicate a lack of respect, counselor aloofness, insincerity, hurriedness, interrupting, and lack of warmth. Additionally, students indicated they did not like a counselor who did most of the talking, however, students were more displeased with counselors who did little talking.[62]

Communication, verbal and nonverbal, in addition to the relationship between counselor and counselee, is another important aspect of counselor effectiveness.

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[62]Edward Pohlman and Francis P. Robinson, "Client Reaction to Some Aspects of the Counseling Situation," The Personnel and Guidance Journal, Vol. 38, (1960), pp. 546-51.

Robinson[63] and Williamson[64] have made major contributions to the field of verbal communication. Robinson has been concerned with examining the communication that goes on during the interview. These studies have included listening, giving of information, interpreting, and degrees of leading and their relationship to the counselor's attitude of acceptance, division of responsibility, and the counselor's response to the problem as stated by the client.[65] Williamson reviews the modes of communication from the standpoint that the counselor's behavior will indicate his belief system and his values will determine his behavior toward the counselee, thus communicating his acceptance of the counselee. Williamson also discusses the use of spoken language as the form of communication used in the factual assessment of client problems and the manner in which the counselor strives to get the counselee to organize verbally his thoughts about himself.[66] Verbal communication is the most used and effective means of communication between counselor and counselee, however, nonverbal communication can be effective.

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[63]Francis P. Robinson, "The Dynamics of Communication in Counseling," Journal of Counseling Psychology, Vol. 2, (1955), pp. 163-69.

[64]E. G. Williamson, "The Meaning of Communication in Counseling," The Personnel and Guidance Journal, Vol. 38, (1959), pp. 6-14.

[65]Robinson, op. cit., p. 165.

[66]Williamson, op. cit., p. 11.

Nonverbal communication usually takes the form of level of speech, facial expressions, or kinesics. Smith describes six qualifiers as expressive levels of speech. The six qualifiers are:

1. Intensity or the increasing of loudness or softness. Increasing loudness is usually used to disply alarm or annoyance, while increasing softness might display displeasure or disappointment.

2. Pitch range overall or the raising or lowering of pitch. Raising of pitch is usually used in context of annoyance or alarm, while lowering of pitch might be used for various kinds of emphasis, including incredulity.

3. Spread register and squeezed register. Respectively, these are the "stretching" and compressing of the usual interval between the pitch phonemes in the utterance.

4. Rasp and openness. These have to do physiologically with the amount of muscular tension under which the laryngeal apparatus is held. The more tension, the more the strained or rasping effect. With openness or looseness, a sort of hollow, booming, authoriative impression results.

5. Drawl and clipping. These have to do with the tempo of the individual syllables.

6. Increased tempo and decreased tempo. In contrast to drawl and clipping, these are used to describe longer utterances. In many contexts, increased tempo signals annoyance or anxiety, while decreased tempo signals uncertainty.[67]

Smith refers to these elements as the skilled listener's "third ear."

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[67]A. Smith, Communication and Culture, (New York: Holt, Rinehart and Winston, 1966), pp. 234-38.

In the counseling situation facial expressions frequently determine the direction the interview is taking. It is important that the counselor be able to detect facial changes to lead the interview in the appropriate direction.

Although facial expressions are the primary source for identifying emotional responses, the body, limbs, and hands play an important role in communication. Kinesics may be described as the way people communicate through body movements and gestures.[68] Studies by Delany and Heimann,[69] Cullen,[70] Fretz,[71] and Scheflen[72] show that identification of emotions through kinesics is learned and counselors need a period of training to become sensitive to the utilization of nonverbal cues.

Since the third set of information included in the Cartesian product of the three sets that define educational counseling style deals with the Symbolic Mode of communication

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[68]Hansen, Stevic, and Warner Jr., op. cit., p. 261.

[69]D. J. Delaney and R. A. Heimann, "Effectiveness of Sensitivity Training on the Perception of Nonverbal Communications," Journal of Counseling Psychology, Vol. 13, (1972), pp. 436-40.

[70]Lola F. Cullen, "Nonverbal Communication in Counseling: An Exploratory Study," Dissertation Abstracts, Vol. 27, 2047.

[71]B. Fretz, "Postural Movements in a Counseling Dyad," Journal of Counseling Psychology, Vol. 13, (1970), pp. 367-71.

[72]A. Scheflen, "The Significance in Posture in Communication Systems," Psychiatry, Vol. 27, (1971), p. 316.

employed by the counselor, the relationship between the literature pertaining to such topics as nonverbal communication, and other related maters, and the present study is obvious.

Educational Sciences of Cognitive Style and Counseling Style, respectively

Educational cognitive style is one of the seven "educational sciences" which has been formulated and developed in the past decade by scholars affiliated with the Institute for Educational Sciences at Wayne State University and now associated with the American Educational Sciences Association. Joseph E. Hill has been the foremost proponent of the construct of cognitive style. According to Hill:

> The construct of cognitive style is a vehicle which can be used to diagnose individuals and prescribe activities that provide the high probability of the student's accomplishing successfully the educational task confronting him.[73]

This concept has meaning for the educational counselor in that it provides a vehicle for implementing a plan of attack on educational problems by using the cognitive style of the individual student. Hill carries this concept further when he writes,

> It should be noted that the cognitive style of an individual is a relative concept, and depends not only upon the educational level and cultural background of the individual,

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[73]Joseph E. Hill, The Educational Sciences, (Bloomfield Hills, Michigan: Oakland Community College Press, 1972), p. 15.

> but upon the symbolic condition of the task to be accomplished. In this context, the derivation of an appropriate style for an individual demands that the diagnostician analyze the student as well as the substance of the educational task to be considered.[74]

Given this tool, the educational counselor can analyze, interpret, and evaluate student educational endeavors in a manner relatively different from those usually employed. (For a more detailed description of the concept of cognitive style see Chapter I and Appendix A.)

The concept of cognitive style employed as an educational science is somewhat different from those described and defined in the discipline of psychology, therefore, a brief discussion of these concepts is appropriate for the present study. The following review is taken primarily from a manuscript, "Cognitive Style as an Educational Science" by Joseph E. Hill, and is used here with permission from the author.

During the last half of the 1930's, some psychologists were interested in the study of the consistency and predictability of personality. In the early 1940's Allport suggested the concept of "style," which essentially he defined as the consistency and pattern of expressive behaviors that individuals manifest in performing various types of activities. In the context of Allport's descriptive definition of style, the term is highly similar to its common use in such expressions as: an individual's

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[74] Ibid., p. 15.

way (style) of living, a style of speaking, a writing style, or style of dress. This orientation permits the use of the term "style" to denote an entire pattern of responses, i.e., it can refer to not only a particular way of life, but to a particular class of events (e.g., style of speaking). In this sense, the term "style" is both general and relatively specific, i.e., it is not restricted to a particular denotation (e.g., all aspects of response patterns).

In considering investigations of cognitive behaviors, the traditional approaches in these endeavors have dealt mainly with concept formation. These studies have tended to be limited to such considerations as: what are concepts? how are they attained? or, how are they learned? These studies, however, have not examined cognitive functions in the context of personality.

During the past ten to twenty years, the concept of cognitive style has been investigated in the context of cognition as a facet of personality. Witkins has advanced the idea that the phenomenon described as cognitive style is a type of personality construct expressed in the interaction between perceptual (cognitive) response systems and antecedent conditions in the life history of the subject (person). Here the investigator is interested in such phenomena as the quality of mother-child relationships as antecedents to certain types of cognitive styles.

Contemporary studies of cognitive style have been designed to consider the phenomenon as an individual's particular mode of response to a given set of stimuli (variable). Other modern efforts have sought antecedents, or correlates, between cognitive style and 1) such personality variables as: dependence, anxiety, and passivity; 2) such cognitive variables as: intelligence, problem-solving, and reasoning; and 3) such psychological processes as: learning and perception.[75]

After the review of these studies of cognitive style in psychology Hill concludes:

> In essence, then, the contemporary studies of cognitive style involve the investigation of cognitive processes in the context of personality and defined social variables. These approaches indicate the recognition on the part of certain psychologists (e.g., Broverman, Gardner, Kagan, Moss, Sigel, Witkin) that cognitive behaviors form a fundamental part of a socio-personal matrix, and that the employment of certain classes of behavior called "cognitive" have consistent qualities which justify their being defined as stylistic.[76]

Based on these concepts Hill has determined that each individual has a style or cognitive process through which he derives meaning. Hill calls this "way of coming to know," cognitive style.

The concept of <u>educational counseling style</u> adds another dimension to the body of information pertaining to

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[75]Joseph E. Hill, "Cognitive Style as an Educational Science," (unpublished manuscript, Wayne State University, Detroit, Michigan, 1968), pp. 1-2.

[76]<u>Ibid</u>., p. 2.

the educative process. In addition to the cognitive style of the individuals involved in the counseling situation is the manner in which they view counseling. The review of literature pertaining to various theories of counseling indicates certain elements are included in most theories; these include 1) the manner in which the interview is conducted (demeanor), 2) the clinical emphasis placed on persons, processes, and/or properties (emphasis), and 3) the symbolic mode of communication (symbolic mode) usually employed by the counselor. Counseling style as an educational science is outlined in Chapter I and should not need a further review in this Chapter.

The educational sciences have provided a vehicle for a number of studies in education. James Gural[77] conducted a study in which he analyzed the effects of selected elements of cognitive style and the occupational choice of individuals. Marion Rice[78] studied cognitive style for selected elements that would indicate ideal and non-ideal students for various occupational curricula. Mark Greyson[79] compared the Cognitive Style Test with the Differential

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[77]Gural, op. cit.

[78]Marion Rice, "An Exploration of Educational Cognitive Styles as a Vehicle for Determining Potential Success of Community College Students within Selected Occupational Curricula," (unpublished doctoral dissertation, Michigan State University, East Lansing, Michigan, 1973).

[79]Mark E. Greyson, "A Comparison of Counseling Using the Cognitive Style Map of the Educational Sciences and the Traditional Approach in the Educational Setting," (unpublished doctoral dissertation, University of Michigan, Ann Arbor, Michigan, 1971).

Aptitude Tests and The Sequential Tests of Educational Progress and The School and College Ability Tests for the purpose of determining student's preference for receiving information on self through the standardized tests currently used or through the use of cognitive style maps. Gural and Rice found certain elements of cognitive style applied to specific vocational choice and curricula, respectively. Greyson's study found no significant difference in preference for the use of cognitive style tests as opposed to other more traditional tests.

Joseph DeLoach[80] investigated the possible affect that cognitive, administrative, and teaching styles of administrators might have on their evaluation of faculty members' abilities in the area of instruction. His findings indicate that the similarity of administrator and instructor cognitive style does act as a significant variable in the process of evaluating a faculty member's instructional ability. DeLoach also found that teaching style similarity is a significant variable in the administrator's evaluation of instruction.

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[80]Joseph F. DeLoach, "An Analysis of Cognitive Style Disparity as an Antecedent of Cognitive Dissonance in Instructional Evaluation: An Exploratory Study in the Educational Sciences," (unpublished doctoral dissertation, Wayne State University, Detroit, Michigan, 1969).

Arlen Schroeder[81] investigated whether students who have cognitive styles similar to the cognitive styles of their teachers will rate the teacher higher in "effectiveness" as opposed to those students whose cognitive styles are dissimilar to the cognitive styles of their teachers. His findings indicate that 1) students having cognitive styles similar to the cognitive styles of their teachers do, to a significant degree, evaluate the teachers as being more effective than do students whose cognitive styles are dissimilar to the cognitive styles of their teachers and 2) that students whose cognitive styles is similar to the cognitive styles of their teachers do, to a significant degree, receive higher grades from those teachers than do students whose cognitive styles are dissimilar to the cognitive styles of their teachers.

The studies reviewed above are related to the present study in that each has used the application of cognitive style in the educational process. Additionally, each study reviewed has implications for counseling in the educational setting.

Summary

In this chapter a review of the literature considered to be pertinent to the present study was presented. A

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[81]Arlen V. Schroeder, "Study of the Relationships Between Student and Teacher Cognitive Styles and Student Derived Teacher Evaluations," (unpublished doctoral dissertation, Wayne State University, Detroit, Michigan, 1969).

review of the literature related to counseling theory and styles or techniques and counselor effectiveness is considered appropriate in that it provides a basis for the educational science of counseling style.

Based on the review of literature related to counseling theory it is evident that sufficient theory relative to educational counseling exists. What is lacking, however, is a means for translating theory into specific terms for the practicing educational counselor. In this context, the purpose of the present study is not to evaluate the various counseling theories, but to provide a foundation for a vehicle to implement the theory or theories to which the practicing counselor may subscribe.

The related literature in counselor effectiveness is appropriate to the current study to provide background for determining the elements considered basic to the counseling situation. It should be noted that, for purposes of the present study, the elements considered basic to effective counseling were not evaluated as to degree of importance to the counseling situation (e.g., directive, non-directive, eclectic; clinical emphasis on the elements of persons, processes, or properties; symbolic mode of communication) but to show these elements to some degree are considered important to any counseling style.

Selected studies from the literature related to the educational science of cognitive style help to provide a

background for the present study. These studies, the effect of cognitive style elements in relation to academic success in selected curricula, and elements of cognitive style and their relation to vocational choice, have definite implications for counseling. The matching of cognitive style of students with the cognitive style of teachers in relation to academic success suggests the need for a study or studies matching cognitive style of students with the cognitive style of counselors. The present study is unique in that it matches cognitive style of students with cognitive style of counselors and preferred counseling style of students with counseling style of counselors.

In the next chapter the design of the study is presented.

CHAPTER III

DESIGN OF STUDY

Introduction

In the preceding two chapters, the background of the study and the review of literature in related fields were presented. This chapter will detail the source of data, the manner in which the sample group for the study was selected, how the data were collected in terms of the instrumentalities used, and the procedures followed.

The study was designed to answer certain general questions, but not to test hypotheses. Being exploratory in nature, it was designed to generate new questions, and perhaps hypotheses, pertaining to other aspects of educational counseling situations.

Source of Data

Oakland Community College:

The potential source of data for the present study could be all students enrolled at Oakland Community College and all Educational Counselors employed at that Institution during the academic year 1972-73. Due to limitations regarding time, observational settings, personnel and financial resources, the defined population of the study

became those students and the Educational Counselors* assigned to the Southeast Campus System, Oakland Community College, during the 1972-73 academic year.

Oakland Community College is a multi-campus configuration composed of four campuses, listed alphabetically: a) Auburn Hills, located in Auburn Heights, Michigan, with an enrollment of 4,827 students; b) Highland Lakes, situated on Cooley Lake Road near Union Lake, Michigan, with an enrollment of 2,416; c) Orchard Ridge, located near Farmington, Michigan, with a student enrollment of 5,960, and d) the Southeast Campus System with, at present, two satellite campuses, one of which is located in Oak Park, and the other in Royal Oak, Michigan, respectively, with a collective student enrollment of 2,197.** In addition to offering on-campus opportunities, each campus, and the campus system, offers evening programs through extension

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*Educational Counselor as defined in the Faculty Master Agreement, 1973-75, p. 8: A faculty member who has an educational counseling contract shall be assigned a student load by the Counseling Department. All campus students except those covered by special contract such as Apprentice Technical and externally funded projects, i.e., CHECO, shall be assigned to an Educational Counselor. However, a student shall not be required to be counseled unless his academic standing is in jeopardy according to the Educational Progress scale. Extension students shall not be counted in the Educational Counselors' on-campus load. Under these circumstances the maximum number of students assigned to an Educational Counselor shall be 440 per session. The 440 figure shall be reduced by the number of students in each section devoted to group instruction. In the event a full counselor load is not filled on campus he will be assigned off-campus students to fill his load.

**Enrollment figures were provided by the Office of Admissions.

centers located in each operation's sphere of influence throughout the College district.

Purpose:

The purpose of the College is stated in the current College catalog as follows:

> Oakland Community College is a public, two-year institution of higher learning which provides academic, technical-vocational and continuing education opportunities for both youth and adults. The instructional program is designed to prepare students to enter the upper division of senior colleges or universities or to enter a career field immediately upon completion of his training.[82]

Objectives:

The Major objective is as follows:

> Oakland Community College's major objective is to provide a quality program of comprehensive services to meet the diverse higher educational needs of its community. Its open door admissions policy dictates investigation of innovative instructional approaches and effective utilization of instructional technology to guarantee that admission means a real opportunity to acquire higher education. To facilitate each student's achievement of his educational and career objectives, OCC supports the development of a Personalized Education Program which employes a variety of media and methods appropriate for each student's individual cognitive style.[83]

To meet the wide spectrum of higher education needs of its community, Oakland Community College offers six major types of education services:

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[82] Oakland Community College Catalog 1973-74, Bloomfield Hills, Michigan: Oakland Community College, 1973, p. 3.

[83] Ibid., p. 3

Transfer Programs: Two-year transfer programs for students who wish to complete freshmen and sophomore courses at home before transferring to a senior college to finish baccalaureate degree requirements.

Technical and Vocational Programs: Technical and paraprofessional programs to prepare students for immediate entry to careers requiring two years or less of formal preparation.

Developmental Programs: Developmental Programs designed to afford students with poor academic preparation an opportunity to remedy their deficiencies and continue their education.

General Education: General education experiences to facilitate the development of a broadly educated person.

Community Services: An extensive program of community services designed to meet the community needs by extending the campus throughout the entire college district thereby achieving a closer inter-relationship and promoting the most effective utilization of resources of the college by the community.

Counseling and Guidance: Counseling and guidance services undergirding all the other functions.[84]

In contrast to more conventional institutions, Oakland Community College is constantly searching for approaches to learning which will meet the requirements of the individual student through the educational services outlined above.

History:

The Oakland Community College District was established by the electorate of Oakland County, Michigan, on June 8,

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[84]Joseph E. Hill, Annual Report 1970-71, Oakland Community College, Bloomfield Hills, Michigan, 1971, p. 6.

1964. The district served includes approximately 900 square miles and has an assessed valuation of 5.2 billion dollars. Oakland County contains twenty-eight public school districts with thirty-nine public high schools. In addition, there are twenty-two non-public schools in the district.

The College initially opened in September, 1965, with a record community college initial enrollment of 3,860 students on two campuses - Highland Lakes in Union Lake, and Auburn Hills in Auburn Heights. In September, 1967, the Orchard Ridge Campus in Farmington accepted its first students.

In 1971, a Southeast Campus Center, located in Oak Park, and in the Fall Session, 1973, a Center in Royal Oak, were implemented to form the Southeast Campus System through which the College seeks to provide comprehensive higher education and career services to the most densely populated section of its District. During the Fall Session, 1973, the College's four campus operations and their extension centers enrolled approximately 16,000 students.

Instructional Approaches:

Classes at Oakland Community College are organized according to a variety of patterns. The instructional models are treated as systems with clearly stated performance goals. The current College catalog includes the

following description of the instructional approaches being implemented:

> Oakland Community College has developed an individualized approach to learning based on the premise that a student of normal ability will not fail if the content of the course is presented in a fashion appropriate for his cognitive style. Currently, about thirty percent of the courses are designed to provide this personalized type of instruction. The keystone of this approach is a diagnostic testing program that measures a student's ability to acquire meaning through qualitative strengths as well as the more traditional theoretical methods. The scores achieved on written diagnostic tests and on demonstrable performances, along with supportive data from personal interviews, are translated into elements of the student's cognitive map. The student's map becomes the basis for identifying the educational sequences, teaching media, and instructional techniques which will assist him in mastery of essential skills.[85]

Although each student remains responsible for the content of his course, he may "burst" into any of several instructional modes appropriate to his needs, abilities, and cognitive style. The environments for the "burst" activities are the Carrel Arcades, the Learning Resources Center (LRC), and the Individualized Programmed Learning Laboratory (IPLL).

Special Facilities:

The facilities described in this section are an integral part of the Personalized Education Program (PEP) as it is being implemented at Oakland Community College. In those classes where the "burst" system is being employed,

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[85]Catalog, op. cit., p. 5.

the settings in which students work are selected by the student, his counselor, and the instructor on the basis of the student's needs and cognitive style. Together they develop an educational prescription.

One of the facilities considered to be essential to the program of personalized education is the Learning Resources Center, described in the College's literature as:

> Learning Resources Center (LRC) - The LRC contains learning resource materials, films, slides, audio tapes, records, video tapes, cassette units, and graphic displays as well as books and periodicals. It is equipped for individual study which might include the use of tape decks, video monitors, slides, transparencies, and graphic materials. In addition to the centrally located LRC on each campus, satellite library collections are placed in the various learning laboratories and in centrally located check-out centers. These satellite collections contain materials associated with the academic disciplines taught in the learning laboratory. Students are encouraged to browse and check out materials from the collections.[86]

It should be noted that not only those students participating in the "burst" configuration use the LRC extensively, but many of those enrolled in "conventional" courses also participate in a variety of activities housed in the LRC.

Another facility considered to be essential to the program of personalized education and other College operations is the Computation Center, described as follows:

> Computation Center - Some of the functions performed by the Center are processing of semester grades, class attendance data,

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[86] Ibid., p. 5.

> statistics on class enrollment, records of fee payments, preparation of payroll, provision of planning and development information for faculty and staff, test scoring services for faculty, recording library acquisitions and planning for future acquisitions, and registration of students via computer terminals. At OCC, the computer is also used to print out cognitive maps and assist in the management of the personalized instructional sequences based upon identified cognitive style (CAMPI).[87]

The Computation Center, as is indicated by the above description, provides unlimited service to the College, staff, and students. To provide this service requires a well-qualified staff that is willing to assist whenever possible.

A third facility used in providing personalized education is the Individualized Program Learning Laboratory.

> Individualized Programmed Learning Laboratory - The IPLL provides assistance for students who need reinforcement in basic areas and enrichment for those who wish to expand the opportunities offered in regular classes. Tutoring in all major curricular areas and study skills is provided by professional staff. The IPLL functions as a prescription center within the Personalized Education Program at OCC. Students utilize programmed learning materials, three-dimensional models, and appropriate audio-visual equipment. Each student receives a personal interview along with a series of diagnostic tests. The program selected is tailored to fit the student's individual interests and needs. A programmed text is assigned to the student and an IPLL instructor designated to provide assistance as needed. This form of self-tutoring, with periodic aid from an instructor at the IPLL provides the student with assistance that is highly personalized, private, self-pacing, and convenient. Programs are tailored to the student's specific needs. The IPLL also offers reading enrichment (speed

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[87] Ibid., p. 5.

> reading) and reading remediation programs for students. This is a free student service.[88]

Students who use the services of the Individualized Programmed Learning Laboratory may be self-referred or referred by faculty. When working with students on academic probation, counselors find the services available through this facility very helpful.

The audio-tutorial approach to education initiated by Oakland Community College in 1965 has been incorporated into the program of personalized education in the form of the Carrel Arcades which are described as follows:

> Carrel Arcades - The Carrel Arcades complement the teaching of College courses by offering services necessary to break out of the traditional format. The Carrel Arcades provide software, hardware, tutors, para-professionals and other services, and provide a variety of educational settings and technology. A staff of professionals and para-professionals help students learn in their own way and at their own speed. Students review videotaped lectures, listen to audio tapes, and study course materials on other audio-visual equipment. Small groups meet for informal talk sessions with teachers and resource personnel. Youth-Tutor-Youth makes student help available to other students on a regular basis. Students who have already mastered course material are trained by the professional staff as tutors.[89]

The Carrel Arcades, as described, provide more than the original audio-tutorial approach by incorporating the concept of peer instruction to the educational program.

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[88] Ibid., p. 6.

[89] Ibid., p. 6.

The Departmental Experimental Laboratories, as described below, are designed to satisfy the needs of those students who desire to search for meaning beyond what they can achieve in the normal classroom setting or who derive meaning better on an independent basis.

> Departmental Experimental Laboratories - Learning laboratories are open to meet the needs and requirements of students in various fields. Both the hours the laboratories are open and the times when specific faculty members are available are prominently posted. Each student at OCC must exercise the maturity and independence to apply himself in the learning laboratory. He must learn to follow the instructional sequences as directed by the faculty.[90]

The Departmental Experimental Laboratories, along with the other special facilities just described, are designed to supplement the regular College program. These facilities are essential to provide a vehicle to meet the challenge of the "open-door" policy of the College.

Counseling Services:

Innovative approaches to counseling and guidance must be implemented if the community college is to fulfill its obligation to provide successful educational experiences to large numbers of socio-generically handicapped students. For these students the "open-door" policy represents the only entrance to higher education.

> Counseling must be based upon an accurate assessment of abilities, interests, and

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[90] Ibid., p. 6.

> employment possibilities in order to assist the student in the development of realistic goals. Emphasis must be placed also upon academic achievement motivation in addition to supportive counseling to enable the disadvantaged to benefit from higher educational opportunities.[91]

At Oakland Community College the counselors at each campus assist students in their search for self-understanding and/or solutions to their academic, vocational, and personal needs. Student Cognitive Style Maps are used by counselors in a variety of ways to assist the student in his endeavors.

