

A COMPARATIVE STUDY OF INFORMATION  
RETENTION AND PERFORMANCE CHANGE  
WITH PLANNED VARIATION IN THE  
USE OF PRINT MATERIALS AND  
CLASSROOM TRAINING

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DEDICATION

I dedicate this project to my daughter Errin Elizabeth Jade Deibel who has brought much joy to my life. I hope in the future many of her dreams are realized.

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December 1987

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## CHAPTER I

### INTRODUCTION

State vocational rehabilitation programs are funded on a state and federal matching fund basis. Due to the impact of the Gramm-Rudman-Hollings amendment to reduce the amount of federal funding, leaders of state vocational rehabilitation programs are under pressure to become more cost effective in providing state agency counselor training.

Traditionally, during a downturn in revenues, state leaders have depended on the Federal Government to provide relief for matching fund programs. As a result of the Gramm-Rudman-Hollings provisions, state administrators must justify present and future funding. These requirements have caused state authorities to institute more rigid quality control policies to insure the most efficient expenditure of public funds and to eliminate duplication of services.

#### Statement of the Problem

The problem was that increasing budgetary restrictions demanded that more efficient ways be established to provide training for state government matching fund agencies.

## Purpose of the Research

The purpose of this research was to compare vocational rehabilitation counselor training through reading with training through reading plus classroom instruction by the variables of knowledge retention and pre- and post-training client closure rates.

## Null Hypotheses

Ho. 1 There is no difference between knowledge retention through the reading of print materials alone and knowledge retention through reading supplemented by classroom training.

Ho. 2 There is no difference between client closure rate and performance change before and after the reading of print materials alone.

Ho. 3 There is no difference between client closure rate and performance change before and after reading supplemented by classroom training.

Ho. 4 There is no difference between client closure rate and performance change after the reading of print materials alone and client closure rate and performance change after reading supplemented by classroom training.

## Assumptions

The following assumptions were made:

1. The population for this study was representative of state agency vocational rehabilitation counselors in the

south central United States.

2. The time lag between the first and last post-test was not a significant variable because experimental and control participants were distributed through the respondents.

3. The experimental and control participants responded to the post-test with integrity.

#### Limitations

The limitations of this study were the following:

1. The population for this study was restricted to all Oklahoma State Agency vocational rehabilitation counselors.

2. It was not possible to determine who actually read the memorandum used in the study.

#### Definitions

The following are functional definitions presented for the purpose of this study:

Adult motivation. A desire that moves to action as a result of factors related to life changes through adulthood.

Classroom training. A learning activity conducted with an instructor. The method of instruction may include lecture, discussion, role playing and the use of visual aids.

Client. An individual who has a disability that constitutes a handicap to employment and has been determined eligible for a vocational rehabilitation case.

Closure. An individual vocational rehabilitation case that has been successfully terminated after 60 days of employment.

Closure rate. The total number of vocational rehabilitation cases divided by the number of cases that have been successfully closed on an annual basis.

Independent learning. A learning activity characterized by limited contact with the instructor by the student.

Learning styles. The manner in which a person perceives and processes information and varies among individuals.

Locus of control. A variable to predict how internal and external reinforcement motivates an individual.

Memorandum. A statement of written information received by the counselor regarding policies and caseload activities.

Traditional training. A learning activity that includes lecture, lecture-discussion and lecture group discussion. The learning activity may also include the use of films, transparencies, slides and other visual aids.

#### Summary

Due to the impact of the Gramm-Rudman-Hollings amendment, there was a recognized need to provide information about the development of alternatives to traditional training designs. The study was developed to

provide such information.

Chapter II describes the nature of traditional and independent learning activities through a review of relevant literature and research studies.

Chapter III contains the research design, population identification, data collection procedures, and the statistical treatment that was applied.

Chapter IV gives an analysis of the data.

Chapter V presents the summary and the conclusions of the study, recommendations for further research, and implications.