Student Body:

The student body at Oakland Community College is similar to the student body at most public community-junior colleges. Manilla in "A History of Oakland Community College," indicates that the difference between the student body at Oakland Community College and other Commuity Colleges may be more in learning experiences and the consequences of those experiences than in traits and characteristics.[92]

As was pointed out in the sub-section on objectives, the College was established and organized to provide certain kinds of services to its students and the community. In order to meet this basic responsibility the Board of Trustees

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[91]Gural, op. cit., p. 108.

[92]S. James Manilla, "A History of Oakland Community College with Emphasis on Multi-Campus Administration, Systems Approach to Instruction, and the Educational Sciences," (unpublished doctoral dissertation, Wayne State University, Detroit, Michigan, 1971), p. 217.

adopted the "open-door" policy. This policy is stated in the 1973-74 College Catalog as follows:

> Oakland Community College is primarily concerned with the post high school educational needs of the community it serves. The College accepts its responsibility for leadership and proposes to develop and maintain a collegiate program sufficiently flexible to adjust to the changing educational needs of the area. Admission to credit studies is open to all high school graduates, transfer students and persons 18 years of age or older. Others may be admitted provided they demonstrate the capacity and maturity to benefit from programs and courses offered by the College. To be admitted, applicants must meet the general admissions requirements of the Office of Academic Data Systems and any special requirements designated for the program they intend to elect.[93]

This policy has broad implications. As discussed by Manilla the policy becomes one of providing a variety of opportunities:

> ...it has meant not only a willingness to admit a wide range of abilities, interests, and kinds of individuals, without respect to age or sex or previous academic achievement, but also to offer a wide range of opportunities within the institution--on campus or off campus--in an attempt to meet the needs of a community of approximately one million people.[94]

To meet the needs of these people the Board of Trustees has committed the College to the implementation of the Educational Sciences.

The following information concerning the nature of the student body at Oakland Community College is found in the 1969-70 Annual Report.

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[93]Catalog, op. cit., p. 15.

[94]Manilla, op. cit., p. 218.

> Based upon a survey of first session freshmen, 63% of whom are male, the typical Oakland Community College student emerges as unmarried, between 18 and 22, enrolled in a university parallel program with plans to continue work in a four-year institution toward a baccalaureate degree, living at home, coming from a middle income family, and working part time to help finance college costs. The reasons he gives for attending Oakland Community College are, "good faculty, low cost, and closeness to home," (the average student lives within an 11 mile radius of a campus).
>
> Oakland Community College students range in age from 17 to 80 and, while the bulk come from middle income families, 3.4% come from families with annual incomes less than $4,000 and 3% from families with incomes between $16,000 and $30,000. The diversity of backgrounds of our students finds many Oakland Community College students the first members of their families to come to college and others the sons of college educated vice presidents of major corporations. Twenty-three per cent of the students were enrolled in programs in the Applied Sciences and Arts, designed to equip them for employment upon completion of a one or two year job oriented training program.[95]

It is evident from the results of the survey that Oakland Community College students are little different from most community college populations, therefore, samples employed from this population should be suitable for the study.

Samples Employed in the Study

The present study was designed to continue the exploration of various uses of cognitive style in education, and to establish a foundation for further studies in the use of counseling style in the educational setting. Since it

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[95]Joseph E. Hill, Annual Report 1969-70, Oakland Community College, Bloomfield Hills, Michigan, 1970, pp. 10-11.

would be impossible to contact each person in the defined population of the study that had potential for contributing to the study, it became necessary to select "judgment-purposive" samples of persons for inclusion in the effort. Hill and Kerber define a "judgment-purposive" sample as follows:

> When the selection of a sample is based upon human judgment, it is called "purposive" or "judgment" selection. Such selection is determined on the basis of what the research worker might consider from his past experience to be a typical, or representative, sampling unit. It may also be based upon the findings of an analysis of the statistical population relative to physical, psychological, sociological, or economic characteristics. Sometimes it is a haphazard selection of accessible population elements - persons who pass a particular corner in a certain city, for example. Frequently "purposive" selection is considered "segmental" selection, to the extent that the selection is restricted to certain segments of the total statistical population.[96]

To satisfy the requirements set forth in a "judgment-purposive" sample it was necessary to determine a segment of the student body which would be representative of the total student body.

Student Sample:

In order to implement the design of the study, students enrolled in the General Orientation, GOR010, classes at the Southeast Campus Center, Fall Session, 1973, were selected

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[96]Joseph E. Hill and August Kerber, Models, Methods, and Analytical Procedures in Education Research, (Detroit, Michigan: Wayne State University Press, 1967), pp. 43-44.

on the basis of the judgments and purposes of the researcher, and the panel of "experts" at the College that was employed as one means of validating decisions regarding the selection, representativeness, and adequacy of the sample design. This class meets once a week for 15 weeks, and one credit-hour is awarded the student for successful completion of the course.

The general objective of the class is stated in the course outline as follows:

> ...to help the student gain an understanding and knowledge of Oakland Community College, produce a student who is less confused regarding procedures and policies at Oakland Community College and thus free to concentrate on his program of study and his personal objectives. In addition, to give the student guidance in the areas of personal goals and self-perception, enabling him to establish an educational plan in accordance with his occupational goal. To be able to realistically evaluate himself, his progress and his future.[97]

The course is taught to meet the individual needs of the students. It is designed to terminate at various times during the session depending on the judgment of the counselor and the student as to having met the requirements of the course.

The nature of the GOR010 classes was found to be well suited for use in the study effort. The emphasis placed on the concept of cognitive style (all students enrolled in GOR010 must take the Cognitive Style Test Battery), and

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[97]Counseling Staff, "General Orientation (GOR010)," Oakland Community College, Bloomfield Hills, Michigan, 1968, p. 1.

of enabling the student to establish an educational plan, provided numerous opportunities and necessities for educational counseling interviews.

Counselor Sample:

In addition to the need for employing a sample of students, it was also necessary to select a sample of counselors for inclusion in the study. The Counselors involved in the study were located in the Southeast Campus System, and were selected on the basis of similar backgrounds and experience, but different types of counseling styles. All counselors involved were male, held a Masters Degree in Guidance and Counseling, had 10 or more years experience in education, and had 5 or more years experience in counseling at Oakland Community College. These Counselors participated in the study on a voluntary basis.

Data Collection

The data collected for the present study were intended to provide a foundation for the exploration for the possible relationships between cognitive style, counseling style, and preferred counseling style. Data on the cognitive style, counseling style, preferred counseling style, and the degree of satisfaction with the counseling session were collected by means of the instrumentalities (instruments and techniques) and the procedures described in the following sections.

Instrumentalities:

The instrumentalities used in the study consist of: 1) instruments, the Cognitive Style Test and Inventory Battery administered to students and counselors, 2) questionnaires given to the students in the sample drawn from the defined population, and 3) informal discussions, interviews, and observations by experts in the Educational Sciences who interviewed and observed counselors to determine their counseling style.

Cognitive Style Test Battery:

The Test and Inventory Battery used to generate the data for cognitive maps has been developed over a period of eight years through the efforts of Dr. Joseph E. Hill and his associates in the Institute for Educational Sciences. This Battery has undergone a number of revisions and modifications, while current research efforts are pointing the way to still further improvements. Although the Cognitive Style Battery is constantly being reviewed and revised, the theory behind the mapping process is accepted and instruments employed have the necessary degree of sophistication for the generation of reliable and valid data (see Appendix B).

The Cognitive Style Battery consists of six standardized tests and four inventories. The written Battery includes inventories specifically designed to measure various cognitive style elements as well as inventories

adapted from existing standardized tests. Results from the Cognitive Style Battery are processed through Oakland Community College's computer system to produce a map of cognitive traits that describe the many ways each student might seek meaning. (For further information contact the Oakland Community College Diagnostic Test Center.)

Preferred Counseling Style Questionnaire:

The Preferred Counseling Style Questionnaire (see Appendix C) was locally constructed to determine the counselee's preferred counseling style. Questions for the Questionnaire were designed to determine the "demeanor," "emphasis," and "symbolic mode" sets of counseling style as described earlier in the study. The questions were submitted to a "panel of experts" composed of five persons, knowledgeable in the Educational Sciences and counseling, for purposes of validating the construction of the Questionnaire. The Questionnaire was then administered to fifteen students, who were enrolled in General Orientation, GOR010, during the Spring Session, 1973, as a pilot study, to determine if the Questionnaire could be used to determine distinct preferred counseling styles of counselees. In the development of the Questionnaire, the characteristics of a reliable questionnaire as discussed by Best were utilized. A summary of Best's characteristics of a good questionnaire are as follows:

(1) It deals with a significant topic. The significance should be clearly stated in the questionnaire or in the letter that accompanies it.

(2) It seeks only that information which cannot be obtained from more factual sources (school records, etc.).

(3) It is as short as possible, and requests only essential data.

(4) It is arranged efficiently, and is clearly duplicated or printed.

(5) Directions are clear and complete; important items are defined; each question deals with a single idea; categories provide for unambiguous responses.

(6) The questions are objective with no hint of desired responses.

(7) Questions are presented in good psychological order, proceeding from general to more specific responses. Embarrassing questions should be avoided.

(8) It is easy to tabulate and interpret the data yield.[98]

A tabulation of scores on the Questionnaire showed evidence of distinct counseling styles as preferred by the students.

Counselor Questionnaire and Counselee Questionnaire:

The Counselor Questionnaire (see Appendix D) and the Counselee Questionnaire (see Appendix E) were locally construced to determine the degree of satisfaction on the part of the counselor and the counselee on the outcome of the educational counseling situation. The items on the questionnaire were submitted to a "panel" of experts for

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[98]John W. Best, Research in Education, (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1959), pp. 151-52.

item reliability. Hill and Kerber describe this method as follows:

> The reliability of rating methods is most frequently determined by computing intercorrelations among ratings made by a "jury" or "panel" of persons considered to be experts in the field that is being rated. ...items that the judges rated approximately the same would be considered the "consistent" ones in the field. If a new rating scale is constructed and includes only those items which were previously determined to be "consistent," the new instrument is considered to be reliable.[99]

The "panel" that reviewed the items for the Counselee Questionnaire was composed of students who reviewed each item. Those items considered questionable were discarded. The instrument that was ultimately constructed was agreed upon by the panel of students.

Items for the Counselor Questionnaire were submitted to a "panel" of counselors and the same procedure in constructing this questionnaire was followed as that followed in constructing the Counselee Questionnaire.

Counseling Style:

In order to determine the counseling style of each counselor in the study, a "panel" of three experts who had known the counselors for a minimum of four years observed the counselors during interviewing situations. Each interview was observed without the counselee being aware of the observation and in some instances without the immediate knowledge of the counselor. This type of observation was

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[99]Hill and Kerber, op. cit., pp. 64-65.

made possible by the construction of the walls which do not reach the ceiling in one counseling center, while in another counseling center the interviews were observed from another office which is opposite the office in which the interview was taking place.

Procedures:

The procedures listed below were followed in the process of collecting the data employed in the study:

1. During the Spring Session, 1973, those students enrolled in a General Orientation Class, GORO10, taught by the researcher, were asked to participate in the construction of two instruments to be used in a doctoral study. The title of the study was discussed and the need for student volunteers was explained. Fifteen students volunteered to participate by reviewing the items presented for the construction of the Counselee Questionnaire.

2. The questionnaire used to determine preferred counseling style was submitted to a "panel" of experts, who are knowledgeable in the Educational Sciences, for their review and recommendations. The Questionnaire was developed after the "panel" had analyzed each question.

3. The Preferred Counseling Style Questionnaire was administered to the fifteen volunteer students enrolled in the researcher's General Orientation Class.

4. Three counselors, from the Southeast Campus System, Oakland Community College, were asked to participate in

the study. The counselors were informed that they would be observed during interviewing situations and that students as well as the counselors would be expected to complete a questionnaire designed to determine the degree of satisfaction attained from these interviewing situations.

5. Three persons who, on the basis of research completed and their involvement in the Educational Sciences, were considered to be experts in the "Sciences" were asked to determine the counseling style of each of the three counselors located in the Southeast Campus System.

6. Items intended to be used in the development of the questionnaire to determine the degree of satisfaction on the part of the counselor with the interviewing situation were submitted to a "panel" of five counselors for their review and recommendations. Based on the "panel's" recommendations, the Counselor Questionnaire was constructed.

7. During the Fall Session, 1973, those students enrolled in the General Orientation Classes, GOR010, were asked to participate in the study. A few students preferred not to participate and were excused.

The Preferred Counseling Style Questionnaire was administered to those students who volunteered to participate and instructions regarding their further involvement were given. The Students were asked to make an appointment with each of the three counselors, who had volunteered to participate in the study, to discuss their educational plans.

At the end of the interview the student was asked to inform the counselor whether he/she was participating in the study. If the student was a participant, then he/she was given the Counselee Questionnaire to be completed and returned to the writer.

8. Counselors upon being informed by a student that he/she was participating in the study, completed the Counselor Questionnaire and returned it to the researcher.

The data produced by the procedures outlined above appear mainly in statement form in the study. The analysis of the data and the findings of the study are described and reported in the next chapter.

CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

Introduction

The preceding three chapters serve to provide answers to such questions as: 1) why is the study necessary; 2) how is such a study significant; 3) how is the study effort related to other knowledge in the field; 4) how was the sample selected for the study and how does it represent the defined population; and 5) what are the procedures that were employed in collecting that information considered to be relevant to the study effort?

The purpose of the present chapter is to describe: 1) the analytical and descriptive techniques which were used to yield data pertaining to the questions presented in Chapter I, 2) examples of how these techniques were employed, and 3) the findings of the study effort.

Due to the exploratory nature of the study effort, no attempt has been made to test a research hypothesis, or hypotheses. In Chapter I, under the section dealing with general questions to be answered, it was stated that the hypothesis-generating nature of the study indicated that general questions concerning the problem were more in order than were the testing of hypotheses regarding it.

Analytical Techniques

There were four main types of analytical and descriptive techniques employed throughout the study: 1) matching "styles," 2) content analysis, 3) the nonparametric statistical technique called "the Kolmogorov-Smirnov One-Sample Test," and 4) counselee reactions to incidents.

Matching "Styles":

The technique of matching "styles" was used to determine the degree of match between 1) the cognitive styles of the counselor and the counselee, and 2) the counseling style of the counselor and the preferred counseling style of the counselee. The matching of "styles" techniques involves the assignment of numerical values to each element in the cognitive style or counseling style of the individual being matched (referent) and, based on a defined procedure, determine the numerical value to be assigned to each corresponding element in the cognitive style or the preferred counseling style of the individual being matched. (For a step by step procedure of how "styles" are matched, see Appendix G.)

Content Analysis:

Content analysis deals with systematic examination of current information--be it written, spoken, mechanical, or portrayed in an art form--to provide data that might be categorically classified and evaluated and thus provide a description and interpretation of a situation or condition

not otherwise describable.[99] Based on the foregoing definition, this technique can assist researchers in:

1. describing specific conditions that exist
2. indicating possible trends or patterns extant in the information being analyzed
3. determining differences between stated objectives and the practices that prevail
4. identifying attitudes, interests, and orientations of people.[100]

Points two and four above were especially relevant to the objectives of the study effort. The technique of content analysis was applied to the data obtained through interviews with students involved in the study and reviewing student counseling folders.

To illustrate how the content analysis technique was employed in the study, students enrolled in the writer's General Orientation class were interviewed to determine attitudes toward particular counselors and to determine possible trends on the part of students as to satisfaction with the interview process. This technique led to the possible assumption that certain types of students (socio-economic) preferred the counseling style exemplified by one counselor more than the counseling styles exemplified by the other counselors involved in the study. A review of the counseling folders indicated the assumption was correct.

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[99]Hill and Kerber, op. cit., p. 109.

[100]Gural, op. cit., p. 135.

It should be noted that the data gathered through this technique led to further study in the analysis of "matched" styles.

Kolmogorov-Smirnov "One-Sample Test":

The Kolmogorov-Smirnov "one-sample test," is a test of goodness-or-fit and is concerned with the degree of agreement between the cumulative distributions of observed (sample) relative frequencies and expected (theoretical) relative frequencies.

> The one-sample test determines whether the distribution of the cumulative relative frequencies of the sample agrees reasonably with the distribution of the cumulative frequencies expected under the null hypotheses (H_o:). The cumulative distribution of the expected (theoretical) relative frequencies is determined on the basis of the substance of the null hypothesis (H_o:). After this distribution is determined, the cumulative distribution of the observed (sample) relative frequency is compiled. The two cumulative distributions are then compared over a range of categories in terms of the maximum difference (deviation) between them. The category in which the cumulative distributions show the greatest deviation (poorest fit) is determined, and the value of the divergence at that point is referred to the appropriate Kolmogorov-Smirov sampling distribution to determine the probability of a deviation that would be largely occurring by chance, if the null hypothesis (H_o:) were true. If the maximum deviation is of such magnitude that its probability of occurrence is less than that set by the level of significance, say .05, then the null hypothesis is rejected and its statistical atternative hypothesis is accepted.[101]

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[101]Hill and Kerber, op. cit., pp. 311-13.

In order to illustrate how this technique was employed in the process of analyzing certain data yielded by the data collection effort, the following analysis of scores taken from the Counselee Questionnaire for Counselor A in the study is shown.

Table 1. Kolmogorov-Smirnov one-sample test analysis of scores on Counselor A--Counselee Questionnaire

Score*	50-42	41-19	18-10	Total
$S_n(X)$	(7) $\frac{7}{14}$	(7) $\frac{14}{14}$	(0) $\frac{14}{14}$	14
$F_o(X)$**	(4) $\frac{4}{14}$	(6) $\frac{10}{14}$	(4) $\frac{14}{14}$	14
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$	$\frac{3}{14}$	$\frac{4}{14}$	0	

*Scores on the Counselee Questionnaire were determined by assigning values to each answer ranging from 5 points of score for Strongly Agree to 1 point of score for Strongly Disagree.

**$F_o(X)$ is based upon Flanagan's Technique which determines that 27% of cases belong to the upper end of a normal distribution; 46% to the middle; and 27% to the lower end of the distribution.

The Kolmogorov-Smirnov test concerns itself with the absolute value of the maximum deviation (difference), D, of the expression $\lvert F_o(X)-S_n(X)\rvert$. In this example Maximum D = $\lvert F_o(X)-S_n(X)\rvert = \frac{4}{14} = .29$; where the expression $\lvert F_o(X)-S_n(X)\rvert$ indicates the absolute value (positive value only) of the maximum difference. Employing Table VI, page 312, of

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Selected Critical Values of D for the Kolmogorov-Smirov one-sample test (see Hill and Kerber[102]), by extrapolation for sample size n = 14; D = .16; places the hypothesis of this two-sample test in doubt, at between p = .10 and p = .05 levels of significance. Interpretations and conclusions that can be derived from this statistical inferential result are presented in connection with the conclusions drawn by the study effort. These concerns are included in the next chapter.

It should be noted that this technique was employed to analyze not only responses to the items included in the Counselee's Questionnaires, but to analyze responses to the items included in the Counselor's Questionnaires as well. The results of the analyses of these responses for Counselors A, B, and C, respectively, are presented in the Findings section of this chapter.

Counselee Reactions to Incidents:

The critical incidents technique may be described as:

> ...any observable type of human activity which is sufficiently complete in itself to permit inferences and predictions to be made about the person performing the act. To be critical, the incident must be performed in a situation where the purpose or intent of the act seems fairly clear to the observer and its consequences are sufficiently definite so that there is little doubt concerning its effect.[103]

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[102] Ibid., p. 312.

[103] John C. Flanagan, "The Critical Incident Technique," Journal of Educational Psychology, (March, 1954), p. 319.

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Another applicable definition of the critical incident technique is as follows:

> A procedure for obtaining a comprehensive list of behaviors which have made the difference between effective and ineffective participation in the profession or activity being studied.[104]

The critical incidents technique was applied to data gathered during both formal and informal interviews with students and counselors associated with the study. An occurrence that was considered a critical incident was: One student after being interviewed by a counselor commented, "How can you talk to that guy, instead of listening to me he sits back and talks all the time." This incident was critical to the extent that the student would give the counselor a poor rating on the Counselee Questionnaire as would other students with a similar preferred counseling style.

Another critical incident was the case where one counselor was employed on a part-time basis causing some students to complain that it was difficult to see him. This incident was critical to the extent that it indicated the importance of careful selection of personnel to participate in a study.

A variety of these incidents, which have not been included in the reported findings of the study, were also used to supplement data and information yielded by the study

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[104]Ralph F. Wagner, "A Study of Critical Requirements for Dentists," Personnel Psychology, Vol. II, (1949), p. 421.

effort in the process of drawing the conclusions associated with the study endeavor.

Findings

The findings reported in this section were yielded by the data collection instrumentalities (see Chapter III), and the analytical procedures described in the previous section of this chapter. The findings, as presented, are related to the questions presented in Chapter I.

Tables 2 and 3 show the analysis of scores on the Counselee Questionnaire for Counselors B and C, respectively. It should be noted that the analysis of scores for Counselor A were described in the example illustrating the application of the Kolmogorov-Smirnov one-sample test technique found in the previous section of this chapter.

Table 2. Analysis of scores on Counselor B--Counselee Questionnaire

Score	50-42	41-19	18-10	Total
$S_n(X)$	(0) $\frac{0}{5}$	(5) $\frac{5}{5}$	(0) $\frac{5}{5}$	5
$F_o(X)$	(1) $\frac{1}{5}$	(3) $\frac{2}{5}$	(1) $\frac{5}{5}$	5
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$		$\frac{3}{5} = .60$		

Significant between p = .05 and p = .01 levels for cumulative relative frequencies of occurrence over the middle and high score ends of the distribution.

Table 3. Analysis of scores on Counselor C--Counselee Questionnaire

Score	50-42	41-19	18-10	Total
$S_n(X)$	(3) $\frac{3}{14}$	(11) $\frac{14}{14}$	(0) $\frac{14}{14}$	14
$F_o(X)$	(4) $\frac{4}{14}$	(6) $\frac{10}{14}$	(4) $\frac{14}{14}$	14
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$		$\frac{4}{14} = .29$		

The value .29 places the hypothesis in doubt between the .10 and .05 levels as a two-tailed test, for a one-tailed test Max. D = .29 is very close to the critical value of Max. D associated with the p = .05 level for the middle to upper end categories of the distribution.

Tables 4, 5, and 6 show the analysis of scores on the Counselor Questionnaire for Counselors A, B, and C, respectively.

Table 4. Analysis of scores on Counselor A--Counselor Questionnaire

Score	50-42	41-19	18-10	Total
$S_n(X)$	(4) $\frac{4}{14}$	(10) $\frac{14}{14}$	(0) $\frac{14}{14}$	14
$F_o(X)$	(4) $\frac{4}{14}$	(6) $\frac{10}{14}$	(4) $\frac{14}{14}$	14
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$		$\frac{4}{14} = .29$		

In a fashion similar to the situation associated with conditions found in Table 3, the value of Max. D = .29 places the hypothesis in doubt as a two-tailed test, for a one-tailed test Max. D = .29 is very close to the critical value of Max. D associated with the p = .05 level for the middle to upper end categories of the distribution.

Table 5. Analysis of scores on Counselor B--Counselor Questionnaire

Score	50-42	41-19	18-10	Total
$S_n(X)$	(1) $\frac{1}{5}$	(4) $\frac{5}{5}$	(0) $\frac{5}{5}$	5
$F_o(X)$	(1) $\frac{1}{5}$	(3) $\frac{4}{5}$	(1) $\frac{5}{5}$	5
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$		$\frac{1}{5} = .20$		

In Table 5 it should be noted that the value of Max. D = .20 is not of sufficient value to place the null hypothesis in doubt nor to reject it in a one-tailed test at the .05 level of significance.

Table 6. Analysis of scores on Counselor C--Counselor Questionnaire

Score	50-42	41-19	18-10	Total
$S_n(X)$	(4) $\frac{4}{14}$	(10) $\frac{14}{14}$	(0) $\frac{14}{14}$	14
$F_o(X)$	(4) $\frac{4}{14}$	(6) $\frac{10}{14}$	(4) $\frac{14}{14}$	14
Maximum Deviation $\lvert S_n(X)-F_o(X)\rvert$		$\frac{4}{14} = .29$		

In Table 6, as in Tables 3 and 4, it should be noted that the value of Max. D = .29 places the hypothesis in doubt as a two-tailed test, for a one-tailed test Max. D = .29 is very close to the critical value of Max. D associated with the p = .05 level for the middle and upper end categories of the distribution.

Tables 7 and 8 shows the degree of match between student's and counselor's cognitive styles, and the degree of match between the student's preferred counseling style. The data compiled for this table was obtained through the use of the "matching" process described previously in this chapter.

Table 7. Degree of match by per cent between student's and counselor's cognitive styles*

Student	Counselor		
	A	B	C
2986	46	44	47
2375	46		
4755	43		50
1278	40		
7895	50		42
0420			50
1392	47	54	58
4643			58
1296			
6801	54		65
0323	38		
7329			53
2182	62		37
5155	48	27	24
8688	27	25	27
4241	51		58
3340			52
2350	57		45

*Values from .50 through .99, inclusive--major match; from .26 through .49, inclusive--minor match; 0 through .25, inclusive--negligible.

Certain values in Table 7 have been noted as "Major" or "Minor" depending upon the magnitude of the entry. This notation was employed to indicate how these values are interpreted in terms of degree of match between the "styles" of the counselee and counselor.

Table 8. Degree of match by per cent between student's preferred counseling style and counselor's counseling style*

Student	Counselor		
	A	B	C
2986	32	74	89
2375	35		
4755	52		81
1278	52		
7895	53		63
1392	57	63	69
6801	33		37
1296	26	48	63
0323	33		
2182	54		74
5155	41	33	21
8668	40	40	65
4241	58		83
2350	41		
0420			47
4643			54
7329			48
3340			87

*Values from .50 through .99, inclusive--major match; from .26 through .49, inclusive--minor match; 0 through .25, inclusive--negligible.

In similar fashion to Table 7 certain values in Table 8 have been noted as "Major" or "Minor" depending upon the magnitude of the entry. This notation was employed to indicate how these values are interpreted in terms of degree of match between the "styles" of the counselee and counselor.

Findings Yielded by Cognitive Style Matching:

The following findings show: 1) the cognitive style of Counselor A, 2) the collective cognitive style of those students with whom the counselor had the major degree of match, and 3) cognitive style elements that were common to both.

$$g = \begin{bmatrix} T'(AL)\ T'(AQ)\ T(VL)\ T'(VQ) \\ Q(CT) \\ Q(CS) \\ Q(CET) \\ Q(CKH) \\ Q(CEM) \\ Q(CP) \\ Q(CES) \\ Q(CK) \\ Q(CH) \\ Q(V) \\ Q(T) \\ Q(S) \\ Q(P) \\ Q(A) \\ Q'(O) \end{bmatrix} X \begin{bmatrix} & \\ I & F \\ & \end{bmatrix} X \begin{bmatrix} \\ L \\ \end{bmatrix}$$

Figure 2. Cognitive Style Map--Counselor A

The "map" for Counselor A shows one major T(VL) and three minor T'(AL), T'(AQ), T'(VQ) orientations in the theoretical area of the first set. These theoretical orientations are accompanied by fourteen major and one minor Qualitative Symbols in this set. In the second set it should be noted that there is no A (associate) determinant displayed.

The L (appraisal) inferential in the third set stands alone, however, this inferential modality (L) includes three modes of reasoning; namely, M (magnitude), D (difference), and R (relationship) in its composition.

$$g = \begin{bmatrix} T'(AL)\ T(AQ)\ T'(VL)\ T'(VQ) \\ Q(O) \\ Q(CS) \\ Q(CET) \\ Q(CEM) \\ Q(CP) \\ Q(CES) \\ Q'(CT) \\ Q'(CKH) \\ Q'(CK) \\ Q'(CH) \\ Q'(T) \\ Q'(P) \end{bmatrix} X \begin{bmatrix} \\ I \\ \\ F' \\ \\ A' \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ \\ M' \\ \\ R' \\ \\ \end{bmatrix}$$

n = 6 criterion n = 4

Figure 3. Collective Cognitive Style Map of Students with a major match with Counselor A

The elements included in the Collective Cognitive Style Map for the group of 6 students who had a major degree of match between their "styles" and those of Counselor A were determined on the basis of whether the element under consideration appeared in at least two thirds or more of the total number of maps (6) for that group. Put in another way, if the element under consideration appeared in at least four of the six maps associated with this group, the element was included in the Collective Cognitive Style of the Group. For example, in the case of the element T'(AL), five of the six maps showed this orientation. Therefore, it was included in the Collective Cognitive Style of the Group.

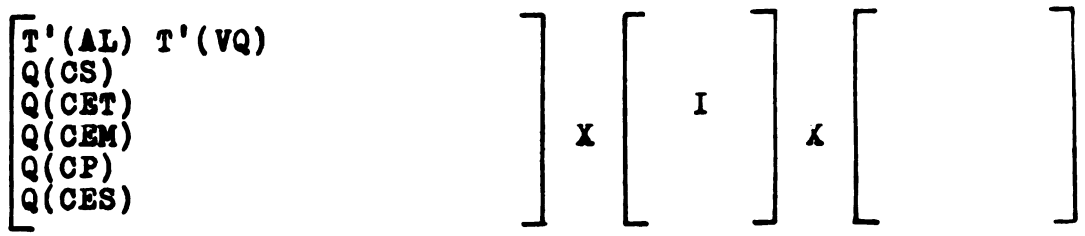

Figure 4. Elements held in common between Counselor A and the Group

It should be noted that in the third set there are no elements in common, however, as described in the "matching" process (see Appendix G), L (appraisal) contains within it all modalities resulting in a degree of match for the third set. The point to be made here is that although the L (appraisal) inferential modality includes M (magnitude), D (difference), and R (relationship) as major orientations, all employed with equal weight, thus insuring an interest between the students' collective style element of D with that aspect of the counselor's L, all elements unto themselves, i.e., D and L, they could not be shown as common to both styles, i.e., the Group's collective style and the counselor's style.

Figures 5 and 6 display the elements that are different from each other in the map for Counselor A and the collective cognitive style map for the Group.

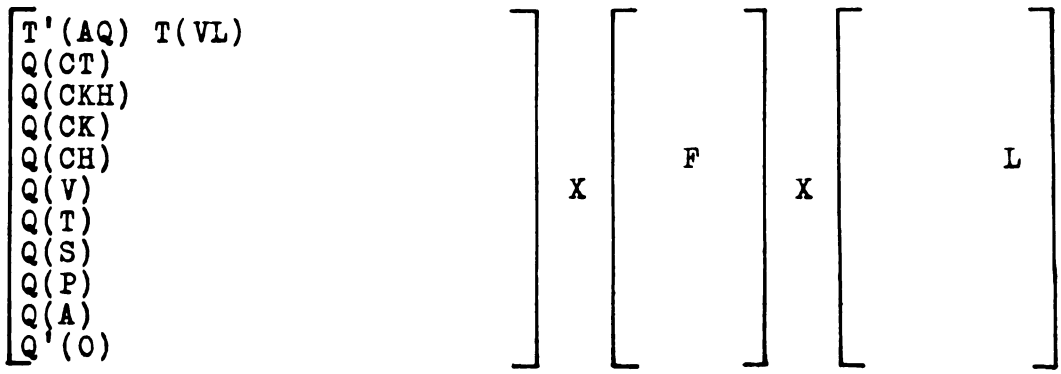

Figure 5. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Counselor A

The differences within the first set of symbols and their meanings occur in both the theoretical and qualitative orientations. Counselor A shows a major T(VL) while the Group shows a major T(AQ) with T'(AL) and T'(VQ) being common to both. In the qualitative symbols Counselor A evidences major orientations in Q(V), Q(S), and Q(A) not evidenced in the students' map in either a major or minor orientation.

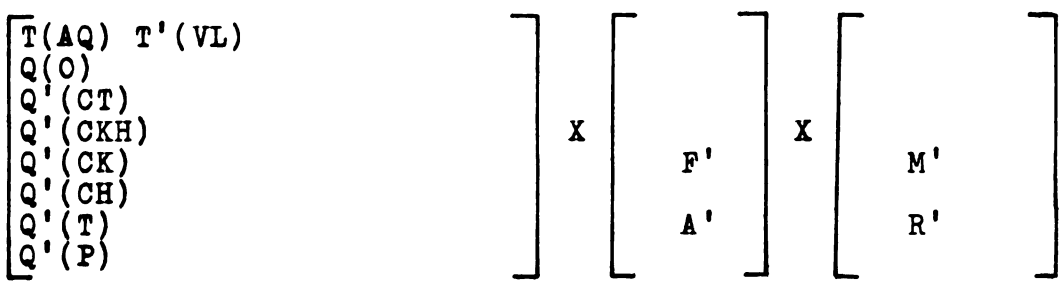

Figure 6. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Student Group

In the second set of cultural determinants the difference lies in the F rotating from a major in the Counselor's map to a minor orientation in the students' map with a minor A evidenced in the students' map.

In the third set (modalities of inference) Counselor A displays an L (appraisal) while the students display a D (difference) with M' (magnitude) and R' (relationship) orientations.

The findings that follow show the Collective Cognitive Style Map of those students with a <u>minor</u> degree of match with Counselor A, a display of the elements that were common to both, and displays of elements that evidenced differences for both Counselor A and the Collective "Style" of the Group.

$$g = \begin{bmatrix} T'(AL)\ T'(AQ)\ T'(VL) \\ Q(CS) \\ Q(CEM) \\ Q(CET) \\ Q(CES) \\ Q(CP) \end{bmatrix} X \begin{bmatrix} I \\ A' \\ F' \end{bmatrix} X \begin{bmatrix} L \end{bmatrix}$$

n = 9 criterion n = 6

Figure 7. Collective Cognitive Style Map of Students with a <u>minor</u> match with Counselor A

As was indicated for the Map showing the Collective Cognitive Style for the Group with a major degree of match with Counselor A, the elements included in the Collective Cognitive Style Map for the Group with a <u>minor</u> degree of match were determined on the basis of whether the element under consideration appeared in approximately 70 per cent or more of the total number of maps (9) for that group.

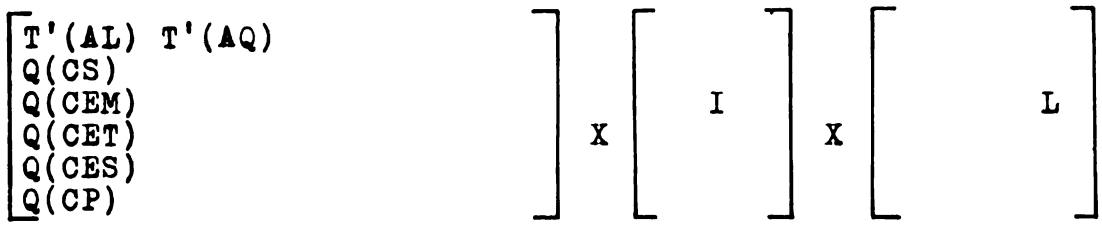

Figure 8. Elements held in common by Counselor A and the Group of Students with a minor match with Counselor A

Differences occur in the first two sets, symbols and their meanings and cultural determinants. Theoretical symbols that are evidenced in the map for Counselor A include T(VL) and T'(VQ) while the Group shows a T'(VL).

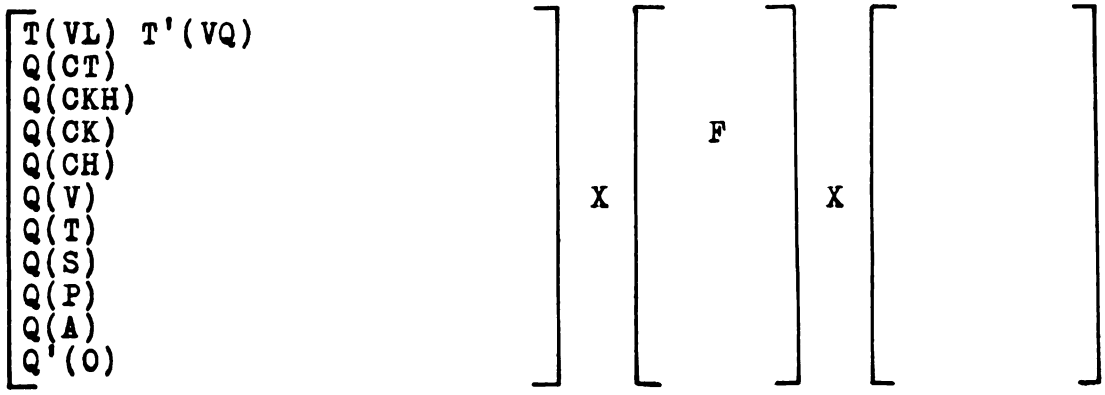

Figure 9. Elements that are different from each other in the "Collective Style" of the Group, with a minor match, and Counselor's Style--Referent, Counselor A

Additionally, Counselor A shows the following qualitative symbols, Q(CT), Q(CKH), Q(CK), Q(CH), Q(V), Q(T), Q(S), Q(P), Q(A), and Q'(O), which are not evidenced by the Group.

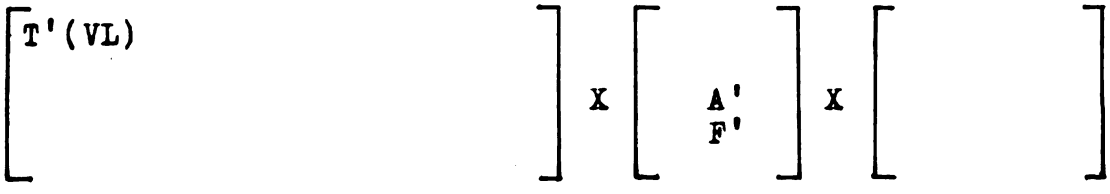

Figure 10. Elements that are different from each other in the "Collective Style" of the Group, and the Counselor's Style--Referent, Student Group

In the second set (cultural determinants) the F (major) in the map for Counselor A rotates to an F' (minor) in the map for the Group which also includes an A' (minor).

Figures 11, 12, and 13 show elements common between students with a major degree of match with Counselor A and students with a minor degree of match with Counselor A, elements that are different using the Group with a major degree of match as the referent, and elements that are different using the Group with a minor degree of match as the referent.

$$\begin{bmatrix} T'(AL)\ T'(VL) \\ Q(CS) \\ Q(CEM) \\ Q(CET) \\ Q(CES) \\ Q(CP) \end{bmatrix} X \begin{bmatrix} I \\ F' \\ A' \end{bmatrix} X \begin{bmatrix} \quad \end{bmatrix}$$

Figure 11. Elements that are common between Students with major and minor match with Counselor A

In the first set a noticeable difference occurs in the number of elements that appear in the map for the Group with a major match with the Counselor as compared with the Group with a minor match with the Counselor. The second set does not show a difference; however, in the third set no elements are shown to be common to both groups. Again, it should be noted that the Group, with a minor degree of match with the Counselor, shows an L (appraisal) inferential which contains the D (difference) inferential, M' (magnitude) inferential, and R' (relationship) inferential which appears in the Collective Style of the Group with a major degree of match with Counselor A.

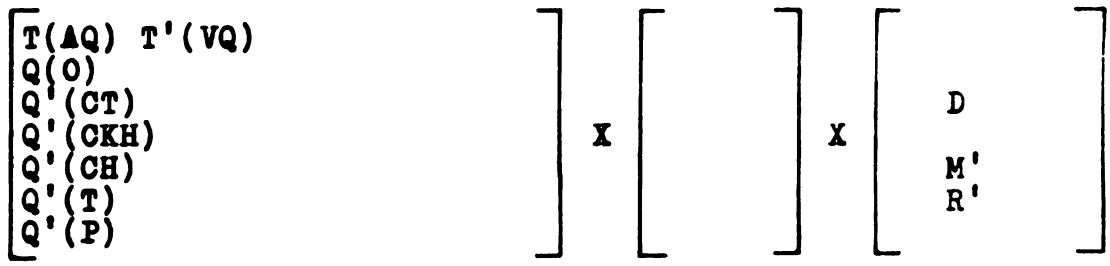

Figure 12. Elements that are different from each other in the "Collective Styles" of Groups with major and minor matches with Counselor A--Referent, Group with major match

Differences are evidenced in the first and third sets. In the first set the Student Group with a major match shows T(AQ) and T'(VQ) orientations in addition to six qualitative codes which do not appear in the map for the Group with a minor degree of match with Counselor A.

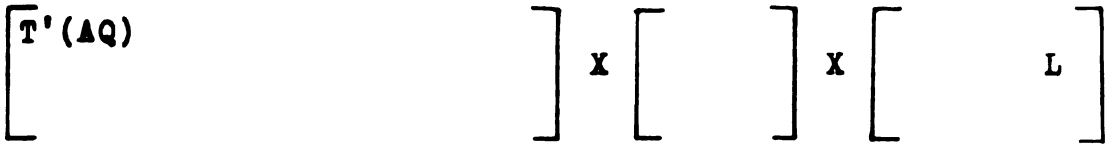

Figure 13. Elements that are different from each other in the "Collective Styles" of Groups with major and minor matches with Counselor A--Referent, Group with minor match

In the third set (modalities of inference) there is a distinct difference in orientations. The Student Group with a major degree of match with Counselor A shows a D (difference) major with minors M' (magnitude) and R' (relationship) while the Student Group with a minor degree of match with Counselor A displays a major L (appraisal) orientation.

Results of this type of analysis involving the cognitive style map of Counselors B and C, the collective style of groups with major matches with Counselors B and C, and the

collective style of groups with minor matches with Counselors B and C can be found in Appendices H and I, respectively.

Results Yielded by Matching Counseling Style and Preferred Counseling Style:

In similar fashion to the analysis of cognitive styles of counselors and students, the following findings analyze the counseling style of counselors and preferred counseling styles of students.

$$CS = \begin{bmatrix} V \\ U' \\ O' \end{bmatrix} \times \begin{bmatrix} PN \\ PT' \end{bmatrix} \times \begin{bmatrix} TP \\ RP' \end{bmatrix}$$

Figure 14. Counseling Style--Counselor A

The Counselor shows in the first set (Demeanor) a major V (directive) orientation with U' (situational) and O' (non-directive) minor orientations. In the second set (Emphasis) the Counselor displays a major PN (persons) orientation with a minor orientation in PT' (properties). The third set (Symbolic Mode) indicates a major in TP (theoretical predominance) and a minor in RP' (reciprocity).

In Figure 15 the "Collective Style" shows a preference for a major U (situational) orientation with a minor O' (non-directive) orientation.

U O'	X	PT PN PC'

X	RP

n = 6 criterion n = 4

Figure 15. Collective Preferred Counseling Style of Students with a major match with Counselor A

The second set includes three elements with major orientations in PT (properties) and PN (persons) and a minor orientation in PC (processes). The third set contains one element RP (reciprocity). It should be noted that there are few elements held in common between Counselor A and the Group (see Figure 16), however, Counselor A has a U' (situational) while the Group has a U (situational) in the Demeanor Set of Counseling and Preferred Counseling Style, respectively.

O'	X	PN

X

Figure 16. Elements that are common between Counselor A and the Group of Students with a major match with Counselor A

In similar fashion, in the second set (Emphasis) Counselor A has a PT' (properties) and the Group shows a PT (properties) orientation. In the third set (Symbolic Mode) the Counselor displays a RP' (reciprocity) while the students display a RP (reciprocity) orientation. The combination of these major and minor orientations creates a major match between counselor and counselee.

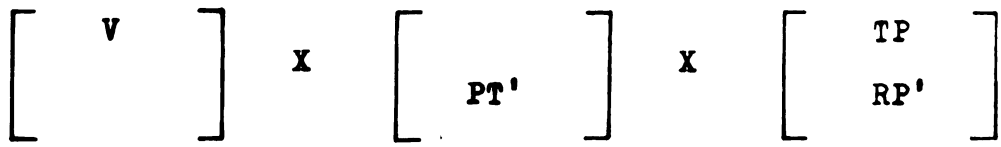

Figure 17. Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Counselor A

In comparing the results shown in Tables 17 and 18, differences are evidenced in all three sets. In the first set (Demeanor) the Counselor shows a major V (directive) orientation and the students show a major U (situational) orientation. In the second set (Emphasis) the minor PT (properties) orientation in the Counselor's map rotates to a major PT (properties) orientation in the preferred counseling style of the students.

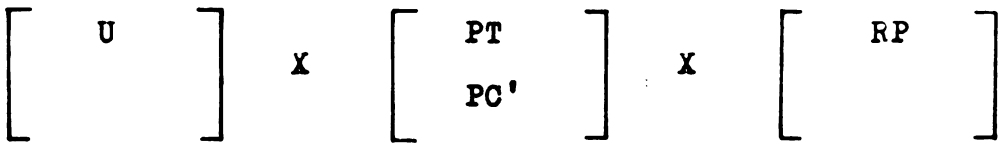

Figure 18. Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Student Group with a <u>major</u> match with Counselor A

Additionally, in the second set students evidence a minor PC' (processes) orientation which is not evidenced in the counseling style of the Counselor. In the third set (Symbolic Mode) the Counselor shows a major orientation in TP (theoretical predominance) which is not evident in either major or minor form in the students' maps. Also, in the third set the minor orientation in RP' (reciprocity) that appears in the

Counselor's style rotates to a major orientation in the preferred counseling style of the students.

$$\begin{bmatrix} O \end{bmatrix} \quad X \quad \begin{bmatrix} PT \\ PN' \end{bmatrix} \quad X \quad \begin{bmatrix} RP \\ QP' \ TP' \end{bmatrix}$$

n = 8 criterion n = 5

Figure 19. Collective Preferred Counseling Style of Students with a minor match with Counselor A

$$\begin{bmatrix} (None) \end{bmatrix} \quad X \quad \begin{bmatrix} (None) \end{bmatrix} \quad X \quad \begin{bmatrix} (None) \end{bmatrix}$$

Figure 20. Elements that are common between Counselor A and the Group of Students with a minor match with Counselor A

It should be noted that the lack of common elements does not indicate a lack of match between counselor and student. An element may appear as a major element in counseling style and as a minor element in the preferred counseling style resulting in a lack of commonality. In contrast, as described in the "matching" process, major elements are matched with minor elements which results in a lesser degree of match.

$$\begin{bmatrix} V \\ U' \end{bmatrix} \quad X \quad \begin{bmatrix} PN \\ PT' \end{bmatrix} \quad X \quad \begin{bmatrix} TP \\ RP' \end{bmatrix}$$

Figure 21. Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Counselor A

Differences occur in each set. In the first set the Counselor shows a V (directive) major with a U' (situational) minor while the Group shows a O (non-directive) major.

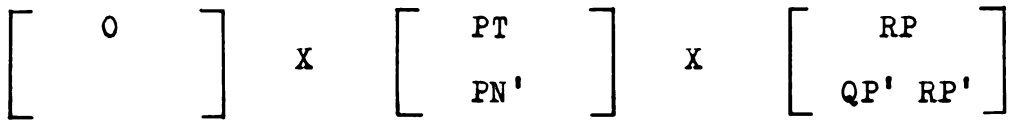

Figure 22. Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Group with a minor match

In the second set the PN (persons) major and PT' (properties) minor rotate in the style preferred by the Group. The third set shows a TP (theoretical predominance) major and a RP' (reciprocity) minor which rotates in the preferred style of the Group with an additional QP' (qualitative predominance) minor.

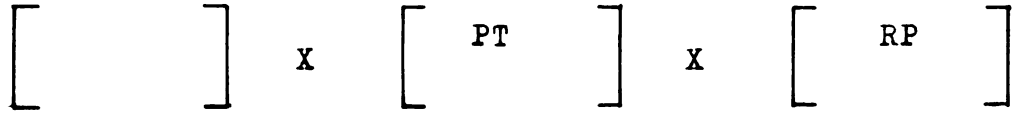

Figure 23. Elements that are common between the Student Group with a major match with Counselor A and the Student Group with a minor match with Counselor A

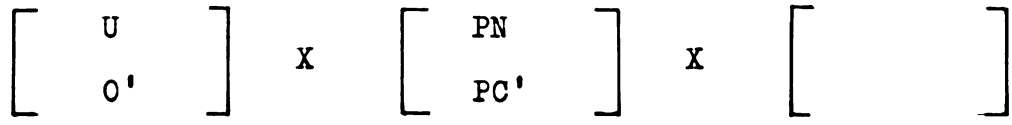

Figure 24. Elements that are different between the "Collective Styles" of Groups with major and minor matches with Counselor A--Referent, Group with major match

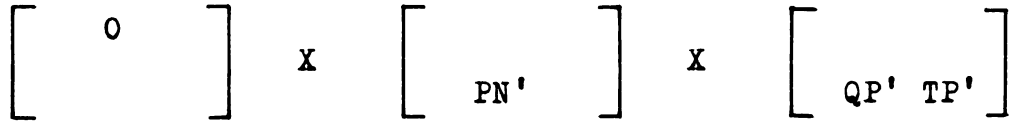

Figure 25. Elements that are different between the "Collective Styles" of Groups with major and minor matches with Counselor A--Referent, Group with minor match

Differences are evident in each of the three sets. The first set for the Group with a major match displays a U (situational) major with a O' (non-directive) minor which becomes a O (non-directive) major for the group with a minor match with Counselor A. In the second set the PN (persons) major for the Group with a major match rotates to a PN' (persons) minor and in the third set the Group with a minor match displays a QP' (qualitative predominance) and TP' (theoretical predominance) minor which does not appear in the map for the Group with a major match with Counselor A.

The analysis of data involving the counseling "style" of Counselors B and C and the collective preferred counseling "style" with major and minor matches with Counselors B and C can be found in Appendicies J and K, respectively.

Findings Yielded by Questionnaires:

The findings presented in this section of the study shows the responses by Counselors A, B, and C, respectively, and the responses by students with major and minor matches with their respective Counselor (A, B, or C) to each of the ten questions that were included in the Counselor's and Counselee's Questionnaires.