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this chapter is to review selected literature pertinent to the present study. The review will be divided into the following sections: independent learning, learning styles, adult motivation, closure information, and a summary. All sections of the review are related to the present research project.

#### Independent Learning

One of the major problems regarding a review of independent study centers around the rich variety of programs identified as independent study. Independent study may be identified as detailed instruction, self instruction, non-directed study or individualized instruction. All are examples of how the concept of independent study is described in literature (Bolvin, 1968).

"Basically, independent study is the pursuit and acquisition of knowledge and skills by students with limited assistance from their classroom teacher" (Empy, 1968a). Empy (1968b) also describes the development of independent study as a four phases to clarify teacher objectives. As an example, Phase I would be a daily or weekly homework

assignment. Phase II is also teacher initiated but would include a self instruction package. Phase III may be initiated by the teacher or the student, but would focus on a learning project. The final phase is described as individualized research with the teacher acting as an advisor.

Much of the research involving independent study has been conducted in a context of what is described as a traditional learning environment. In a study to determine if independent study students would learn as much as and be as satisfied as students enrolled in regular lecture-discussion courses, Baskin (1962) found that students learned equally well whether they had studied under the lecture-discussion method or independent study. Both groups, experimental and control, were taught by both methods. Comparisons were also made with regard to sex, year in college and high school rank. Post course measures included multiple choice and short answer tests to determine content and learning. Essay, task and laboratory assignments were used to measure critical thinking ability. There was no evidence that independent study methods should be reserved for superior or advanced students. The students involved in the study did prefer the lecture-discussion technique, and accepted independent study as they became more familiar with it.

Stanton (1974) researched student personality and two instructional approaches, traditional and independent study,

to determine if a student would be predisposed to perform better under one method than another. Traditional instruction was described as lecture augmented by the use of overhead projector transparencies, 16mm slides and 16mm films. No supplementary reading was required for the lecture group. The independent study group was provided with a duplicate course outline which set out specific objectives for the course. Each objective could be attained by the use of textbooks and articles quoted as references. Personality data were collected by the use of Cattell's Sixteen Personality and Lysneck's Personality Inventory. The conclusions were that students who did better with lecture could be characterized as less conscientious and preserving, more practical, conventional, careful, less self sufficient and more resourceful than those students involved in independent study. Those students who did better with independent study perceived themselves as being tense and anxious.

In a similar study to compare the attitudes of 89 females and 35 males taught with independent study and those involved in small group studies, students were asked to rate the importance of the teaching method, the effectiveness of the method, the method they preferred and how involved the student was in that portion of the course. The population for the study was also administered the California Psychological Inventory, which gave scores on 18 traits, Stotts Inventory of Every Day Life, which provided three

measures of self reliance, and the Thematic Apperception Test, which was scored for need for achievement.

Conclusions revealed that there was no significant difference in men and women in the identified high achievement group. Women did prefer innovations in both group and independent study. Middle achievement women preferred lecture to independent study. An additional conclusion of the study was that students who fear failure prefer familiar, well structured situations such as lecture (Koeing and McKeache, 1959).

Oddi (1983), in reviewing research on the lecture method conducted between 1967 and 1982, found little effort directed to the effectiveness of the lecture in adult education, especially in non-classroom settings. Sources for the literature review were identified through an ERIC Search, Psychological Abstracts and Dissertation Abstracts. Non research articles were not reviewed. Eight of the studies were directly concerned with comparing the effectiveness of the lecture to self directed learning. Only six of the studies concerned the adult population as identified either by the stated age of the learners or by the nature of the courses studied. Most of the studies measured cognitive achievement by administering the same instrument to both control and experimental groups at the completion of the study. Teacher made tests were used to measure the acquisition of knowledge in all the studies reviewed. Those studies that considered attitude or other

personality variables used a diversity of teacher designed or standard instruments. One study indicated that the lecture method was superior to the self-directed learning, and four studies indicated no difference in effectiveness between lecture and self-directed learning. Definitions of what constituted self-directed learning also varied widely.