Table 9. Responses by counselors to questions on the Counselor Questionnaire--groups with a major match between counselor and counselee in counseling style

Responses by Counselors

Question	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1			6	5	2	2	1		1			1			
2	3		5	2	1	1		1	3	1		1			
3	1		1	2	1	2		1	1	1		1	2		5
4		1	5	3		4	2	1		1		1			
5	1	1	7	4	1	1				1		2			
6	1	1	1	2		3		1	4	3		2			
7	1	1	1	2	1	4			4	3		1			
8	2		2	2	2	7	2		1						
9	1			1	2	4	2		1	2		3			2
10	2			1	1	4	2	1	5	1		1			

*Moderately

Counselor A--n = 6
Counselor B--n = 2
Counselor C--n = 10

To interpret the findings shown in Table 9, it can be seen that of the ten (10) questionnaires that Counselor C had to consider, regarding Question 1--"In my opinion, the counselee was at ease at the beginning of the interview.", in his opinion, he "strongly agreed" that six (6) were at ease, that two (2) appeared to be somewhat at ease, that he was "undecided" about one (1) of the counselees regarding this item, and that in the case of the remaining counselee, he (the counselor) "disagreed" that the student was at ease. These figures are shown in row 1 and columns 3, 6, 9, and 12, respectively, of the Table. In contrast to C's response pattern, of the students that Counselor A was asked to consider, in his opinion, he moderately agreed that five (5) were at ease and he (the counselor) was undecided on one (1) of the students.

Table 10. Responses by counselors to questions on the Counselor Questionnaire--groups with a minor match between counselor and counselee in counseling style

	Responses by Counselors														
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	2		3	4	2	1		1		2					
2	5		3		2		1	1	1	1			1		
3	1			2	1			1	1		1		5		3
4	3		4	2	1			1		2	1		1		
5	5		3	3	2	1		1							
6	4		2	1	2	1			1	3	1				
7	3	1	1	3	2	2			1	1			1		
8	4	1	2	4	1	2		1							
9	3		2		1	1		1		2		1	3	1	
10	4		3	3	1	1		1		1	1				

*Moderately

Counselor A--n = 8
Counselor B--n = 3
Counselor C--n = 4

In similar fashion to the interpretation of the findings in Table 9, to interpret the findings shown in Table 10, it can be seen that of the eight (8) questionnaires that Counselor A had to consider regarding Question 4--"I had little difficulty communicating with the counselee.", in his opinion, he "strongly agreed" that he had little difficulty communicating with three (3) students, he "moderately agreed" in two (2) cases, "moderately disagreed" in two (2) cases, and "strongly disagreed" that he had little difficulty in communicating with one (1) student. These figures are shown in row 4 and columns 1, 4, 10, and 13, respectively.

Table 11. Responses by counselees to questions on the Counselee Questionnaire--groups with a major match between counselor and counselee in counseling style

	Responses by Counselees														
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	3		5	2	1	4					1		1		1
2	6	2	7		3										
3	4		5		1	3	2	1	2						
4								1					6	1	10
5	4		4	2	1	6					1				
6	5		7	1		3		2							
7		1				1	2		1	1	1	1	3		7
8	5		5		1	4					1		1		1
9	5		7	1	1	3					1				
10	5		5		1	4	1							1	1

*Moderately

Counselor A--n = 6
Counselor B--n = 2
Counselor C--n = 10

To interpret the findings shown in Table 11, it can be seen that ten (10) students completed the Counselee Questionnaire for Counselor C. The responses to Question 1--"The Counselor made me feel at ease at the outset of the interview.", five (5) students "strongly agreed," four (4) students "moderately agreed," and one (1) student "strongly disagreed." These figures are shown in row 1 and columns 3, 6, and 15, respectively. In contrast to the student responses to Counselor C, six (6) students responded to Question 1 for Counselor A. Of the six (6) student responses for Counselor A on Question 1, three (3) students "strongly agreed," two (2) students "moderately agreed," and one (1) student "strongly disagreed" that the Counselor made them feel at ease.

Table 12. Responses by counselees to questions on the Counselee Questionnaire--groups with a minor match between counselor and counselee in counseling style

Responses by Counselees

	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	5	1	4	3	1						1				
2	7	2	4	1	1										
3	5	1	2	3	1				1		1				1
4					1					1	1		7	1	4
5	7	2	4	1	1										
6	6	1	4	1	1		1	1							
7					1		1	1	1	4	1	2	3		1
8	5	1	3	2		1	1				1			1	
9	4		3	2			2	1	1		1			1	
10	6	1	3	2		1					1			1	

*Moderately

Counselor A--n = 8
Counselor B--n = 3
Counselor C--n = 4

In similar fashion to the interpretation of the findings in Table 11, to interpret the findings in Table 12, it can be seen that eight (8) students completed the Counselee Questionnaire for Counselor A. The responses to Question 6--"I would consider the interview as a good experience.", indicates that six (6) students "strongly agreed" and one (1) student "moderately agreed" that the interview was a good experience, and one (1) student was "undecided" as to the outcome. These figures are shown in row 6 and columns 1, 4, and 7, respectively.

Table 13. Responses by counselors to questions on the Counselor Questionnaire--groups with a major match between counselor and counselee in cognitive style

	Responses by Counselors											
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	2		5	3	1	1			1						
2	4		5	1	1				2						
3				2	1	1			1			1	3		4
4	2	1	4	2		3				1					
5	3	1	5	2		1						1			
6	3	1	2	1		1			3	1		1			
7	3		1	1	1	2			4	1					
8	2		2	2	1	4			1	1					
9	3		2	1	1	1			1	1		2			1
10	2		2	1	1	2			2	2		1			

*Moderately

Counselor A--n = 5
Counselor B--n = 1
Counselor C--n = 7

In Table 13 Counselor A had to consider five (5) questionnaires. Regarding Question 8--"In my opinion, the interview was a good experience for the counselee.", in his opinion, he "strongly agreed" that the interview was a good experience for two (2) of the students, "moderately agreed" that it was good for two (2), and "moderately disagreed" that it was a good experience for one (1) of the students. These figures are shown in row 8 and columns 1, 4, and 10, respectively. Counselor C considered the same item on seven (7) questionnaires and he "strongly agreed" the interview was a good experience for two (2) students, "moderately agreed" it was good for four (4), and was "undecided" about one (1) of the students. These figures are shown in row 8 and columns 3, 6, and 9, respectively.

Table 14. Responses by counselors to questions on the Counselor Questionnaire--groups with a minor match between counselor and counselee in cognitive style

	Responses by Counselors														
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	A
1			4	5	3	2	1	1	1	3					
2	4		3	1	2	1	1	2	3	2			1		
3	2		1	2	1	1		2	1	1	1		4		4
4	1		5	3	1	1		2		4	1	1	1		
5	3		5	5	3	1		1		1		1			
6	2		1	2	2	4		1	1	5	1	1			
7	1	2	1	4	2	4			1	2		1	2		
8	4	1	3	4	2			1	1	1		3			
9	1				2	4		1		3		2	5	1	1
10	4		1	3	1	3		2	3	2	1				

*Moderately

Counselor A--n = 9
Counselor B--n = 4
Counselor C--n = 7

Interpretation of Table 14 can be explained by looking at the responses to a question on the "Counselor Questionnaire" by Counselor A. Using Question 9, as an example, it can be seen that the Counselor considered a total of nine (9) questionnaires. To Question 9--"One interview was sufficient to satisfy the needs of the counselee.", the Counselor in one (1) case "strongly agreed" that one interview was sufficient, "moderately disagreed" in three (3) cases, and "strongly disagreed" in five (5) cases. These figures are found in row 9 and columns 1, 10, and 13, respectively.

Table 15. Responses by counselees to questions on the Counselee Questionnaire--groups with a major match in cognitive style

	Responses by Counselees											
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	3		4	2		3					1				1
2	5	1	7			1									
3	3		5	2		1		1	2						
4								1		1			4		8
5	3		3	2		5					1				
6	5		4			4		1							
7		1				1				2		2	3		5
8	5		3			4		1							1
9	3		6	1		2	1	1							
10	4		4	1		3								1	1

*Moderately

Counselor A--n = 5
Counselor B--n = 1
Counselor C--n = 8

In Table 15 it can be seen that eight (8) students (n = 8) completed questionnaires for Counselor C. Using Question 10--"Given the choice, I would prefer to see the same Counselor again.", as an example, four (4) students "strongly agreed," three (3) "moderately agreed," and one (1) "strongly disagreed" with the statement. These figures are found in row 10 and columns 3, 6, and 15, respectively.

Table 16. Responses by counselees to questions on the Counselee Questionnaire--groups with a minor match between counselor and counselee in counseling style

	Responses by Counselees														
	Strongly Agree			Mod.* Agree			Undecided			Mod. Disagree			Strongly Disagree		
Question	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	5	1	5	3	2	1					1		1		
2	8	3	4	1	1	2									
3	6	1	2	2	1	2	1	1	1		1				1
4								1			1		9	2	6
5	8	2	4	1	2	2									
6	6	1	6	1	1		2	2							
7				2	1		1	1	1	3	2	1	3		4
8	5	1	5	2	1	1	1				1		1	1	
9	6		4	2	1	1	1	1	1		1			1	
10	7	1	4	2	1	1			1		1			1	

*Moderately

Counselor A--n = 9
Counselor B--n = 4
Counselor C--n = 6

To interpret the findings in Table 16, it can be seen that nine (9) students returned questionnaires for Counselor A. Regarding Question 8--"The Counselor made me feel at ease by the end of the interview.", five (5) students "strongly agree" with the statement, two (2) "moderately agreed," one (1) student was "undecided" about his feelings at the end of the interview, and one (1) student was definitely not at ease at the close of the interview. These figures can be found in row 8 and columns 1, 4, 7, and 13, respectively.

Summary

It should be noted that the findings presented in this Chapter and Appendices H, I, J, and K are essential to answering the questions posed by the study effort. Since these answers form the conclusions of the study, the behavioral interpretations of the findings are presented in Chapter V which covers findings, implications, and recommendations accruing to this study endeavor.

CHAPTER V

FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

In Chapter I four questions were posed to direct efforts toward realizing the purpose of the study. Under these circumstances the answers to these questions form essentially the findings derived by the study effort.

In the process of collecting and analyzing the data yielded by the study certain findings emanated which were somewhat tangential to the specified purposes of the study, but still had implications for the outcomes. These types of findings have been employed, along with other information to form implications associated with the study effort.

The study as an exploratory effort was designed to accommodate the possibility of generating hypotheses. Recommendations for further study include not only these considerations but selected areas that were found to have occurred in the realm of implications.

Findings and Conclusions

The findings drawn by the study are presented in the form of answers to the four general questions posed by the effort. Each general question is presented and its answer is found immediately below it. In those cases where certain aspects of an answer to a given question pertain to or are

relevant to providing a partial answer to one, or more, of the other general questions, the situation is so noted.

> Question 1: Are the objectives of a counseling situation reached more easily, in the counselor's opinion, when there is a major match between cognitive style of the counselor and counselee and a major match between the counseling style of the counselor and the preferred counseling style of the counselee than when minor matches between these variables exist?

Based upon results yielded by an analysis of responses from counselors to questions on the Counselor Questionnaire, it was found that: 1) they agreed that they were able to reach their objectives more often, 2) they were more often undecided as to having reached their objectives, and 3) they disagreed less often that they were able to reach their objectives when there was a major match in cognitive style and counseling style between the counselor and the counselee. When there was a minor match in cognitive style and counseling style between the counselor and the counselee they were less in agreement and more in disagreement regarding these matters.

Tables 9, 10, 13, and 14 in the preceding chapter provides a tabulation of the responses by counselors to the questions on the Counselor Questionnaire which support this finding. Generally speaking, in an educational counseling situation, counselors believe that counselees with either major or minor matches are at ease during the counseling

situation. Counselors, however, believed that it was necessary to assist those counselees with a minor match in "styles" to develop objectives or goals more often during the counseling session than when there was a major match in "styles" between the counselor and the counselee.

It appears that communication between counselors and counselees is more effective when there is a major match in "styles" between counselor and counselee than when there is a minor match in "styles" between counselor and counselee. In accordance with the finding that it is easier to communicate with counselees with a major match in "styles," counselors indicate they are able "to reach their objectives" more often during a single interview with counselees having a major match in "styles" than when there is a minor match in "styles" between counselor and counselee. In contrast, counselors seldom are of the opinion that counselees would not prefer to see the same counselor again.

Under these circumstances, it can be concluded, in general, that the objectives of a counseling situation are reached more easily, in the counselor's opinion, when there is a major match in cognitive and counseling style between counselor and counselee than when minor matches in these "styles" exist.

Question 2: Are the objectives of a counseling situation reached more easily, in the counselee's opinion, when there is a major match between

cognitive style of counselor and counselee and a major match between the counseling style of the counselor and the preferred counseling style of the counselee than when minor matches between these variables exist?

Tables 11, 12, 15, and 16 in the preceding chapter provides a tabulation of the responses by counselees to the questions on the Counselee Questionnaire. These tabulations show that, generally speaking, those counselees who have a major match with the counselor in cognitive style and preferred counseling style indicate a higher degree of satisfaction on the outcome of the educational counseling situation than do those counselees with a minor match with the counselor in cognitive style and preferred counseling style. A higher per cent of counselees with minor matches are undecided as to the outcome of the counseling situation, while there is little difference between those counselees with major or minor matches as to the degree of disagreement with the outcome of the counseling situation. These findings would tend to support the conclusion, to a lesser degree than did counselor's opinions, that counselees felt that the objectives of the counseling situation were more easily reached when there was a major match in cognitive style and counseling style between counselor and counselee than when minor matches in "styles" exist.

It is interesting to note that in the case of Counselor B, counselees with both major and minor matches in cognitive

style and counseling style indicated a tendency to be undecided or dissatisfied with the outcomes of the counseling situation. This tendency is more pronounced with those counselees who have major or minor matches in cognitive style with the Counselor. This conclusion is supported by a critical incident, described in Chapter IV, in which a counselee in an interview indicated it was impossible to talk with the Counselor because he (the counselor) talked all the time. Opinions verbalized in this manner by counselees could have a great effect on the "strength" of the opinions of counselees in their responses to the questions on the Counselee Questionnaire.

> Question 3: Which "style," cognitive or counseling, seems to have the greatest influence on whether the objectives of a counseling situation are reached, expressed in terms of the opinions of the counselor and the counselee, in the case of those with a major match with the counselor?

Tables 9 and 13, respectively, in the findings section of the preceding chapter, present tabulations of responses to the questions on the Counselor Questionnaire by counselors with a major match with counselees in cognitive style and preferred counseling style. A comparison of these tabulations (in Tables 9 and 13) indicate a higher degree of satisfaction, by counselors, on the outcome of the counseling situation when there is a major match in cognitive style between counselor and counselee than when there is a major

match between counselor and counselee in counseling style and preferred counseling style.

An analysis of responses by counselors on an individual basis by specific categories, i.e., agree, undecided, and disagree, shows a high number of responses in the undecided category by Counselor C as compared to Counselors A and B. Based on this analysis, since Counselor C displays a non-directive (O) orientation in the Demeanor set of the counseling style, it would appear that counselors with a non-directive orientation may find it difficult to determine when they have reached their objectives in a counseling situation.

Tables 11 and 15 in Chapter IV provide a tabulation of the responses by counselees, with a major match in cognitive style and counseling style, to questions on the Counselee Questionnaire. These tabulations show that there seems to be little difference, in the opinion of the counselees with a major match, as to whether counseling style or cognitive style has the greatest influence on the outcome of the counseling interview. As was pointed out in Question 2, more counselees tended to be undecided or unhappy with the outcomes with Counselor B than with Counselor A and C.

Under these circumstances it can generally be concluded that counselors (most decidedly) and counselees (by a majority) agree that cognitive style is more important than counseling style in reaching the objectives of the counseling situation when major matches between counselor and counselee exist.

Question 4: Which "style," cognitive or counseling, seems to have the greatest influence on whether the objectives of a counseling situation are reached, expressed in terms of the opinions of the counselor and the counselee, in the case of those with a minor match with the counselor?

Tables 10 and 14, respectively, provide a tabulation of responses to questions on the Counselor Questionnaire by counselors with a minor match in counseling style and cognitive style. In this context, counseling style, in the opinion of counselors, has a greater influence on the outcome of the counseling situation when a minor match between counselor and counselee exists than does cognitive style.

As was indicated for those counselees with a major match in "styles," in the opinion of counselees, there is little if any difference regarding the influence on the outcome of the counseling situation when there is a minor match in counseling style or cognitive style.

Under these circumstances it can generally be concluded, that counselors agree that counseling style has a greater effect on the outcome of the objectives in the counseling situation and counselees feel there is little difference between counseling style and cognitive style on the outcomes of the counseling situation when minor matches in "styles" exist.

Implications

In addition to the findings and conclusions derived by answering the four general questions posed in Chapter I, the findings of the study imply results not included in that section.

The "Pilot Study" which was used to determine "preferred counseling style" was effective in establishing different styles indicating counselees have preferred counselor styles in the same manner as counselors have a counseling style. When matched these styles show a greater degree of satisfaction on the outcome of the counseling situation when there is a major match, in style, between counselor and counselee. The degree of satisfaction indicated by counselors and counselees would imply that the educational science of counseling style can be used to match counselor and counselee in the counseling situation.

Generally speaking, there are implications that the differences in the degree of satisfaction evidenced by counselors and counselees on reaching the objectives in the counseling situation indicates that counselors are inclined to be more critical of themselves than counselees are of counselors. Counselees, however, when evaluating counselors on an individual basis show a marked preference for certain styles. This is evidenced by the number of counselees who had a major match with Counselor C in counseling style and the number of counselees who were undecided or dissatisfied with the outcome of the objectives with Counselor B.

Certain elements appear in the collective preferred counseling style of students with major and minor matches with counselors in counseling style. An analysis of these elements indicate these counselees prefer a counselor who is situational (U) to non-directive (O) in his Demeanor, persons (PN) oriented in Emphasis, and reciprocity (RP) in Symbolic Mode. A review of the records of students, who participated in the study, indicated that a large percentage of the students were receiving financial aid. While this indicates a limitation in the sample employed in the study, it also has implications for counseling students from an economically deprived background and provides a recommendation for further study.

An incident, deemed to be critical, in which a student indicated it was difficult to see one of the counselors who counseled on a part-time basis and held administrative responsibilities, led to further observation and an analysis of the findings. As a result of these analyses there are implications that students do not relate well to counselors playing a dual role even though major matches exist between counselor and counselee. It is also implied that counselees will not continue to seek counseling after having once been unable to see the counselor. Having used a part-time counselor indicates a limitation to the study effort.

Recommendations for Further Research

As has been indicated in a number of instances within the study effort, the present study was exploratory in nature. Due to this nature, the study effort was aimed at uncovering answers to the general questions posed and, consequently, raising other questions based on the conclusions reached and reported in this chapter. In view of the results of this study, the following recommendations are made:

1. A related study using one counselor and a larger number of students should be undertaken to test these findings in a predictive situation.
2. A careful study of elements in cognitive style should be made to determine which elements, if any, indicate a particular counseling style.
3. A study using students from different socio-economic backgrounds should be undertaken to see if socio-economic background is a basis for preferred counseling style.
4. A related study using Student Personnel administrators should be undertaken to determine if cognitive style has implications for effectiveness in various positions.
5. Further study should be undertaken using a larger number of counselors and a larger student sample to test the findings of this study in a predictive situation.

6. A longitudinal study should be undertaken to see if preferred counseling style changes over time.

Summary

The final chapter has presented the findings and conclusions which were drawn from the data, a discussion of the implications suggested by the findings that were not included in the answers to the questions posed in Chapter I, and the recommendations for further study in the areas of cognitive style and counseling style.

It is hoped that the present study will contribute to the accumulation of information pertaining to the Educational Sciences of cognitive style and counseling style and to the field of Student Personnel.

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APPENDICES

APPENDIX A

COGNITIVE STYLE AS AN EDUCATIONAL SCIENCE

COGNITIVE STYLE AS AN EDUCATIONAL SCIENCE

During the latter half of the 1930's, many psychologists were particularly interested in the study of the consistency and predictability of personality. In the early 1940's, Allport suggested the concept of "style," which essentially he defined as the consistency and pattern of expressive behaviors that individuals manifest in performing various types of activities. In the context of Allport's descriptive definition of style, the term is highly similar to its common use in such expressions as: an individual's way (style) of living, a style of speaking, a writing style, or style of dress. This orientation permits the use of the term "style" to denote an entire pattern of responses, i. e., it can refer to not only a particular way of life, but to a particular class of events (e. g., style of speaking). In this sense, the term "style" is both general and relatively specific, i. e., it is not restricted to a particular denotation (e. g., all aspects of response patterns).

Turning to the consideration of investigations of cognitive behaviors, the traditional approaches in these endeavors have dealt mainly with concept formation. These types of studies have tended to be limited such considerations as: what are concepts? how are they attained? or, how are they learned? In essence, these efforts have been directed toward investigations of various ramifications of what might be termed "concept learning." Investigators involved in these types of studies, however, have not examined cognitive functions in the context of personality.

During the past ten to fifteen years, the concept of cognitive style has been investigated in the context of cognition as a facet of personality. Witkin, for example, has advanced the notion that the phenomena described as cognitive style is a type of personality construct expressed in the interaction between perceptual (cognitive) response systems and antecedent conditions in the life history of the subject (person). In this context, then, the investigator is interested in such phenomena as the quality of mother-child relationships as antecedents to certain types of cognitive styles.

Certain contemporary studies of cognitive style have been designed to consider the phenomenon as an individual's particular mode of response to a given set of stimuli (variables). Other modern efforts have sought antecedents, or correlates, between cognitive style and: (1) such personality variables as: dependency, anxiety, and passivity; (2) such cognitive variables as: intelligence, problem-solving, and reasoning; and (3) such psychological processes as: learning, and perception. In essence, then, the contemporary studies of cognitive style involve the investigation of cognitive processes in the context of personality and defined social variables. These approaches indicate the recognition on the part of certain psychologists (e. g., Broverman, Gardner, Kagan, Moss, Sigel, Witkin) that cognitive behaviors form a fundamental part of a socio-personal matrix, and that the employment of certain classes of behavior called "cognitive" have consistent qualities which justify their being defined as stylistic.

The concept of cognitive style employed as an educational science is somewhat different from those described and defined in the discipline of psychology. The construct of cognitive style as defined in terms of the educational sciences is a Cartesian product, G, composed of three sets, S, E, and H, where S denotes the set of elements defining symbolic orientations, E indicates the set of cultural determinants of the meaning of symbols, and H designates the set of modalities of inference. The formal definition of the construct is developed as follows:

Consider the set "S" composed of 288 possible binomial combinations involving major and minor theoretical and qualitative symbolic orientations. Expressed in the form of set notation:

$$S = \left\{ \begin{matrix} (T_x - Q_y),\ (T_x - q_y), \\ (t_x - q_y),\ (Q_y - t_x). \end{matrix} \right\}$$

where "T" denotes a major theoretical symbolic orientation of an individual; "Q" indicates a major qualitative symbolic orientation; "t" a minor theoretical symbolic orientation; "q" a minor qualitative symbolic orientation, the subscript "x" is a place-holder for one of the following notations: "al" -

auditory linguistic, "aq" - auditory quantitative, "vl" - visual linguistic, and "vq" - visual quantitative; and the subscript "y" holds a place for one of eighteen following notations: "a" - auditory; "o" - olfactory, "s" - savory, "t" - tactile, "v" visual, "p" - proprioceptive, "pk" - proprioceptive kinematics, "pt" - proprioceptive temporal, "cem" - code empathetic, "ces" - code esthetic, "cet" - code ethic, "ch" - code histrionic, "ck" - code kinesics, "ckh" - code kinesthetics, "cp" - code proxemics, "cs" - code synnoetics, "ct" - code transactional, and "ctm" - code temporal. Since there are 72 possible binomial combinations for each of the four arrangements; i.e., since there are 72 combinations of the form $(T_x - Q_y)$, 72 of the form $(T_x - q_y)$, 72 of the type $(Q_y - t_x)$, and 72 of the "double minor" category $(t_x - q_y)$; "S" is a finite set composed of 4 x 72 = 288 elements.

Consider similarly the fifteen elements, twelve of which are binomial combinations and three of which are of monomial form, comprising the set "E" called "the cultural determinants of the meanings of symbols." Expressed in set notation:

$$E = \left\{ \begin{array}{lll} I, & A, & F, \\ (I - a_{(z)}), & (A - i_{(z)}), & (F - i_{(z)}, \\ (I - f_{(z)}), & (A - f_{(z)}), & (F - a_{(z)}). \end{array} \right\}$$

where "I" indicates a major "individuality" determinant of the meanings of symbols, "A" denotes a major "associates" determinant, "F" a major "family" determinant, "i" a minor "individuality" determinant, "a" a minor "associates" determinant, "f" a minor "family" determinant, and the subscript "z" holds a place for either a positive sign (+), or a negative sign (-) depending upon the type of influence the minor determinant involved tends to exert on the individual when he is in the process of determining meanings of symbols (e.g., words sentences, pictures, "feels," stories, "tastes").

Now, consider the set "H" of five monomial and six binomial elements involving what are called "the modalities of inference." Expressed in set notation, the eleven elements appear as follows:

$$H = \left\{ \begin{array}{llll} M, & D, & R, & L, \\ (M-d), & (D-m), & (R-m), & (K), \\ (M-r), & (D-r), & (R-d). & \end{array} \right\}$$

Where K denotes a deductive inferential process necessary to the completion of certain types of educational tasks" (e.g., proving a theorem in Euclidean geometry), "M" indicates a major "magnitude" iferential mode, "D" represents a major modality called "difference," "R" denotes a major modality rmed "relationship," "L" indicates a major inferential mode known as "appraisal," "m" denotes a inor modality of "magnitude," "d" represents a minor "difference" mode, and "r" indicates a minor odality of inference called "relationship."

ith the definitions of sets S, E, and H completed, a fourth set G, expressed as a Cartesian product, ossible. Thus, G becomes:

$$G = S \times E \times H,$$

$$= \left\{ \begin{array}{c} S \\ \\ (T_x - Q_y), (T_x - q_y), \\ (t_x - q_y), (Q_y - t_x) \end{array} \right\} \times \left\{ \begin{array}{c} E \\ \\ I, \quad A, \quad F, \\ (I - a_{(z)}), (A - i_{(z)}), (F - i_{(z)}), \\ (I - f_{(z)}), (A - f_{(z)}), (F - a_{(z)}) \end{array} \right\} \times \left\{ \begin{array}{c} H \\ \\ M, \quad D, \quad R, \quad L \\ (M-d), (D-m), (R-m) (K) \\ (M-r), (D-r), (R-d). \end{array} \right\}$$

et "g", a Cartesian product of sub-sets of appropriate elements drawn from sets S, E, and H, can be structed to define the "cognitive style" of an individual (e.g., student, teacher, administrator). s, there is an element "g" (a "cognitive style") of set G such that:

$$g = \emptyset(s, e, h) \qquad (1)$$

re $\emptyset$ (phi) denotes a function in the form of a Cartesian product, and s, e, and h represent sub-sets ne sets S, E, and H, respectively. Obviously, each of these sub-sets are composed of elements ue to them (e.g., $s_1, s_2, s_3, e_1, e_2, h_1, h_2$). This type of notation is useful only in that it permits

a compact representation of the "style" of an individual at a particular point of time and level of accomplishment in his educational development.

Put in another way, the set G can be defined as the universal set, i.e., the set of all possible "cognitive styles" accommodated by the Cartesian product of sets S, E, and H. Consistent with the notation employe in (1), this definition of G becomes:

$$G = \emptyset (S, E, H) \qquad (2)$$

Under these circumstances, (1) refers to an element of G, while (2) denotes the universal set G. It should also be noted that according to these definitions, s, e, and h could be called the "coordinates" of "g".

ince the set S is composed of a possible 288 elements, 15 elements comprise E, and H includes 11, it ollows that the Cartesian product of these sets, i.e., the universal set G, is composed of: 288 x 15 x 1 = 47,520 different "cognitive style" elements at a given level of educational development. This esult is based on the reasoning that there are 288 ways of choosing an element from S, 15 ways of noosing one from E, and 11 ways of selecting one from H, or 288 x 15 x 11 possible ways of defining tyles" over S, E, and H. It should be noted, however, that in actual practice the maximum number elements that can be included in an individual's style "g", at a given level of educational development, 72 x 4 x 8 = 2304.

cording to the language of set theory, although G is called the "Cartesian product" (or "direct duct") of sets S, E, and H, the term "product" only denotes how the number of elements (47,520) in was defined. This approach to enumerating (counting) the number of elements in G does not imply t any algebraic operations are to be performed on the elements themselves.

nalogous fashion, the cognitive style of an individual, g = ∅(s, e, h), is called "the Cartesian luct of the sub-sets s, e, and h. The elements comprising the respective sub-sets serve as coordinates, profiles," of an individual's "cognitive style."

The construct called "cognitive style" can now be described as a Cartesian product, or direct product, of three sub-sets, i. e., s, e, and h, with the elements comprising these sub-sets serving as coordinates, or "profiles," of an individual's style. The phraseologies "Cartesian product" and "Cartesian space" are synonymous in mathematical lexicon, i. e., the term "space" is synonymous with "set." Therefore, a Cartesian product is a particular type of space (or set) whose elements may serve as coordinates of profiles" defined over that space. In this context, a cognitive style profile is a coordinate space of Cartesian product. The term "space," as used here, emphasizes the non-numerical, and the non-gebraic points of departure of various constructs which can be considered by means of modern mathemati ethods.

Mapping

assifying the elements of a given set (e. g, set A) into two categories included in a second set (e. g., B, a process mathematicians call "mapping." The notation usually employed for this process is:

$$A \longrightarrow B \qquad (3)$$

e notation in (3) indicates a correspondence between the elements of set A and those of set B. In this imple, set A is called the domain of the mapping, and B the range.

thematical mappings employ only the theoretical symbols of abstract logic or mathematics. Empirical ppings involve persons making judgments on a "makes sense" or "does not make sense" basis to classify ments (e. g., persons, processes, and properties of a social system called "curriculum") into "logical" egories. This type of decision-making employs not only theoretical symbolic mediations (e. g., "w r l "numbers") but demands qualitative symbolic aspects of reasoning (e. g., "picturing" the solution of roblem) as well. For example, in order to diagnose (map) the cognitive style ("g") of an individual, "educational scientist" (e. g., teacher) must consider the individual's level of educational develop nt in terms of the elements included in the sets S, E, and H, respectively. Empirically, the diag-stician ("scientist") must decide which elements in the sets S, E, and H, respectively, are appropriate

for inclusion in the sub-sets s, e, and h that form the individual's cognitive style. This approach dem the classification of the elements of S into two categories: s and $\tilde{s}$ (not s); E into the two categories: e and $\tilde{e}$ (not e); and H into h and $\tilde{h}$. The process involved here is called "empirical mapping." This type of mapping (diagnosis) can only be effected by a person (e. g., educational scientist) classifying the elements involved on a "makes sense," or "does not make sense" basis. If a mathematical mapping of these elements were desired, there would need to be a logical and theoretical vehicle (e. g., a formul or equation) available by which the decision could be derived. In this case, a person is not actually involved in the decision-making process associated with the classification. Under these circumstances, the decision is rendered by performing indicated operations on the logical (mathematical) function used to determine the desired outcome. The point to be made is that the mapping of cognitive styles is mainly empirical in nature, and as such, is dependent upon the judgments of persons (diagnosticians) responsible for the process of classifying the elements of symbolic orientations, "cultural determinants," and modaliti of inference into Cartesian products that represent the cognitive styles of the individuals under consider - ation.

The cognitive style of an individual cannot be empirically mapped without considering: (1) the level of educational development of the person, (2) the general symbolic conditions of educational tasks he will be called upon to accomplish, (3) certain antecedents (e. g., family) to his present state of developme and (4) the appropriateness of the elements under consideration for the conditions under which the educational tasks must be completed. The mapping of an individual's style is also affected by the diagnostician's cognitive style. In this context, diagnostic teams have generally been able to produce "style of higher predictive and concurrent validity than those "mapped" by the individual diagnostician.

Relationship

In order to reduce the amount of notation associated with the discussion and description of the processe and procedures associated with the empirical mapping of an individual's cognitive style, it is necessary

o consider a concept basic to all science, i. e., the concept of "relationship." The most useful defin-
tion of relationship for any branch of science is the one which mathematicians have developed in terms
f the elementary concepts of set theory. The definition in question is:

A relationship is a sub-set of a Cartesian space.

binary relationship is one whose Cartesian space is defined by two sets. A relationship of "n" dimensions
-ary condition) can always be expressed as a binary relation by distributing the n sets over two groupings,
d then defining the Cartesian space of these two groupings (sets) as the binary relation. It is in this
nse that the diagnostician (e. g., "educational scientist") maps the n-profiles of an individual's cog-
tive style into the three sub-sets comprising the Cartesian product representing his style.

function is defined to be a binary relationship. Therefore, the concept of function and that of mapping,
discussed here, are identical.

m equations (1) and (2) above, it should be noted that "g" is a function of s, e, and h; and that G
a function of S, E, and H. These facts were noted by including "Ø" (phi) to represent the functional
ationships involved. These functional relationships permit the following notation to describe, with a
imum number of symbols, the process involved in: (1) the empirical mapping of an individual's cog-
ve style, and (2) the mapping of an augmented cognitive style. In this context, the notation in (4)
cribes the mapping of an individual's "style":

$$G \rightarrow g \qquad (4)$$

ere g denotes an individual's cognitive style derived from the "universal" set G composed of: 36,960
sible "profiles."

e cognitive style of an individual can be changed by the process of training and education. A cogniti
le is considered to be changed at the training level of development when the individual exhibits be-
vior (e. g., responses to certain test variables, demonstration of certain physical actions) of his having

This accomplishment can be noted by the expression shown in (5):

$$g \rightarrow g_a \tag{5}$$

Where g_a denotes the augmented cognitive style of the individual, and g is as previously defined in (4). This type of augmentation is defined to be training. When individual demonstrates behavior which indicates that he is employing the "augmented elements" of his "style" to accomplish educational tasks different from those used to effect the original augmentation of his "style," he is considered to be educated at a level of development higher than the one which was associated with his original cognitive style "g."

APPENDIX B

PROBLEM SET ON:

1. SCALING ITEMS IN TERMS OF DIFFICULTY
2. STANDARD SCORES
3. PERCENTILE SCALING
4. SCALING JUDGMENTS--JOSEPH E. HILL

PROBLEM SET ON: (1) SCALING ITEMS IN TERMS OF DIFFICULTY, (2) STANDARD SCORES, (3) PERCENTILE SCALING, AND (4) SCALING JUDGMENTS

1. Scaling Test Items in terms of Difficulty

The term scale, in the context of mental measurement, is considered to be a continuum throughout which entities such as items, tasks, and performances are located in terms of some attribute such as difficulty. The location of the zero point of a scale is an arbitrary decision made by the constructor of the scale. The size of the units of a scale may be arbitrarily determined by its constructor, but, ideally, should be equal, maintain the same meaning, and remain stable throughout the range of the scale.

In order to construct an instrumentality designed to accommodate a wide range of levels of educational development, it is necessary to include problems, tasks, or performances graded in terms of known steps or intervals of difficulty over a range beginning with items seeking responses that are relatively easy for the respondents to produce through those that present a great challenge to each respondent. It is possible to construct a crude scale of difficulty by arranging the items comprising an instrumentality in a percent order of difficulty. It should be noted, however, that percent differences are not always satisfactory indices of differences in difficulty of items.

If it can be assumed that the measurements of a "style" element are distributed approximately normally, then the variability of the measurements of a group, i. e., the standard deviation (σ) unit of a normal distribution associated with the percent of group passing, provides a better means for scaling difficulty than does the approach of "percent of group passing each of the items" alone. The "variability" approach makes it possible to locate and space items in terms of σ distance at specific points along a continuum of difficulty. In this context, the positions of the items relative to each other, as well as being relative to a selected "zero point," are then known in terms of a stable unit, i. e., in terms of standard deviation, or σ scaling. The

following example, and the five step approach which it includes, describes how this type of scaling can be used in the construction of an instrumentality.

Suppose that a scale is to be constructed to measure qualitative proprioceptiveness, Q(P), of children in grades K-3; or a scale is to be constructed for measuring qualitative code kinesthetics, Q(CKH), reflected by children in grades 4-6; or a scale for measuring qualitative code temporal, Q(CTM in high school students is to be formed. The process for constructing such an instrumentality, based upon an item analysis approach, can be effected by the following five steps:

(1) Prepare a large number of items, or tasks, or performances that range in difficulty from a very elementary, or easy, level to a highly advanced, or difficult, level in the element of "style" being sampled; and administer this collection to a large number of individuals drawn randomly from the population (group) for which the instrumentality is being designed. For example, if a scale is to be constructed to help teachers assess qualitative proprioceptiveness, Q(P), in children grades K-3, a large number of items describing tasks or performances such as: putting wooden pins in a peg board, coloring within lines, walking a balance beam, and tossing bean bags at a target, should be compiled. During the time that these tasks are being compiled each one of them should be assessed for level of difficulty by observing the level of educational development of the children finding it easy to perform the task in question and the "level" of those children having a decidedly difficult time in effecting the performance requested. After all the items have been sorted according to their possible levels of difficulty, they are administered to a large sample of pupils drawn from the population of children in "grades" K-3 available to the constructor of the instrumentality.

(2) After the collection of "items" has been administered to the sample group, calculate

the percent of the group that performed satisfactorily on each item, where the term "satisfactorily" pertains to a performance leading to a mapping of either a minor or major orientation at the grade level the "item" was considered to sample, this grade level having been determined on the basis of pilot study information produced during the time the item was being developed. Eliminate items that are duplicates, those that appear to be too easy to master, those that are too difficult, and those that may be unsatisfactory for other reasons. Arrange the items selected for inclusion in the instrumentality, i. e., the scale, in an order of descending percents of difficulty. In this context, a task performed successfully by 95 percent of the sample group is easier than one accomplished by 80 percent of the group, while in turn the latter task is less difficult than one successfully performed by 60 percent of the sample group. Thus, the greater the percent of students accomplishing the task, the less difficult the item is considered to be, and therefore the lower the item is to be placed in a scale of difficulty.

(3) Employing a table of values of a cumulative normal distribution,* the percent of students successfully performing the task associated with the item under consideration is converted into a positive, or a negative, standard deviation distance, i.e., a ($+\sigma$), or a ($-\sigma$) distance, relative to the mean. Recalling the inverse relationship between the percent of group successfully accomplishing an "item" and the σ distance above (+), or below(-), the mean. To illustrate this point, in the earlier example, the task accomplished successfully by 95 percent of the sample group would be located $-1.645\,\sigma$ (below) from the mean; the task which was successfully performed by 80 percent of the group would be located $-1.282\,\sigma$ units below the mean; the task "accomplished" by 60 percent of the group would be located, approximately, $-.25\,\sigma$ below the mean; and if there were another task which only 30 percent of the group successfully performed,

it would be located, approximately, +.525 σ (above) from the mean. It is in this fashion that each item can be located along a continuum of difficulty, assuming that the distribution of difficulty is distributed normally.

(4) After the σ distance of each "item" has been determined, find the σ distance of each item from the zero point, i. e., from the level of zero ability, on the scale (continuum). The zero point can be located arbitrarily as follows: Suppose that 2.5 percent of the entire group fail to perform satisfactorily on all the items being considered. This result could place the level of zero ability 47.5 percent of the distribution below the mean, or at a distance of, -1.96 σ from the mean. It should be noted that the decision regarding the location of the zero point of a scale is always an arbitrary one, and merely locates a reference point (e. g., a level of minimum ability) from which performance can be measured. The point, -3.00 σ is often chosen as a convenient zero or reference point when the normal distribution is assumed to pertain to the activity under consideration. To illustrate how the σ distance of each item from the zero point can be determined, the examples used in Step (3) are shown in the table below:

	Items			
	A	B	C	D
Percent Performing Successfully	95	80	60	30
Distance from Mean in Percent Terms	-45	-30	-10	+20
σ Distance from Mean	-1.645	-1.282	-.25	-.525
σ Distance from Arbitrary Zero Point, -1.96	-(-1.960) / +.315	-(-1.960) / +.678	-(-1.960) / +.710	-(-1.960) / +2.485

It should be noted that the value of the σ distance of an item from the zero point or reference point is determined by subtracting algebraically the σ distance of the zero point from the mean, from that of the item. For example, the σ distance of Item A from the zero point is: -1.645 - (-1.960) = +.315; for Item B: -1.282 - (-1.960) = +.678; while for Item D: +.525 - (-1.960) = +2.485.

(5) When the distance of each item from the reference point has been determined, the difficulty of each item relative to that of the others, and to the zero point, is known and the scaling process is completed. What is done with the instrumentality beyond this point depends upon the purposes of the constructor. A large number of items separated by relatively small σ distances may be selected so that the instrumentality covers a fairly wide range of educational development. On the other hand, the range may be limited to items from -2.50 σ distance to +2.50 σ, and the instrumentality might be composed of a relatively few items spaced at, say, .5 σ distance of difficulty. The σ distance approach provides a means for establishing "norms" for an instrumentality designed for individuals of different levels of educational development or different ages, or different school grades, or for persons comprising each of several different occupational groups.

2. Standard Scores

If there are constraints in terms of time or human resources, instead of scaling separate items of an instrumentality, it is possible to scale aggregates of items or total scores. One of the more popular approaches to this end is that of standard scores.

Scores made by the same individual on several different instrumentalities cannot usually be compared directly because of differences in the units of the instrumentality. In other cases, the scores of individuals in the same group earned on each of, say, four different tests cannot be

compared directly because of the change in the variability of the group's performance from one test to another. One means of overcoming these difficulties is to translate the raw score of an individual on a test to standard score form.

It can be shown that the mean of a group's standard scores of the form:

$$Z = 50 + 10\left(\frac{X-\bar{X}}{S}\right)$$

Where Z denotes the standard score, X is the raw score of an individual on an instrumentality, $\bar{X}$ is the value of the mean score of the group's performance on the instrumentality, and S is the value of the standard deviation of the distribution of the group's scores on the instrumentality. The mean of a set of Z scores is: $\bar{Z} = 50$, and the standard deviation is: $S_z = 10$. Employing this formula, the comparison of scores made by the same individual on several different tests can be effected, but even more importantly the performance of an individual over a series of tests can be compared with those of another individual over the same series of tests. For example, suppose that the distribution of scores for Student A and Student B, respectively over three tests, are as shown in the table:

	Students' Raw Scores (X)		Mean	S.D.
Test	A	B	$\bar{X}$	S
1	90	70	80	2.5
2	80	80	80	5.0
3	70	90	80	10.0

At first glance, the arithmetic average (mean) of Student A's raw scores: $\bar{X}_A = \frac{90+80+70}{3} = 80$, and the mean of Student B's raw scores over the three tests is: $\bar{X}_B = \frac{70+80+90}{3} = 80$. Moreover, A's performance appears to have declined over the three tests, while B's performance reflects a gain or improvement trend. Translating the raw scores to Z scores, it is found that:

	Student A	Student B
Test 1	$Z = 50 + 10\left(\frac{90-80}{2.5}\right) = 90$	$Z = 50 + 10\left(\frac{70-80}{2.5}\right) = 10$
Test 2	$Z = 50 + 10\left(\frac{80-80}{5}\right) = 50$	$Z = 50 + 10\left(\frac{80-80}{5}\right) = 50$
Test 3	$Z = 50 + 10\left(\frac{70-80}{10}\right) = 40$	$Z = 50 + 10\left(\frac{90-80}{10}\right) = 60$

The total of Student A's Z-scores would be: 180 (N. B. the mean score of a series of Z-scores earned on different tests is not itself a mean Z-score); while the total for Student B would be: 120. It is apparent that the level of performance over the three tests expressed in standard score form for each of the students is different, but expressed in raw score form the performance of each would appear to be equal with a slight possible advantage accruing to B because of the improvement or gain trend reflected over the three tests. In this context, it can be seen how Z-scores can be employed to provide a comparable scaling of the performances of individuals over a series of instrumentalities designed to measure the same aspects (e. g., a given "style" element).

Although standard scores make comparisons of otherwise dissimilar scores possible, the T score, which is nothing more than a normalized Z (standard) score increases the stability of the scaling. For example, a Z-score of 70 would indicate that the individual earning this score would be two standard deviations ($S_z = 10$) above the mean ($\bar{Z} = 50$), while a T score of 70 would indicate not only how far above the mean the individual was, but would denote that he was in approximately the 98th percentile of the distribution which has been normalized. Although the transformation of Z-scores to T-scores is a simple procedure, it is omitted here in the interest of purpose, time, and space.

Another means of stabilizing the scaling of scores is that of stanine scores. The term "stanine" is a contraction of the phraseology "standard nine." Essentially, the stanine scale is a condensed form of a scale of T-scores. Stanine scores range from 1 through 9 along the base

line of a normal curve forming a scale in which the "distance" unit is .5σ and the value of the median is 5. The percent of scores in each stanine is shown in Figure 1.

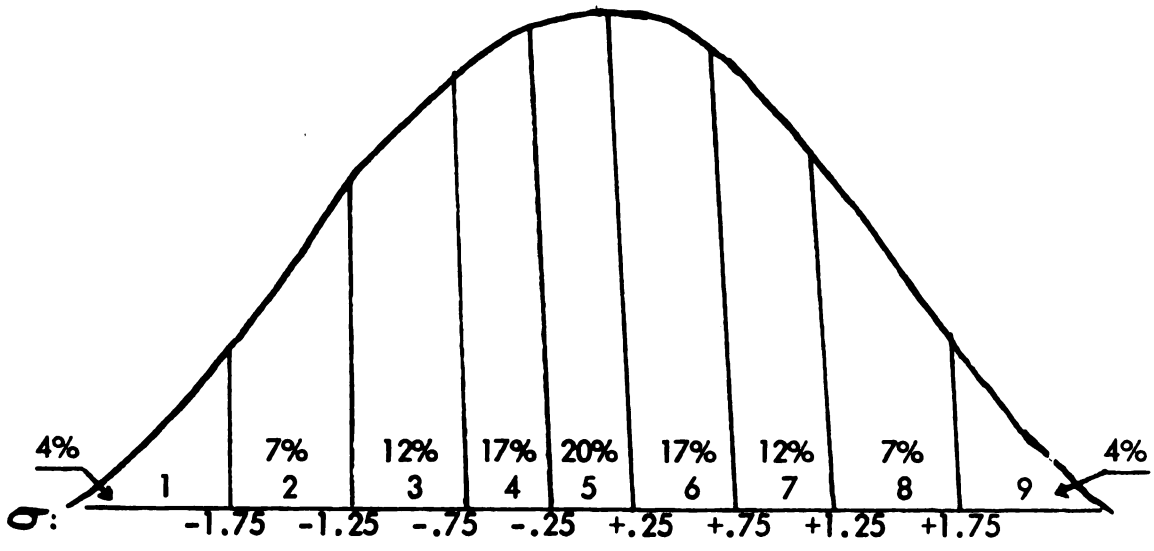

Figure 1. Stanine Scale with Percent of Scores in Each Stanine

Since stanine scores are but a condensed form of a scale of T-scores, once again in the interest of purpose, time and space further discussion is omitted.

3. Percentile Scaling

A percentile rank of a score locates the individual achieving that score on a scale of 100 and indicates the propor on of the group of 100 that has achieved scores lower than that score. An error commonly made by persons employing percentile rank scales is that the difference between a "rank" of 10 and a "rank" of 20 is considered to be the same as the difference between a "rank" of 50 and a "rank" of 60, i.e., that the differences between percentile ranks are equal throughou the range of the scale. This assumption of equal differences among percentile ranks is true only the distribution of raw scores is rectangular in shape. The assumption is in error when the distri bution of raw scores is approximately normal. Since distributions of raw scores are rarely rectang but are frequently approximately normal in their distribution, the assumption of "equal differences

rarely applies.

If the normal curve were partitioned into five sections, each of which included 20 percent of the area under the curve, it would appear as shown in Figure 2.

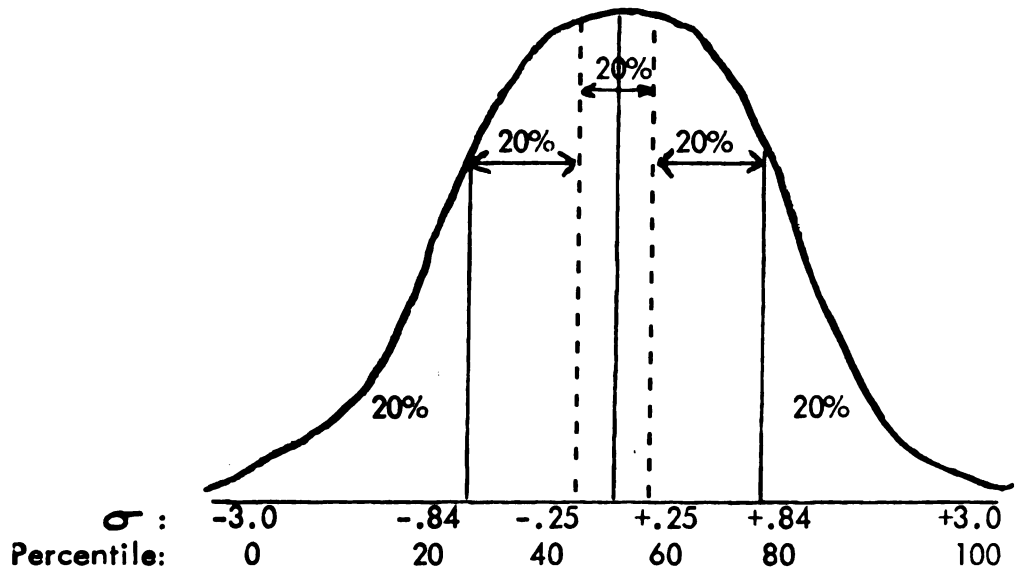

Figure 2. Normal Distribution Showing Relationship Between Quintiles and σ Distances from Mean

From a table of values pertaining to a cumulative normal distribution, if it is assumed that -3.0 σ is associated with zero accumulated area, then the first 20% of the area is accumulated between -3.0 σ and -.84 σ, the second 20% between -.84 σ and -.25 σ, the third 20% between -.25 σ and +.25 σ, the fourth 20% between +.25 σ and +.84 σ, and the fifth 20% between +.84 σ and +3.0. In terms of absolute σ distance, i. e., ignoring the algebraic sign, the first 20% covers: -3.0 - (-.84) = 2.16 σ; the second 20%: -.84 - (-.25) = .59 σ, the third 20%: -.25 - (+.25) = .50 σ; the fourth: +.25 -.84 = .59 σ; and the fifth 20%: +.84 - 3.0 2.16 σ.

It should be obvious that the intervals along the base line associated with the 20 percent sections at the lower and upper ends of the distribution, respectively, are approximately four times as long as the one associated with the middle 20 percent section. These relationships are

preserved if percentile ranks are converted to T scores as shown in the array below:

Percentile Rank	σ Distance	T-Score
99	2.33	T = 50 + 10(2.33) = 73
95	1.64	T = 50 + 10(1.64) = 66
90	1.28	63
80	.84	58
70	.52	55
60	.25	53
50	.00	50
40	-.25	47
30	-.52	45
20	-.84	42
10	-1.28	37
5	-1.64	34
1	-2.33	27

Merely by expressing the percentile ranks of raw scores (assuming they are approximately normally distributed) in terms of T-scores automatically converts the scaling of these percentile ranks into an appropriate normalized form.

4. Scaling Judgments

Responses to Questionnaire Items. There are several possible forms of replies to questionnaire items such as: Rarely, Sometimes, Usually; Yes, No; Most Like Me through Least Like Me; or Most, Many, Some, Few, None. In those cases where the respondent is asked to select one of

four or five categories as his response to the item, it is frequently desirable to weight each of the categories in accordance with how divergent it might be from the "neutral," or the "typical" category of the set. In order to solve this problem, it is assumed that the opinions, attitudes, or judgments represented by the set of four or five response categories are approximately normal in their distribution over that set. Under these circumstances, based upon the percent of the group that selects a given category as a response to an item, a σ distance from the mean ("neutral" or "typical" category) can be determined and, in turn, be used as a "weight" for the category in question. Although Garrett discusses a method for scaling: (1) responses to questionnaire items, and (2) judges ratings, by means of employing highly precise σ distances associated with the normal curve,* the use of a scale of T-scores accomplishes these purposes with far less work, and with relatively little loss in the precision of the "weightings" or scalings of the categories involved. It is in this context that a scale of T-scores is employed to "weight" the response categories associated with the item included in the example below.

Suppose that a questionnaire is composed of 20 statements regarding elements of "demeanor" associated with administrative style. The opinion of the respondent regarding the topic covered by the statement is to be expressed in terms of one of the following five categories: Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. If each of these categories associated with the statement:

> The administrator who follows the guide of: my goals my way; usually provides good leadership.
>
> Strongly Agree Agree Undecided Disagree Strongly Disagree

*Henry E. Garrett, Statistics in Psychology and Education, Longmans, Green and Co., New York: 1958, Fifth Edition: pp. 323-332.

were selected by the percent of group shown in the table, assuming the selections of these categories by the respondents would be approximately normally distributed, i. e., that relatively few respondents will strongly agree or disagree, while the majority will hold intermediate views, find the "weight" for each category by employing the T-score method of scaling.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Area of section, or percent of group selecting	13	43	21	13	10
Approximate values of σ distance from mean to baseline point for cumulative area to one-half the section	-1.50	-.40	.43	.98	1.65
T-score	35	46	54	60	67

The values shown in the table are calculated in the following fashion:

Step 1. The percent of group selecting a category is found by dividing the number of selections of the category by the total number of selections. For example, suppose that 100 persons respond to the statement. The data in the top row of the table shows that 13 persons selected the category "Strongly Agree" as representing their opinions of the statement, while 43 selected the category "Agree."

Step 2. The approximate value of the σ distance from the mean ("neutral"

answer) to the baseline point associated with the cumulative area up to one-half the area of the section is explained by the following calculations:

A. In the case of the category "Strongly Agree," one-half of the 13 percent of the group at lower extreme of the normal curve, i. e., 6.5 percent, is at an approximate -1.50σ from the mean. The value -1.50 is approximated from values found in Table A-4, Cumulative Normal Distribution.

B. Regarding the category "Agree," the area associated with the category "Strongly Agree," i. e., 13 percent, is added to one-half the area (43/2 = 21.5) of the section associated with the category "Agree." This cumulative area of: 13+21.5 = 34.5 is at an approximate $-.40\sigma$ from the mean. The value -.40 is approximated from values found in Table A-4, Cumulative Normal Distribution.

C. The cumulative area associated with the category "Undecided" is: 13 + 43 + 21/2 = 66.5; i. e., the area associated with "Strongly Agree," plus the area with "Agree," plus one-half the area of the section associated with "Undecided." Employing Table A-4, a cumulative area of .6650 is found to be associated with an approximate σ distance from the mean of .43.

D. The cumulative area associated with the category "Disagree" is:

13 + 43 + 21 + 13/2 = 83.5. Employing Table A-4, a cumulative area of .8350 is found to be associated with an approximate σ distance from the mean of .98.

E. In the same fashion as those of Steps A-D, the cumulative area associated with the category "Strongly Disagree" is found to be: 13 + 43 + 21 + 13 + 10/2 = 95; and the approximate σ distance from the mean is found to be -1.65.

Step 3. Employing the formula: T = 50 + 10z; where T denotes the "rounded," whole number value of the T-score, and z the σ distance from the mean, the T-scores for each category are found as follows:

Strongly Agree: T = 50 + 10 (-1.5) = 35

Agree: T = 50 + 10 (-.40) = 46

Undecided: T = 50 + 10 (.43) = 54

Disagree: T = 50 + 10 (.98) = 60

Strongly Disagree: T = 50 + 10 (1.65) = 67

It should be noted that employing the "average σ distance" method of scaling recommended by Garrett, the standard scores for the categories were found to be: Strongly Agree: 34; Agree: 46; Undecided: 54; Disagree: 60; Strongly Disagree: 68. Only in the categories covering the upper and lower extremes of the normal distribution is there a relatively small difference (one point of score) between the approximative T-score method of "one-half the area σ distance" scaling and the standard score method of scaling based upon the "average σ distance" from the mean approach.

If, in the same fashion, the categories of each of the 20 statements comprising the questionnaire are "weighted" in terms of T-scores, then an individual's "score," i.e., his opinion

regarding the elements of "demeanor" in administrative style, can be found by adding the T-scores assigned to the 20 categories, i. e., one category per statement, which he selected. Since the units of the T-score scale are equal, they may be compared from item to item, from category to category, or from scale to scale. This type of T-score scaling provides a more accurate assessment of the extent to which extreme opinions regarding a given item are divergent from "neutral" opinion than does an arbitrary weighting (scaling) method.

Diagnosticians' Ratings. Many of the orientations of "style" elements for an individual can be mapped on the basis of diagnosticians' ratings of behaviors assumed to be associated with the elements under consideration. In some cases the diagnosticians rate individuals in terms of a five-point scale, where a rating of "5" indicates the "element" is reflected to a marked degree, a rating of "1" denotes a decided lack of presence of the element, and ratings of 4, 3, and 2 indicate intermediate degrees of presence of the element. Each diagnostician assigns a rating of the individual independent from the others. Some diagnosticians tend to rate individuals' behaviors at the higher end of the scale more frequently than at the lower end. Others rate behaviors at the lower end of the scale more frequently than at the higher end. Under these circumstances, it becomes necessary to assign weights to these ratings in order to make them comparable from diagnostician to diagnostician.

The distributions of all the elements associated with the "styles" defined in the Educational Sciences are assumed to be normal in each of the populations of individuals that might be considered by diagnosticians. It is also assumed that diagnosticians are approximately equal in competence to rate the behaviors (and therefore the "elements") under consideration. Under these circumstances, the T-score method of weighting (scaling) the ratings of diagnosticians, in a fashion similar to the one used in weighting categories associated with questionnaire items, can be employed. The following example illustrates the procedure:

Suppose that two diagnosticians, A and B, rated 50 individuals for qualitative code proxemics, Q(CP), on the five-point scale described above. Assume that the percent of individuals are rated by each diagnostician as follows:

Diagnostician	Rating 5	4	3	2	1
A	10%	15	50	20	5
B	20	40	20	10	10%

From these tabled percents it is apparent that Diagnostician B rates "higher" than A, and that a rating of 5 by A may not mean the same degree of presence of Q(CP) as a rating of 5 by B.

Employing Table A-4, Cumulative Normal Distribution, the approximate values of σ distance from the mean to a baseline point for cumulative area up to one-half of the section under consideration would be:

Diagnostician	Rating 5	4	3	2	1
A	1.65	.95	.00	-1.04	-1.96
B	1.28	.253	-.524	-1.04	-1.65

The approximate T-scores (weights) associated with each of these values would become:

Diagnostician	Rating 5	4	3	2	1
A	67	60	50	40	30
B	63	53	45	40	33

From the T-score scalings (weightings) of the diagnosticians' ratings, it is interesting to note

that the rating of "3" assigned by Diagnostician B, which on the surface is the "neutral" or midpoint rating of the range 1 through 5, and therefore could be assumed to be associated with the fiftieth percentile of the presumed to be normal distribution of Q(CP) in the population from which the individuals under consideration were drawn, has a T-score scaling of 45. Since a T-score of 50 is located at the fiftieth percentile of a normal distribution, the T-score scaling of 45 of B's rating of "3" would locate it at approximately the thirtieth percentile. In this context, a rating of "3" assigned an individual by "B" should be interpreted as a minor orientation in the Q(CP) element, while a rating of "3" by A (which shows a T-score of 50) should be considered a minimal major orientation in that element.

The T-score scaling approach is relatively easy to employ when categorical information must be translated into stable units of numerical data. Since all the elements included in the "styles" defined by the Educational Sciences are assumed to be distributed normally throughout any population of individuals, relative judgments (e. g., diagnosticians' ratings) of these elements can be "weighted" by the T-score scaling process.

Problems

1. During a process of item analysis it is found that five problems associated with the measurement of T(VQ) are passed by: 15%, 34%, 50%, 62%, and 80%, respectively, of a large randomly selected group of individuals. If the zero point of ability for these problems is assumed to be at -3.0 σ distance from the mean of the assumed normal distribution of the difficulty of these items, find the σ distance from the reference point for each item. (Ans. In order presented: 4.04; 3.41; 3.00; 2.69; 2.16)
2. On locally constructed instrumentalities designed to measure T(AL) and T(AQ), respectively, the empirically established norms are: Mean = 70 and SD = 5; and Mean = 60 with SD = 7.5, respectively. If an individual earns a score of X = 75 on each

of the instrumentalities, use standard scores to determine if he possesses equal "strength" in the respective elements. (Assume the instrumentalities to be of equal reliability, validity, objectivity, and discriminative power.)

3. Five individuals earned T-scores of: 63, 53, 47, 45, and 42, respectively, on a standardized instrument designed to measure T(VL). Find the percentile rank of each "score," and determine whether the individual with this score should be assigned a major, a minor, or a negligible orientation in the element.

4. On an inventory designed to measure M, D, R, and L, each statement which pertains to only one of the four modalities is to be ranked from 1 through 5 (ranking of 1, high). The rankings of a statement pertaining to the "appraisal (L) modality" were found to be distributed as follows:

1	2	3	4	5
8%	20%	38%	24%	10%

Using the T-score scaling approach, find the "weight" of each ranking category associated with this item. (Ans. 1-32; 2-41; 3-49; 4-58; 5-67)

5. Fifty individuals are rated for "Individuality" (I) on a seven-point scale by two diagnosticians. If the distributions of ratings ("1," high) by the two diagnosticians are as shown below, employ the T-score scaling approach, and determine if the rating of "3" by each diagnostician is different. Which diagnostician is the more lenient of the two in his ratings?

Diagnostician A:

Rating	f
1	5
2	10
3	20
4	5
5	4
6	4
7	2
	n=50

Diagnostician B:

Rating	f
1	2
2	4
3	4
4	5
5	20
6	10
7	5
	n=50

(Ans. A-50; B-60

TABLE A-4. CUMULATIVE NORMAL DISTRIBUTION

z	X	Area	z	X	Area
−3.25	$\mu - 3.25\sigma$	.0006	−1.00	$\mu - 1.00\sigma$	.1587
−3.20	$\mu - 3.20\sigma$	.0007	− .95	$\mu - .95\sigma$	.1711
−3.15	$\mu - 3.15\sigma$	.0008	− .90	$\mu - .90\sigma$	.1841
−3.10	$\mu - 3.10\sigma$	.0010	− .85	$\mu - .85\sigma$	.1977
−3.05	$\mu - 3.05\sigma$	.0011	− .80	$\mu - .80\sigma$	.2119
−3.00	$\mu - 3.00\sigma$	.0013	− .75	$\mu - .75\sigma$	.2266
−2.95	$\mu - 2.95\sigma$	.0016	− .70	$\mu - .70\sigma$	.2420
−2.90	$\mu - 2.90\sigma$	.0019	− .65	$\mu - .65\sigma$	.2578
−2.85	$\mu - 2.85\sigma$	.0022	− .60	$\mu - .60\sigma$	.2743
−2.80	$\mu - 2.80\sigma$	.0026	− .55	$\mu - .55\sigma$	.2912
−2.75	$\mu - 2.75\sigma$	.0030	− .50	$\mu - .50\sigma$	.3085
−2.70	$\mu - 2.70\sigma$	.0035	− .45	$\mu - .45\sigma$	.3264
−2.65	$\mu - 2.65\sigma$	.0040	− .40	$\mu - .40\sigma$	.3446
−2.60	$\mu - 2.60\sigma$	.0047	− .35	$\mu - .35\sigma$	.3632
−2.55	$\mu - 2.55\sigma$	.0054	− .30	$\mu - .30\sigma$	.3821
−2.50	$\mu - 2.50\sigma$	.0062	− .25	$\mu - .25\sigma$	.4013
−2.45	$\mu - 2.45\sigma$	.0071	− .20	$\mu - .20\sigma$	.4207
−2.40	$\mu - 2.40\sigma$	.0082	− .15	$\mu - .15\sigma$	.4404
−2.35	$\mu - 2.35\sigma$	.0094	− .10	$\mu - .10\sigma$	.4602
−2.30	$\mu - 2.30\sigma$	.0107	− .05	$\mu - .05\sigma$	.4801
−2.25	$\mu - 2.25\sigma$	.0122			
−2.20	$\mu - 2.20\sigma$	.0139			
−2.15	$\mu - 2.15\sigma$	.0158	.00	μ	.5000
−2.10	$\mu - 2.10\sigma$	.0179			
−2.05	$\mu - 2.05\sigma$	.0202			
−2.00	$\mu - 2.00\sigma$	.0228	.05	$\mu + .05\sigma$	.5199
−1.95	$\mu - 1.95\sigma$	.0256	.10	$\mu + .10\sigma$	.5398
−1.90	$\mu - 1.90\sigma$	.0287	.15	$\mu + .15\sigma$	.5596
−1.85	$\mu - 1.85\sigma$	.0322	.20	$\mu + .20\sigma$	.5793
−1.80	$\mu - 1.80\sigma$	.0359	.25	$\mu + .25\sigma$	.5987
−1.75	$\mu - 1.75\sigma$	.0401	.30	$\mu + .30\sigma$	.6179
−1.70	$\mu - 1.70\sigma$	.0446	.35	$\mu + .35\sigma$	.6368
−1.65	$\mu - 1.65\sigma$	.0495	.40	$\mu + .40\sigma$	.6554
−1.60	$\mu - 1.60\sigma$	.0548	.45	$\mu + .45\sigma$	.6736
−1.55	$\mu - 1.55\sigma$	.0606	.50	$\mu + .50\sigma$	.6915
−1.50	$\mu - 1.50\sigma$	.0668	.55	$\mu + .55\sigma$	.7088
−1.45	$\mu - 1.45\sigma$	.0735	.60	$\mu + .60\sigma$	.7257
−1.40	$\mu - 1.40\sigma$	.0808	.65	$\mu + .65\sigma$	.7422
−1.35	$\mu - 1.35\sigma$	.0885	.70	$\mu + .70\sigma$	.7580
−1.30	$\mu - 1.30\sigma$	.0968	.75	$\mu + .75\sigma$	.7734
−1.25	$\mu - 1.25\sigma$	.1056	.80	$\mu + .80\sigma$	.7881
−1.20	$\mu - 1.20\sigma$	.1151	.85	$\mu + .85\sigma$	.8023
−1.15	$\mu - 1.15\sigma$	.1251	.90	$\mu + .90\sigma$	.8159
−1.10	$\mu - 1.10\sigma$	.1357	.95	$\mu + .95\sigma$	.8289
−1.05	$\mu - 1.05\sigma$	.1469	1.00	$\mu + 1.00\sigma$	.8413

TABLE A-4. CUMULATIVE NORMAL DISTRIBUTION (*Continued*)

z	X	Area	z	X	Area
1.05	$\mu + 1.05\sigma$	.8531	−4.265	$\mu - 4.265\sigma$	.00001
1.10	$\mu + 1.10\sigma$	.8643	−3.719	$\mu - 3.719\sigma$	.0001
1.15	$\mu + 1.15\sigma$	.8749	−3.090	$\mu - 3.090\sigma$	.001
1.20	$\mu + 1.20\sigma$	.8849	−2.576	$\mu - 2.576\sigma$	.005
1.25	$\mu + 1.25\sigma$	.8944	−2.326	$\mu - 2.326\sigma$	.01
1.30	$\mu + 1.30\sigma$	.9032	−2.054	$\mu - 2.054\sigma$	.02
1.35	$\mu + 1.35\sigma$	.9115	−1.960	$\mu - 1.960\sigma$	.025
1.40	$\mu + 1.40\sigma$	.9192	−1.881	$\mu - 1.881\sigma$	.03
1.45	$\mu + 1.45\sigma$	.9265	−1.751	$\mu - 1.751\sigma$	.04
1.50	$\mu + 1.50\sigma$	.9332	−1.645	$\mu - 1.645\sigma$	.05
1.55	$\mu + 1.55\sigma$	.9394	−1.555	$\mu - 1.555\sigma$	.06
1.60	$\mu + 1.60\sigma$	.9452	−1.476	$\mu - 1.476\sigma$	.07
1.65	$\mu + 1.65\sigma$	.9505	−1.405	$\mu - 1.405\sigma$	.08
1.70	$\mu + 1.70\sigma$	.9554	−1.341	$\mu - 1.341\sigma$	.09
1.75	$\mu + 1.75\sigma$	.9599	−1.282	$\mu - 1.282\sigma$	.10
1.80	$\mu + 1.80\sigma$	.9641	−1.036	$\mu - 1.036\sigma$	.15
1.85	$\mu + 1.85\sigma$	.9678	− .842	$\mu - .842\sigma$	.20
1.90	$\mu + 1.90\sigma$	.9713	− .674	$\mu - .674\sigma$	.25
1.95	$\mu + 1.95\sigma$	.9744	− .524	$\mu - .524\sigma$	.30
2.00	$\mu + 2.00\sigma$	.9772	− .385	$\mu - .385\sigma$	.35
2.05	$\mu + 2.05\sigma$	.9798	− .253	$\mu - .253\sigma$	.40
2.10	$\mu + 2.10\sigma$	.9821	− .126	$\mu - .126\sigma$	.45
2.15	$\mu + 2.15\sigma$	.9842	0	μ	.50
2.20	$\mu + 2.20\sigma$	.9861	.126	$\mu + .126\sigma$	.55
2.25	$\mu + 2.25\sigma$	.9878	.253	$\mu + .253\sigma$	.60
2.30	$\mu + 2.30\sigma$	.9893	.385	$\mu + .385\sigma$	.65
2.35	$\mu + 2.35\sigma$	.9906	.524	$\mu + .524\sigma$	.70
2.40	$\mu + 2.40\sigma$	.9918	.674	$\mu + .674\sigma$	.75
2.45	$\mu + 2.45\sigma$	.9929	.842	$\mu + .842\sigma$	.80
2.50	$\mu + 2.50\sigma$	.9938	1.036	$\mu + 1.036\sigma$	.85
2.55	$\mu + 2.55\sigma$	.9946	1.282	$\mu + 1.282\sigma$	.90
2.60	$\mu + 2.60\sigma$	.9953	1.341	$\mu + 1.341\sigma$	.91
2.65	$\mu + 2.65\sigma$	.9960	1.405	$\mu + 1.405\sigma$	.92
2.70	$\mu + 2.70\sigma$	.9965	1.476	$\mu + 1.476\sigma$	.93
2.75	$\mu + 2.75\sigma$	.9970	1.555	$\mu + 1.555\sigma$	.94
2.80	$\mu + 2.80\sigma$	.9974	1.645	$\mu + 1.645\sigma$	.95
2.85	$\mu + 2.85\sigma$	.9978	1.751	$\mu + 1.751\sigma$	.96
2.90	$\mu + 2.90\sigma$	.9981	1.881	$\mu + 1.881\sigma$	.97
2.95	$\mu + 2.95\sigma$	.9984	1.960	$\mu + 1.960\sigma$	.975
3.00	$\mu + 3.00\sigma$	.9987	2.054	$\mu + 2.054\sigma$	.98
3.05	$\mu + 3.05\sigma$	.9989	2.326	$\mu + 2.326\sigma$	.99
3.10	$\mu + 3.10\sigma$	.9990	2.576	$\mu + 2.576\sigma$	.995
3.15	$\mu + 3.15\sigma$	.9992	3.090	$\mu + 3.090\sigma$	.999
3.20	$\mu + 3.20\sigma$	.9993	3.719	$\mu + 3.719\sigma$	.9999
3.25	$\mu + 3.25\sigma$	.9994	4.265	$\mu + 4.265\sigma$	.99999

Reprinted from: W. J. Dixon and F. J. Massey, Introduction to Statistical Analysis, McGraw-Hill Book Company, New York: 1957.

APPENDIX C

PREFERRED COUNSELING STYLE QUESTIONNAIRE

APPENDIX C

PREFERRED COUNSELING STYLE QUESTIONNAIRE

Using a scale of 0 - 9, score each answer in accordance with your preference for each response. Score at least one response to each question at 6 or higher but no more than 2 responses to a question should be at 6 or higher. All answers should be scored. The following is an example:

Should I seek counseling about the possibility of my working and going to college, I would prefer a counselor who,

__6__ 1. Listens carefully to my reasons for working and seems genuinely interested in my problem.

__5__ 2. Makes sure I have an appointment allowing plenty of time for the interview.

__2__ 3. Presents the problems encountered in working and taking classes, recommends specific numbers of hours to work in relation to number of credit hours carried.

1. If I were to seek advice regarding my relationship with other members of a student organization, I would prefer that the counselor,

_____ 1. Have me discuss the situation and have me attempt to seek my own solution.

_____ 2. Permit me to discuss the problem, or discuss the problem with me, depending upon the mood I am in at the time.

_____ 3. Gets to the point and gives instructions freely.

2. Should I see a counselor when I think there is a personality conflict between myself and an instructor, I would prefer the counselor who,

_____ 1. Evaluates my personality and compares it with the personality of the instructor.

_____ 2. Sets up an appointment with me and provides plenty of time for me to discuss the situation.

_____ 3. Communicates well with me and seems to understand my situation.

3. When I talk to a counselor about a personal problem, I like a counselor who,

_____ 1. Gives me his ideas about the situation.

_____ 2. Both listens and talks about the situation.

_____ 3. Mainly listens, and when he does talk, allows me to ask questions.

4. In seeking advice about my study habits, I prefer a counselor who,

_____ 1. Has me explain my study habits and verbalize the problems as I see them.

_____ 2. Lets me set the tone of the situation by permitting me to discuss the problem if I choose or by asking me questions about the problem when I am hesitant about discussing the problem.

_____ 3. Spends a minimum of time discussing the problem, has me tested and then makes recommendations.

5. When I am having difficulty in a specific class, I prefer to see a counselor who,

_____ 1. Will listen to my side about the problems in the class.

_____ 2. Provides the right setting for the interview, guaranteeing privacy and plenty of time.

_____ 3. Reviews the methods used in the course and my approach to the course.

6. In seeking help to evaluate my potential for achieving my future goals, I prefer a counselor who,

_____ 1. Presents various approaches to me for evaluation and consideration, and I choose among them.

_____ 2. Has me give him information about certain aspects of my life and helps me to evaluate some of them while leaving others for my own consideration.

_____ 3. Listens to my assessments of me, without a lot of discussion, then makes suggestions for how I might improve the process.

7. When I seek advice regarding my curriculum, I like a counselor who,

_____ 1. Has me do most of the talking and gives several areas from which to choose.

_____ 2. Discusses various curriculum choices with me depending upon my interests.

_____ 3. Reviews my records and makes recommendations as to what he thinks I am best qualified to do.

8. When I see a counselor about my choice of a career, I prefer a counselor who,

_____ 1. Analyzes me in terms of my potentialities for a given career or occupation.

_____ 2. Follows a specific process in setting up an appointment to provide a good interview situation.

_____ 3. Gives me information about a number of possible careers, any economic implications, and the time demanded by them.

9. When I seek advice about which courses to take the next semester, I prefer a counselor who,

_____ 1. Does not hesitate to make recommendations.

_____ 2. Discusses my choices with me when discussion would seem to be appropriate.

_____ 3. Listens to what I prefer to take, permitting me to do most of the talking.

APPENDIX E

COUNSELEE QUESTIONNAIRE

APPENDIX D

_____ _____

Student Name Counselor

_____

Social Security Number

COUNSELOR QUESTIONNAIRE

Please respond to each statement by using the following code:

Strongly Agree	1
Moderately Agree	2
Undecided	3
Moderately Disagree	4
Strongly Disagree	5

Place a check mark next to the number code that best expresses your opinion.

1. In my opinion, the counselee was at ease at the beginning of the interview.

   _____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

2. In my opinion, the counselee had a goal for the interview established prior to the interview.

   _____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

3. It was necessary to help the counselee establish a goal during the interview.

   _____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

4. I had little difficulty communicating with the counselee.

   _____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

5. In my opinion, the counselee was at ease at the end of the interview.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

6. In my opinion, the counselee was able to reach his/her objectives by the end of the interview.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

7. I was able to reach my objectives for the interview.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

8. In my opinion, the interview was a good experience for the counselee.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

9. One interview was sufficient to satisfy the needs of the counselee.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

10. In my opinion, given the option, the counselee would prefer to see me again should he/she need further assistance.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

4. The counselor and I talked, but we did not accomplish anything.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

5. I was satisfied with the manner in which the counselor conducted the interview.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

6. I would consider the interview as a good experience.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

7. I would prefer to have more opportunity to ask questions than I had.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

8. The counselor made me feel at ease by the end of the interview.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

9. I feel that I reached my objectives.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

10. Given the choice, I would prefer to see the same counselor again.

_____ 1. _____ 2. _____ 3. _____ 4. _____ 5.

APPENDIX F

COUNSELOR CHECK LIST

APPENDIX F

_____

Counselor

COUNSELOR CHECK LIST

Based on your observations during the counselor interview, using a scale of 0 - 9, score each item on the list.

The counselor,

_____ 1. Permitted the counselees to discuss their problem(s) and arrive at their own solution(s).

_____ 2. Was flexible in his approach to the counseling situation.

_____ 3. Got to the point and gave instructions freely.

_____ 4. Showed a definite interest in the counselee as a person.

_____ 5. Made sure the counselee had an appointment and records were available.

_____ 6. Used a variety of tools to assist the counselee.

_____ 7. Gave information and recommendations freely throughout the interview.

_____ 8. Provided an opportunity for a free exchange of ideas between counselor and counselee.

_____ 9. Mostly listened to counselee.

APPENDIX G

A SUGGESTED TECHNIQUE FOR DETERMINING DEGREE OF MATCH BETWEEN "STYLES" AND BETWEEN "STYLES" AND "MODES OF UNDERSTANDING"--JOSEPH E. HILL

A SUGGESTED TECHNIQUE FOR DETERMINING DEGREE OF MATCH BETWEEN "STYLES" AND BETWEEN "STYLES" AND "MODES OF UNDERSTANDING"

In the application of the conceptual framework called "the Educational Sciences," the educator is encouraged to participate personally in the processes of observation, assessment, interpretation, and mapping. Techniques which the individual may employ to improve his abilities and outputs in these activities have been presented in connection with such considerations as: reliability, validity, objectivity, and discriminative power of instrumentalities, scaling, item analysis, item construction, and the diagnostic, prescriptive, and clinical aspects of mapping "styles," as well as mapping of modes of understanding required by "tasks." For example, the three Principles for determining either a major, or a minor, or a negligible orientation of a "style" element invokes an approach in which the objectivity, the reliability, the validity, and the discriminative power of both the mathematical and the empirical mapping processes employed by the "mapper" are improved or increased relative to an approach that did not include these Principles.

Although the instrumentalities employed to yield information for the mapping of elements of "styles" are not, by intention, designed to be predictive of an individual's performance in any given system, once the tentative mode of understanding required by the system (e. g., a unit of instruction) with which the individual must interact is "determined," a technique for determining the degree of match between the "style" of the individual and the "mode" required by that system has proven to be most beneficial, not only in diagnostic, prescriptive, and clinical practices, but in the realms of student motivation and achievement, as well. This technique has also been found to be contributory, by determining the degree of match between the "styles" of individuals, in the areas of instruction, administration, counseling, and the reduction of dissonance being witnessed by an individual in connection with certain persons, or processes, or properties, or any combination of these elements in the system with which he

is interacting.

The "matching" technique suggested here is illustrated in terms of a step-by-step procedure for determining the degree of match between the cognitive styles of Individual A and Individual B, respectively. Although the procedure is illustrated in terms of "matching" the cognitive styles of two individuals, it can be used equally effectively to match the "style" of an individual with a mode of understanding required by a given "task," to determine the match between the administrative style of an individual and the role expectancy, expressed in "style" elements, of the administrative position he holds; and a variety of other matches involving teaching style, counseling style, "preferred" teaching style, and "preferred" administrative style to mention but a few of the possibilities. The step-by-step procedure is as follows:

Step 1. Determine which "style" or "mode" is the one to be used as the referent in the "matching" process. This decision is not an arbitrary one. For example, in determining the degree of match between the cognitive style of a student and the cognitive style of the teacher, unless some type of exceptional circumstance exists, the teacher's "style" would be selected as the referent. In this example, it is assumed that the cognitive style map of Individual A will be the referent.

Step 2. Basically the system of matching suggested here is one of assigning a value of 3, 2, 1, or 0, to each element in the "style" of the individual being matched with the referent "style."* The referent style is scored by assigning the value of 3, only, to each of its elements, except that of L, the "appraisal modality

*It should be recalled here that a score is defined to be a value assigned to an act or quality. In this context, assigning values to the elements of "style" is an act of scoring that style.

of inference," which, when it occurs in the "referent," or in the "style" being matched with the referent, should be assigned the value 9. To illustrate this point, suppose that the cognitive style map of Individual A, the referent "style," is as shown below:

(12)-3	(10)-3	(12)-3						
T(AL)-3	T'(AQ)-3	T(VL)-3						
Q(CET)-3	--	--						
Q(CEM)-3	--	--	X	F-3	X	R-3 L-9	"Referent / Style"	
Q(CES)-3	--	--		I'-3		M'-3	= g of	
Q(CP)-3	--	--		A'-3		D'-3	Individual A	
Q'(CH)-3	--	--						

RDLVL - 12.2-3

Test No.	Element	Per. Range	Test No.	Element	Per. Range	Element	Per. Range	Element	Per. Range
1	T(VL)	70-79	7, 8	Q(CEM)	70-79	Q(CES)	60-69	Q(CET)	80-89
2	T(AL)	60-69		Q(CH)	30-39	Q(CK)	20-25	Q(CKH)	20-25
3	T(VQ)	10-19		Q(CP)	60-69	Q(CS)	10-19	Q(CT)	20-25
4	T(VL)	70-79	9	I	40-49	A	30-39	F	60-69
5	T(AQ)	40-49	10	M	40-49	D	30-39	R	60-69
6	T(VL)	80-89		L	70-79				

It should be noted that each of the respective levels of educational development, 12 for T(AL) and for T(VL), and 10 for T'(AQ), along with reading level - 12.2, is assigned a value of "3" as well as each of the other elements in the "referent style."

Step 3. Assign a value of 3, 2, 1, or 0 to each "element" of the "style" map of Individual B, according to the following rules of assignment (algorithms).

I. If the Level of Educational Development to be scored is: (a) one level below, (b) the same, or (c) higher than its counterpart "level" in the referent style, then assign a value of "3" to this element.

II. Apply Rule I to Reading Level.

III. If the Level of Educational Development to be scored is: (a) two levels below, or (b) three levels below its counterpart level in the referent style, then assign a value of "2" to this element.

IV. If Rule I does not apply to Reading Level, then apply Rule III to it.

V. If the Level of Educational Development to be scored is: (a) four levels below, or (b) five levels below its counterpart level in the referent style, then assign a value of "1" to this element.

VI. If Rule I and Rule III do not apply to Reading Level, then apply Rule V to it.

VII. If the Level of Educational Development to be scored is more than five levels below its "counterpart" in the referent style, then assign a value of "0" to it.

VIII. If the Reading Level to be scored is more than five levels below its counterpart in the referent style, then assign a value of "0" to it.

IX. With the exception of the elements of: Level of Educational Development, Reading Level, and the Appraisal (L) Modality of Inference, if the element to be scored shows the same percentile range, or in the case of composite elements, the same "average" percentile range, as its counterpart element

in the referent style, then assign a value of "3" to it. In the case of an element such as T(VL), a composite variable, the midpoint value of each percentile range included in the "composite" is used to calculate an average percentile value which then is used to establish an appropriate "average" percentile range which can be compared with its counterpart "average" percentile range in the referent style. If the condition covered by this Rule holds for the "Appraisal (L)" element to be scored, then assign a value of "9" to it. The elements of Level of Educational Development and Reading Level, respectively, are covered by Rules I-VIII.

X. If the orientation of the element, i. e., a "major," or a "minor," but not a "negligible," to be scored is the same as its counterpart element in the referent style, but its percentile range, or in the case of composite elements, its "average" percentile range is not the same as its counterpart element in the "referent," then assign a value of "2" to it. If this condition holds for the "Appraisal (L)" element to be scored, then assign a value of "6" to it.

XI. If the orientation of the element, i. e., a "major," or a "minor," but not a "negligible," to be scored is different from its counterpart element in the referent style, then assign a value of "1" to it. Since minor and negligible orientations in the "Appraisal (L)" element are not shown in the cognitive style map, this Rule does not pertain to it. In this context, if an element has a negligible orientation, it is not shown in the map and therefore this Rule would not apply to it as well.

XII. **Except for the "Appraisal (L)" element, if the element to be scored does not have a counterpart element in the referent style, then assign a value of "0" to it. In the case of the "Appraisal (L)" element, if its counterpart "L" does not occur in the referent style, but a "double-eigen" involving the other "modalities" does occur, then assign a value of "6" to it. If the countepart "L" does not occur in the referent style, but a "single-eigen" condition exists, then assign a value of "3" to it.**

To illustrate how these Rules are employed, the elements in the cognitive style map of Individual B are scored accordingly:

(9)-2 (10)-2 (6)-1

T'(VL)-1 T(AL)-2 T'(AQ)-2

Q(CEM)-3	--	--	X	F-3 A-1	X	D-1 L-6
Q(CP)-3	--	--				M'-2
Q(CET)-2	--	--				R'-1
Q(CS)-0	--	--				
Q(CES)-2	--	--				
Q'(CK)-0	--	--				
Q'(CH)-3	--	--				

= g of Individual B

RDLVL - 8.6-2

Test No.	Element	Per. Range	Test No.	Element	Per. Range	Element	Per. Range	Element	Per. Range
1	T(VL)	30-39	7, 8	Q(CEM)	70-79	Q(CES)	50-59	Q(CET)	60-69
2	T(AL)	50-59		Q(CH)	30-39	Q(CK)	30-39	Q(CKH)	10-19
3	T(VQ)	10-19		Q(CP)	60-69	Q(CS)	50-59	Q(CT)	20-29
4	T(VL)	0-9	9	I	20-25	A	60-69	F	60-69
5	T(AQ)	26-29	10	M	30-39	D	60-69	R	26-29
6	T(VL)	40-49		L	50-59				

Since the Level of Educational Development for the T(VL) eigen in the referent style is (12), while in Individual B's map the "Level" for the T(VL) eigen is (9), Rule III applies and the value of "2" is assigned to that "Level." Since the "Level" of (10) is associated with the T(AL) eigen of Individual B's map, while the "Level" of that eigen in the referent style is (12), Rule III applies once again, and the value of "2" is assigned to that "Level." The Level of Educational Development (6) associated with the T(AQ) eigen in Individual B's map is four levels below the T(AQ) eigen in the referent style. Under these circumstances, Rule V applies, and a value of "1" is assigned to this "Level." Since Reading Level 9 is defined by Levels from 8.5 through 9.49, respectively, the "Level" 8.6 shown in B's map is defined to be at "Level" 9. In this context, B's Reading Level is three levels below the 12.2 Reading Level shown in the referent style. Accordingly, Rule IV (which applies Rule III to Reading Level) pertains to this situation, and a value of "2" is assigned to the Reading Level of 8.6.

Noting that the element theoretical visual linguistic is a minor orientation, T'(VL), while in the referent style it is a major orientation, T(VL), Rule XI applies, and a value of "1" is assigned to that element in B's map. If T(VL), a "composite," had been a minor orientation in the referent, then it would have been necessary to find the value of the arithmetic average (the mean) of the midpoints of the percentile ranges associated with the T(VL) measures, Tests 1, 4, and 6, respectively, included in the composite, found in B's map. Had this been the situation, the midpoint values would have been 34.5 for the range 30–39 associated with Test 1, 4.5 for Test 4, and 44.5 for Test 6. The average of the midpoints would have been: $\frac{34.5 + 4.5 + 44.5}{3} = \frac{83.5}{3} = 27.8$. This value, by definition, would be associated with the "average" percentile range of: 26–29. The value of the "average" percentile range of the supposed T'(VL) in the referent style would then have been calculated in the same fashion. If the "average" percentile ranges had been the same, then by Rule IX, a value of "3" would

have been assigned to T'(VL) in B's map. If these "ranges" were found to be different from each other, then according to Rule X, a value of "2" would have been assigned to T'(VL) in B's map.

Since T(AL) in B's map is the same orientation, a "major," as that of the T(AL) element in the referent style, but the percentile range, 50–59, for T(AL) in B's map is different from the range, 60–69, for T(AL) in the referent style, Rule X applies and this element in B's map is assigned a value of "2." It was not necessary to calculate an "average" percentile range for T(AL) in this case, because this element is not a composite variable as measured by the particular battery employed to produce the referent style (Individual A's map) and Individual B's map shown in this example. Had T(AL) been a composite variable, it would have been noted as such in the map, and the procedure for determining "average" percentile ranges for this element in the referent style and in B's map would have been employed.

In the case of the element, theoretical auditory quantitative, a minor orientation, T'(AQ), occurs in B's map and also in the referent style. The percentile ranges of these elements, however, are different from each other. Therefore, Rule X applies, and a value of "2" is assigned T'(AQ) in B's map. Since T(AQ) is <u>not</u> indicated to be a composite variable, there is no need to determine an "average"percentile range for this element.

Assuming that none of the other elements in the respective "styles," i. e., in the "referent" and in Individual B's, is a composite variable, the following table shows the element, the Rule, and the value assigned to that element in Individual B's map:

Element	Rule	Value	Element	Rule	Value	Element	Rule	Value
Q(CEM)	IX	3	Q(CP)	IX	3	D	XI	1
Q(CES)	X	2	Q(CS)	XII	0	M	X	2
Q(CET)	X	2	A	XI	1	R	XI	1
Q(CH)	IX	3	F	IX	3	L	X	6
Q(CK)	XII	0	I 0, (Does not appear in B's map)					

Step 4. After the elements in the map being matched with the referent are scored, the total number of points associated with each of the following sets of elements, in both the referent style and in the map being matched to it, must be determined: (a) the Levels of Educational Development and the Reading Level, (b) the combinations of elements in the set Symbols and their Meanings, (c) the "combinations" in the set Cultural Determinants of the Meanings of Symbols, and (d) the combinations in the set Modalities of Inference. To illustrate this procedure, (a) the total points associated with the Levels of Educational Development and the Reading Level in the referent style would be: Eigen T(AL)(12)-3; Eigen T(VL)(12) - 3; Eigen T'(AQ)(10) - 3; and RDLVL (12.2) - 3; or 3+3+3+3 = 12 points. While in Individual B's map, the total number of points associated with these "Levels" would be: Eigen T(AL)(10)-2; Eigen T'(VL)(9)-2; Eigen T'(AQ)(6)-1; and RDLVL (8.6)-2; or 2+2+1+2 = 7 points.

(b) Since all the elements in the set Symbols and their Meanings are binomial combinations of the form: (T-Q), or (T-Q'), or (Q-T'), or (T'-Q'), where the symbol (') denotes a minor orientation, the points for the theoretical symbol (T) involved in the combination are added to those for the qualitative symbol in that "binomial," unless the value assigned to either the theoretical (T) or the qualitative (Q) is "0." In this latter case, but only in the set Symbols and their Meanings, the total number of points associated with such a binomial is defined to be "0." This approach avoids a spuriously high total number of points in this set of an Individual's map, deriving from the repeated addition of a particular theoretical symbolic orientation (T) in combination with a series of qualitative orientations (Q's) that may have been assigned the value of "0." The values of

the binomial combinations are then totalled for each eigen, and these values, in turn, are added together to find the total number of points associated with the set Symbols and their Meanings. To illustrate, in the referent style, for the T(AL) eigen, each of the five binomial combinations: [T(AL) - Q(CET)], [T(AL) - Q(CEM)], [T(AL) - Q(CES)], [T(AL) - Q(CP)], and [T(AL) - Q'(CH)] equal: 3 + 3 = 6 points. Since there are five of these "combinations" and each one yields 6 points, the total for the T(AL) eigen becomes, 5 x 6 points = 30 points. In similar fashion, the T'(AQ) eigen yields 30 points, as does the T(VL) eigen. Consequently, the total number of points for the set Symbols and their Meanings, in the referent style, is: 3 x 30 points = 90 points. In Individual B's map, the "combinations" of: [T'(VL) - Q(CEM)], [T'(VL) - Q(CP)], and [T'(VL) - Q'(CH)] yield: 1+3 = 4 points each, or a total of: 3 x 4 points = 12 points; while each of the "combinations" of: [T'(VL) - Q(CET)] and [T'(VL) - Q(CES)] yields: 1+2 = 3 points, or a total of: 2 x 3 points = 6 points. It should be particularly noted that each of the "combinations" of: [T'(VL) - Q(CS)] and [T'(VL) - Q'(CK)], although ostensibly yielding the value: 1+0 = 1 point, is defined to yield "0" points in order to avoid a spuriously high accumulation of points based upon the repeated use of the same element, in this case T'(VL). In the case of the T(AL) eigen, each of the combinations of: [T(AL) - Q(CEM)], [T(AL) - Q(CP)], and [T(AL) - Q'(CH)] yields: 2+3 = 5 points, or a total of: 3 x 5 points = 15 points; while each of the "binomials" of: [T(AL) - Q(CET)] and [T(AL) - Q(CES)] yields: 2+2 = 4 points, or a total of: 2 x 4 points = 8 points. Each of the "combinations" of: [T(AL) - Q(CS)] and [T(AL) - Q'(CK)] is defined to yield "0" points for the reasons given in the cases of [T'(VL) - Q(CS)] and [T'(VL) - Q'(CK)], respectively. Since the element T'(AQ) was assigned the

same value, "2," that the element T(AL) was in B's map, the total points yielded by the T'(AQ) eigen will be equal to the total number of points yielded by the T(AL) eigen in B's map; i. e., 15 + 8 = 23 points, each. The total number of points yielded by the three eigens in the set Symbols and their Meanings of B's map is: T'(VL) eigen - 18; T(AL) eigen - 23; T'(AQ) eigen - 23, or: 18 + 23 + 23 = 64 points.

(c) The total number of points yielded by the (F) eigen in the "Cultural Determinants" set of the referent style is: F = 3 points, (F - I') = 3 + 3 = 6 points, (F - A') = 3 + 3 = 6 points; or 3 + 6 + 6 = 15 points. The total number of points yielded by the double-eigen array in the "Cultural Determinants" set of B's map is: F = 3 points, and A = 1 point; or 3 + 1 = 4 points.

(d) In the third set, Modalities of Inference, the total number of points yielded by the (R) eigen and the (L) eigen, in the referent style, is: R = 3 points, (R-M') = 3 + 3 = 6 points, and (R-D') = 3 + 3 = 6 points; or: 3 + 3 + 6 = 15 points; while L = 9 points; and the grand total number of points for this set of elements is: 15 + 9 = 24 points. The (D) eigen and the (L) eigen in B's map yield: D = 1 point; (D-M') = 1 + 2 = 3 points; (D-R') = 1 + 1 = 2 points; or a total of: 1 + 3 + 2 = 6 points, while L = 6 points, so that the grand total number of points for this set is: 6 + 6 = 12 points.

Step 5. With the total number of points determined for: (a) the "Levels," (b) "Symbols and their Meanings," (c) "Cultural Determinants," and (d) the "Modalities," for the referent style, and for Individual B's map, it is now possible to determine the percer "agreement," or the "match" between each set of the referent style and its counterpc set in Individual B's "style." The values of these percent indices are calculated by

dividing the total number of points associated with a given set in B's map by the total number of points associated with the counterpart of that set found in the referent style. The following calculations illustrate the discussion:

(a) "Levels" - Percent of Agreement = $\frac{\text{Total Points for "Levels" in B's Map}}{\text{Total Points for "Levels" in "Referent"}} = \frac{7}{12} \approx .58$

(b) "Symbols" - Percent of Agreement = $\frac{\text{Total Points for "Symbols" Set in B's Map}}{\text{Total Points for "Symbols" Set in "Referent"}} = \frac{64}{90} \approx .711$

(c) "Determinants" - Percent of Agreement = $\frac{\text{Total Points for "Determinants" Set in B's Map}}{\text{Total Points for "Determinants" Set in "Referent"}} = \frac{4}{15} \approx .266$

(d) "Modalities" - Percent of Agreement = $\frac{\text{Total Points for "Modalities" Set in B's Map}}{\text{Total Points for "Modalities" Set in "Referent"}} = \frac{12}{24} = .50$

Step 6. In order to determine the general percent of agreement, or degree of match, between Individual B's "style" and the Referent Style, Individual A in this example, the arithmetic average or the mean of the percents of agreement found in Step 5 is calculated. In this example:

$$\text{Degree of Match} = \frac{.583 + .711 + .266 + .50}{4} = \frac{2.060}{4} = .515$$

It should be noted that each percent of agreement is given an equal "weighting" in this process. Through this approach, Levels of Educational Development and Reading Level, as one set of information, is accorded one-quarter of the overall degree of match. Obviously, the same "weighting" pertains to each of the other three sets of information involved in the "match," as well.

Step 7. Applying Principle I, II, or III associated with the process of mapping styles, determine the "orientation," i. e., a "major," or a "minor," or a "negligible," of the Degree of Match. In this example with the value of the match being: .515, Principle I would be applied and the "match" would be classified

"a Major." It should be noted that a 51.5 percent "match" is a minimum match at best, and any assignment based upon this degree of match should be monitored and subjected to rather frequent analysis.

The seven-step procedure presented here has evolved from a number of doctoral studies and project efforts. Many other approaches (e. g., multiplicative models) have been employed, but this procedure, the latest at this point in time of many additive models, has proven, empirically, to be the most effective one developed to date.

APPENDIX H

RESULTS OF ANALYSES OF MATCHING OF COGNITIVE "STYLE" OF COUNSELOR B AND GROUPS WITH MAJOR OR MINOR MATCH WITH THE COUNSELOR

APPENDIX I

RESULTS OF ANALYSES OF MATCHING OF COGNITIVE "STYLE" OF COUNSELOR C AND GROUPS WITH MAJOR OR MINOR MATCH WITH THE COUNSELOR

$$g = \begin{bmatrix} T'(AL)\ T(AQ)\ T'(VL)\ T'(VQ) \\ Q(CS) \\ Q(CES) \\ Q(CP) \\ Q(CKH) \\ Q(CEM) \\ Q(CT) \\ Q(CK) \\ Q(CET) \\ Q(CH) \\ Q(T) \\ Q(S) \\ Q(P) \\ Q(A) \\ Q'(V) \\ Q'(O) \end{bmatrix} X \begin{bmatrix} \\ \\ \\ \\ \\ I \\ \\ \\ F' \\ A' \\ \\ \\ \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ \\ \\ \\ D\ R \\ \\ \\ M'M' \\ \\ \\ \\ \\ \\ \end{bmatrix} \begin{bmatrix} \\ \\ \\ \\ \\ L \\ \\ \\ (K) \\ \\ \\ \\ \\ \\ \end{bmatrix}$$

Figure B1. Cognitive Style Map--Counselor C

$$g = \begin{bmatrix} T'(AL) \\ Q(CET) \\ Q(CEM) \\ Q(CS) \\ Q(CES) \\ Q(CP) \\ Q'(CH) \end{bmatrix} X \begin{bmatrix} \\ \\ I \\ \\ F' \\ A' \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \end{bmatrix}$$

n = 8 criterion n = 6

Figure B2. Collective Cognitive Style Map of Students with a <u>major</u> match with Counselor C

$$\begin{bmatrix} Q(CET) \\ Q(CES) \\ Q(CEM) \\ Q(CT) \\ Q(CP) \\ Q(CS) \\ Q(O) \end{bmatrix} X \begin{bmatrix} I \\ F' \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix}$$

Figure A3. Elements held in common between Counselor B and the Group

$$\begin{bmatrix} T(AL)\ T(AQ)\ T(VL)\ T(VQ) \\ Q(CKH) \\ Q(CH) \\ Q(CK) \\ Q(V) \\ Q(T) \\ Q(S) \\ Q(P) \\ Q(A) \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix} X \begin{bmatrix} R\ D \quad L \\ M'M' \quad (K) \\ \\ \end{bmatrix}$$

Figure A4. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Counselor B

$$\begin{bmatrix} T'(AL)\ T'(AQ)\ T(VL)\ T'(VQ) \\ Q'(CH) \\ Q'(CK) \\ Q'(CKH) \end{bmatrix} X \begin{bmatrix} \\ A' \\ \end{bmatrix} X \begin{bmatrix} M \\ R' \\ D' \end{bmatrix}$$

Figure A5. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Student Group

$$g = \begin{bmatrix} T'(VL) \\ Q(CEM) \\ Q(CET) \\ Q(CP) \\ Q(CS) \\ Q(CK) \\ Q(CES) \end{bmatrix} X \begin{bmatrix} \\ A' \\ \end{bmatrix} X \begin{bmatrix} M \quad L \\ R' \\ \end{bmatrix}$$

$n = 4$ criterion $n = 3$

Figure A6. Collective Cognitive Style Map of Students with a <u>minor</u> match with Counselor B

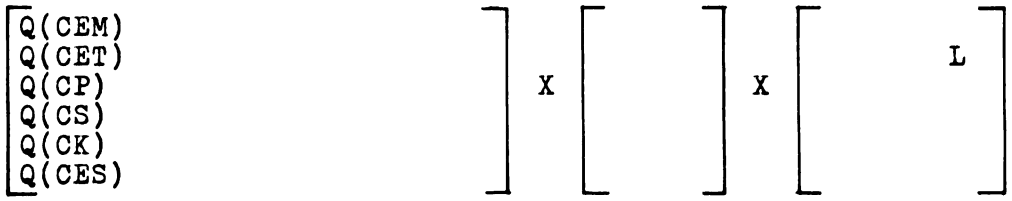

Figure A7. Elements held in common by Counselor B and the Group of Students with a minor match with Counselor B

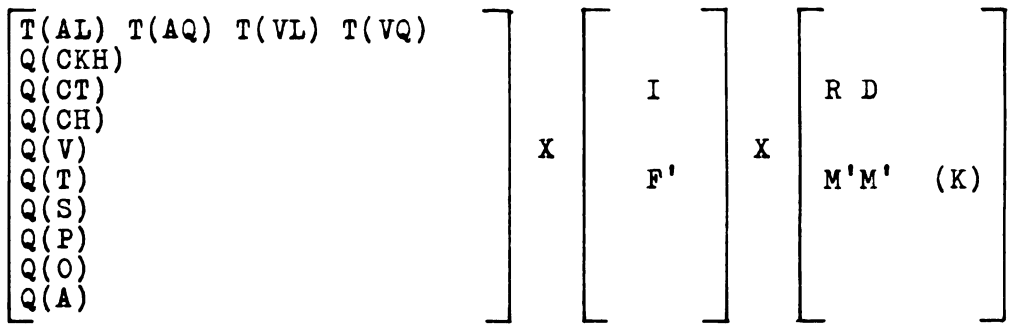

Figure A8. Elements that are different from each other in the "Collective Style" of the Group, with a minor match, and Counselor's Style--Referent, Counselor B

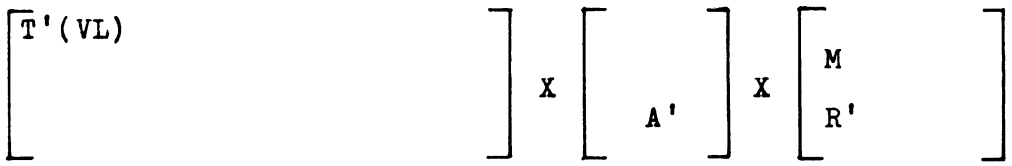

Figure 9A. Elements that are different from each other in the "Collective Style" of the Group, and the Counselor's Style--Referent, Student Group

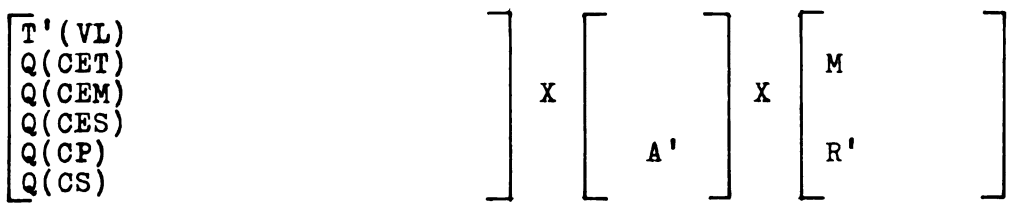

Figure A10. Elements that are common between Students with major and minor match with Counselor B

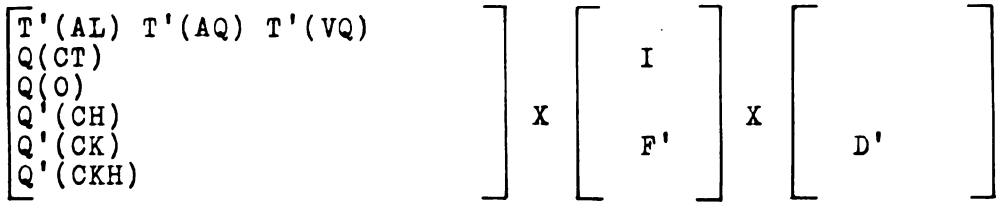

Figure A11. Elements that are different from each other in the "Collective Styles" of Groups with <u>major</u> and <u>minor</u> matches with Counselor B--Referent, Group with major match

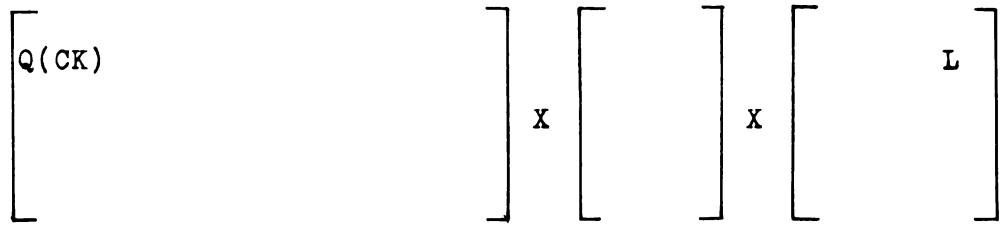

Figure A12. Elements that are different from each other in the "Collective Styles" of Groups with <u>major</u> and <u>minor</u> matches with Counselor B--Referent, Group with minor match

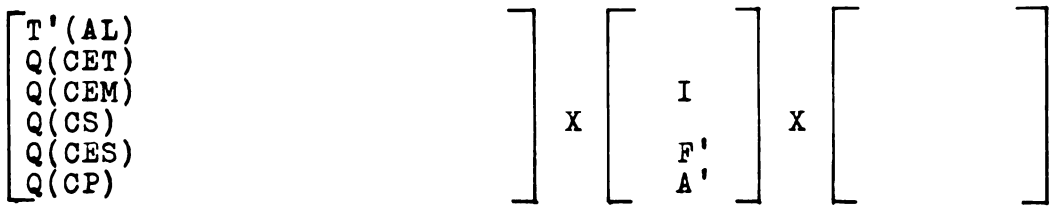

Figure B3. Elements held in common between Counselor C and the Group

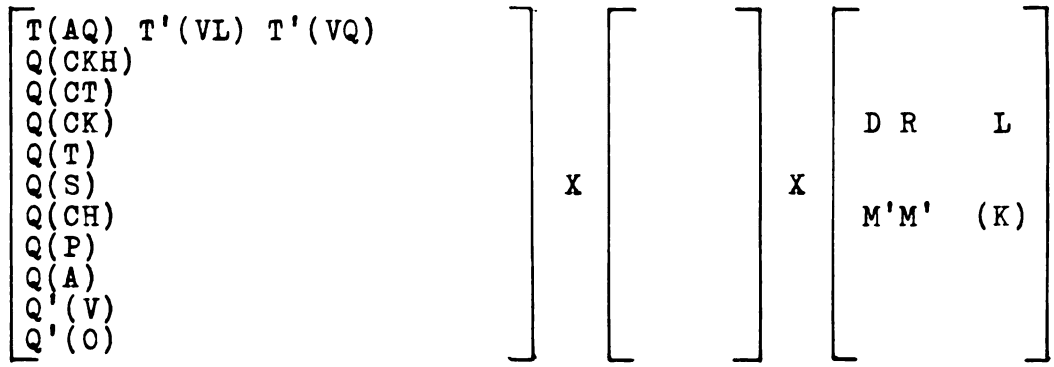

Figure B4. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Counselor C

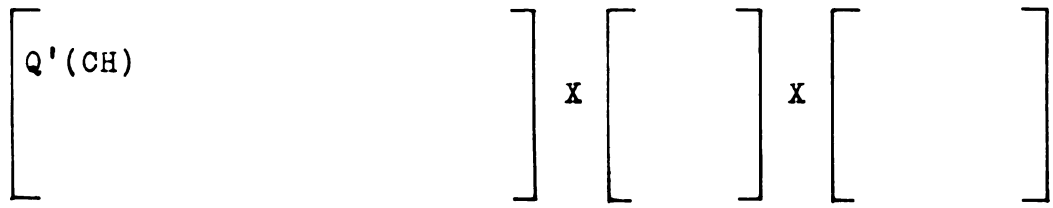

Figure B5. Elements that are different from each other in the "Collective Style" of Group, and Counselor's Style--Referent, Student Group

$$g = \begin{bmatrix} T'(AL)\ T'(AQ)\ T'(VL) \\ Q(CS) \\ Q(CET) \\ Q(CEM) \\ Q(CP) \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ L \end{bmatrix}$$

$n = 7$ criterion $n = 5$

Figure B6. Collective Cognitive Style Map of Students with a minor match with Counselor C

$$\begin{bmatrix} T'(AL)\ T'(VL) \\ Q(CS) \\ Q(CET) \\ Q(CEM) \\ Q(CP) \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ L \end{bmatrix}$$

Figure B7. Elements held in common by Counselor C and the Group of Students with a minor match with Counselor C

$$\begin{bmatrix} T(AQ)\ T'(VQ) \\ Q(CKH) \\ Q(CT) \\ Q(CK) \\ Q(CH) \\ Q(T) \\ Q(S) \\ Q(P) \\ Q(A) \\ Q'(V) \\ Q'(O) \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix} X \begin{bmatrix} D\ R \\ \\ M'M'\ \ (K) \\ \\ \end{bmatrix}$$

Figure B8. Elements that are different from each other in the "Collective Style" of the Group, with a minor match, and Counselor's Style--Referent, Counselor C

$$\begin{bmatrix} T'(AQ) \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix} X \begin{bmatrix} \\ \\ \end{bmatrix}$$

Figure B9. Elements that are different from each other in the "Collective Style" of the Group, and the Counselor's Style--Referent, Student Group

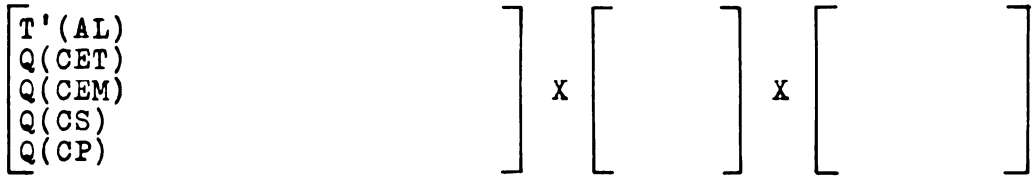

Figure B10. Elements that are common between Students with major and minor match with Counselor C

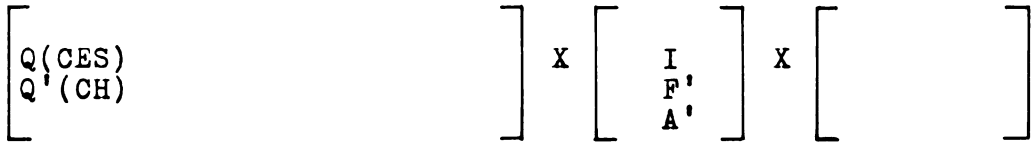

Figure B11. Elements that are different from each other in the "Collective Styles" of Groups with major and minor matches with Counselor C--Referent, Group with major match

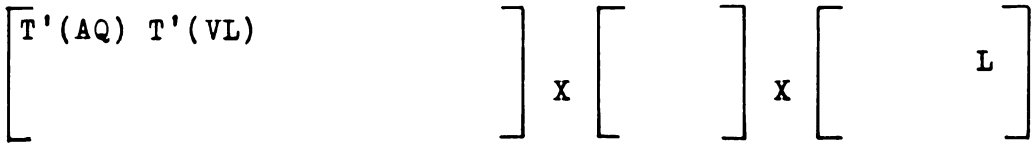

Figure B12. Elements that are different from each other in the "Collective Styles" of Groups with major and minor matches with Counselor C--Referent, Group with minor match

APPENDIX J

RESULTS OF ANALYSES OF MATCHING OF COUNSELING "STYLE," OF COUNSELOR B, AND PREFERRED COUNSELING "STYLE" OF GROUPS WITH A MAJOR OR MINOR MATCH WITH THE COUNSELOR

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$$CS = \begin{bmatrix} U \\ O' \end{bmatrix} X \begin{bmatrix} PC \\ PN' \end{bmatrix} X \begin{bmatrix} TP \\ RP' \end{bmatrix}$$

Figure C1. Counseling Style--Counselor B

$$\begin{bmatrix} U \end{bmatrix} X \begin{bmatrix} PN \end{bmatrix} X \begin{bmatrix} RP \end{bmatrix}$$

n = 2 criterion n = 2

Figure C2. Collective Preferred Counseling Style of Students with a major match with Counselor B

$$\begin{bmatrix} U \end{bmatrix} X \begin{bmatrix} \end{bmatrix} X \begin{bmatrix} \end{bmatrix}$$

Figure C3. Elements that are common between Counselor B and the Group of Students with a major match with Counselor B

$$\begin{bmatrix} O' \end{bmatrix} X \begin{bmatrix} PN' \end{bmatrix} X \begin{bmatrix} TP \\ RP' \end{bmatrix}$$

Figure C4. Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Counselor B

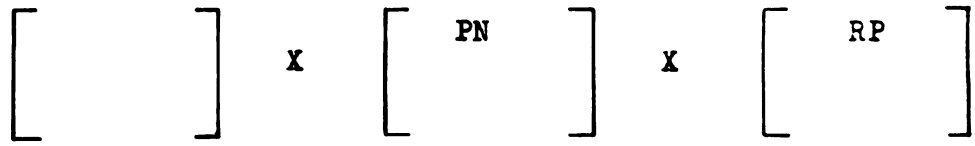
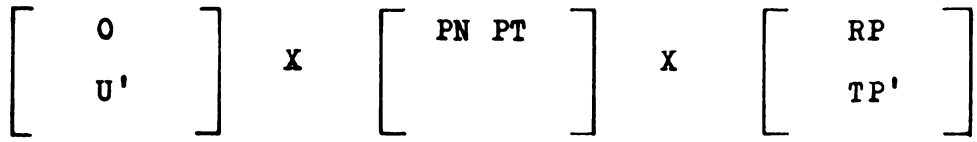


Figure C5. **Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Student Group with a <u>major</u> match with Counselor B**



n = 3 criterion n = 2

Figure C6. **Collective Preferred Counseling Style of Students with a <u>minor</u> match with Counselor B**

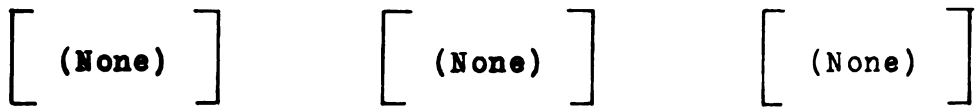


Figure C7. **Elements that are common between Counselor B and the Group of Students with a <u>minor</u> match with Counselor B**

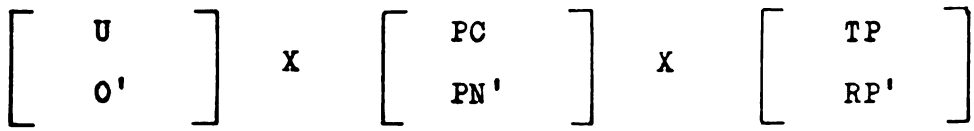


Figure C8. **Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Counselor B**

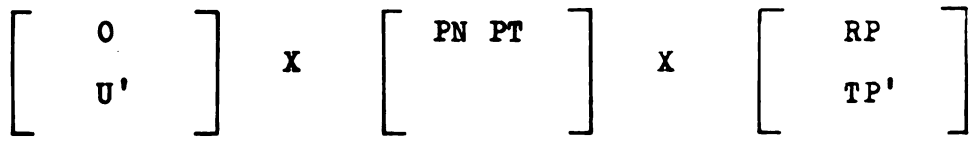


Figure C9. Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Group with a <u>minor</u> match

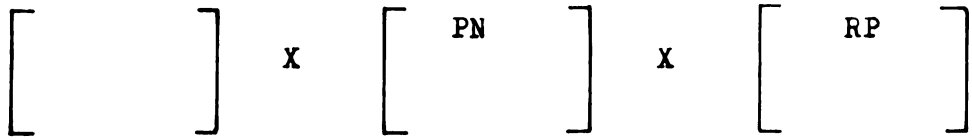


Figure C10. Elements that are common between the Student Group with a <u>major</u> match with Counselor B and the Student Group with a <u>minor</u> match with Counselor B

Figure C11. Elements that are different between the "Collective Styles" of Groups with <u>major</u> and <u>minor</u> matches with Counselor B--Referent, Group with major match

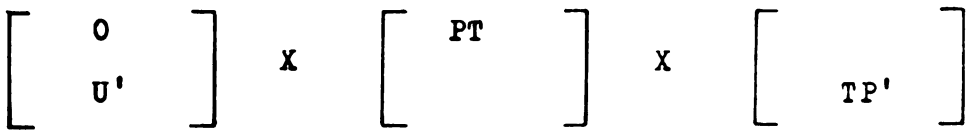


Figure C12. Elements that are different between the "Collective Styles" of Groups with <u>major</u> and <u>minor</u> matches with Counselor B--Referent, Group with minor match

APPENDIX K

RESULTS OF ANALYSES OF MATCHING OF COUNSELING "STYLE," OF COUNSELOR C, AND PREFERRED COUNSELING "STYLE" OF GROUPS WITH A MAJOR OR MINOR MATCH WITH THE COUNSELOR

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RESULTS OF ANALYSES OF MATCHING OF COUNSELING "STYLE," OF COUNSELOR C, AND PREFERRED COUNSELING "STYLE" OF GROUPS WITH A MAJOR OR MINOR MATCH WITH THE COUNSELOR

$$CS = \begin{bmatrix} O \end{bmatrix} X \begin{bmatrix} PC\ PN \end{bmatrix} X \begin{bmatrix} TP \\ RP' \\ QP' \end{bmatrix}$$

Figure D1. Counseling Style--Counselor C

$$\begin{bmatrix} U \end{bmatrix} X \begin{bmatrix} PN\ PT \\ PC' \end{bmatrix} X \begin{bmatrix} RP \end{bmatrix}$$

n = 10 criterion n = 7

Figure D2. Collective Preferred Counseling Style of Students with a major match with Counselor C

$$\begin{bmatrix} \end{bmatrix} X \begin{bmatrix} PN \end{bmatrix} X \begin{bmatrix} \end{bmatrix}$$

Figure D3. Elements that are common between Counselor C and the Group of Students with a major match with Counselor C

$$\begin{bmatrix} O \end{bmatrix} X \begin{bmatrix} PC \end{bmatrix} X \begin{bmatrix} TP \\ RP' \\ QP' \end{bmatrix}$$

Figure D4. Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Counselor C

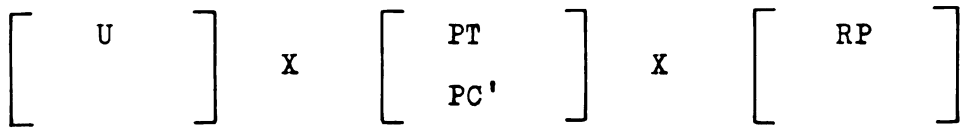
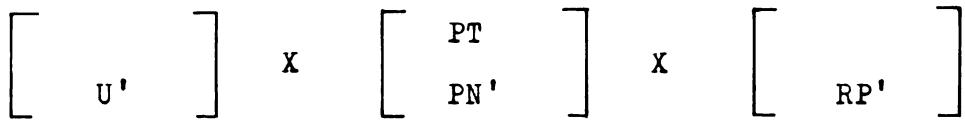


Figure D5. Elements that are different between the "Collective Style" of the Group and the Counselor's Style--Referent, Student Group with a <u>major</u> match with Counselor C



n = 4 criterion n = 3

Figure D6. Collective Preferred Counseling Style of Students with a <u>minor</u> match with Counselor C

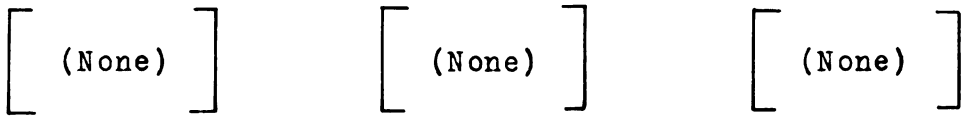


Figure D7. Elements that are common between Counselor C and the Group of Students with a <u>minor</u> match with Counselor C

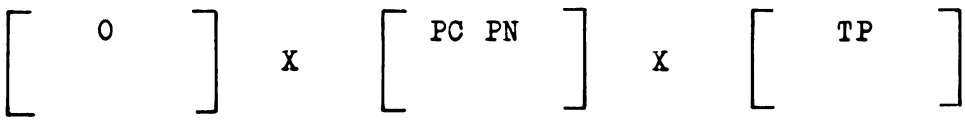


Figure D8. Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Counselor C

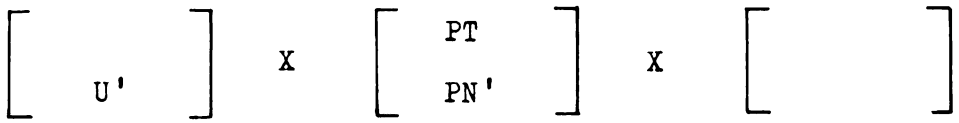


Figure D9. Elements that are different between the "Collective Style" of the Group and Counselor's Style--Referent, Group with a minor match

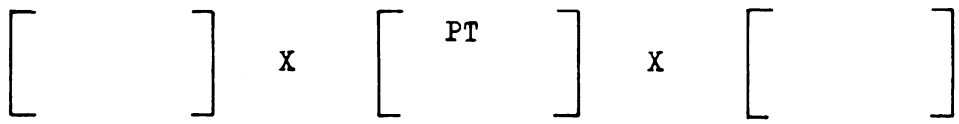


Figure D10. Elements that are common between the Student Group with a major match with Counselor C and the Student Group with a minor match with Counselor C

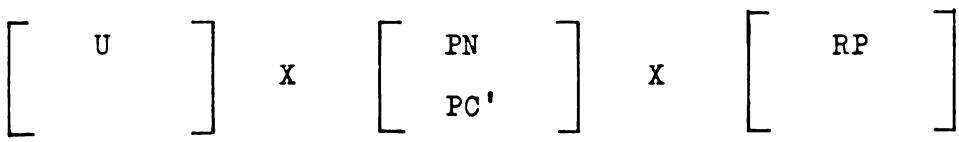


Figure D11. Elements that are different between the "Collective Styles" of Groups with major and minor matches with Counselor C--Referent, Group with major match

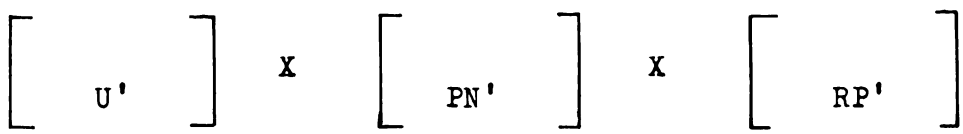


Figure D12. Elements that are different between the "Collective Styles" of Groups with major and minor matches with Counselor C--Referent, Group with minor match