Gayles (1966) summarized authoritative analysis of discussions and experimental investigations pertaining to the effectiveness of lecture and discussion in the classroom. He identified five specific advantages and seven disadvantages for use of the lecture in a college classroom. Lecture was defined as a process of teaching in which the instructor gives an oral presentation of facts, concepts or principles. Discussion was defined as cooperative group endeavor of persons talking together under the direction of one of its members. Research in the area of lecture-discussion in college teaching is generally poor and is made up largely of articles based on opinion, descriptions of practice, recommendations of committees, commissions, survey and recommendations and a few critical studies.

Blackwood and Trent (1968) studied the effectiveness of class lecture as compared to tele-lecture and the association between the amount learned and the personal situational factors of age, level of education, time of day and attitude. Pre-test and post-test scores revealed the knowledge levels of 71 women who comprised the population

for the research. The population was randomly divided into experimental and control groups. It was found that no significant difference in the amount of learning existed. Age was negatively associated with the amount learned, level of education was positively associated with pre-test and post-test scores, and scores were higher in the afternoon than morning.

McNeil (1967), in a comparative study of lecture-discussion and self directed study among nutritional students, concluded that both groups experienced substantial gains in achievement. Those students taught by the traditional lecture-discussion method attained significantly higher levels of achievement. Students taught by both methods indicated by their responses to a questionnaire that on the whole they perceived the course and the instructional methods with a comparable degree of satisfaction.

Bodenburg (1982) conducted research to determine the effects of direct and independent instruction upon student achievement. He concluded that there was a relationship between the type of instruction and the score made by students on teacher made tests. He also concluded that direct instruction could be an effective teaching strategy to use for students who need remediation. He also indicated that middle ability students appear to learn equally well with direct instruction or independent study.

Barnett (1982), in research designed to compare the results of non-directed and directed laboratory activities

in residential construction among ninth grade students, concluded that achievement and information retention of residential construction process was higher in the non-directed group. The focus of the research was to evaluate problem solving as a measure of comparing the two methods of teaching. Experimental and control groups were given the same lectures and demonstrations. However, each group was provided different laboratory study materials and activities. The experimental group completed a student designed scale model, as compared to the control groups' involvement with an instructor designed scale model. Each student in the control and experimental group was provided the same text book. A pre-test and post-test was administered to both groups. Student attitudes were measured by the Purdue University's instrument, A Scale to Measure Attitude Toward any School Subject.

Godorov (1979) compared the effectiveness of lecture discussion with self directed students in a speech communication course. Those students who received self-directed instruction scored higher on the Abridged Patton Speech Content Examination than did the group that received the traditional lecture classroom instruction. There was no significant difference between the two types of instruction. No measures were taken of student attitude toward the type of instruction preferred.

Himmel (1972) compared measured educational outcomes of two groups of students enrolled in an introductory general

psychology course. The control group was taught in a traditional method of classroom lecture and discussion. The experimental group carried out a self-directed study of essentially the same course content without the use of class meetings, lectures, or continuing personal contact with the teacher. The self-directed group displayed a greater mastery of course content. Himmell (1972) suggests that attainment may be temporary and long term differences were inconclusive at three and 12 month follow up. Researchers did not disallow a Hawthorne effect since the self-study group may have seen themselves as more responsible and may have had a carry over on student development.

Hanner (1982) conducted research to examine the concept of independent study as it was implemented in inservice education for teachers. The study investigated the importance of inservice education implementation of independent inservice in three Minnesota schools and the perceived value of independent study as an inservice technique. The results of the research revealed that independent study as an inservice technique was perceived important by teachers and students. He also concluded that inservice training should consider content and interests of students and that independent study programs which begin without orientation seem to experience difficulties.

Murphy (1984) researched the effect of self directed learning as a factor in bureaucratic orientation. He concluded there was no significant difference in bureaucratic

orientation between lecture trained and self-directed learning trained Air Force personnel.

Phillips (1983) studied the characteristics of the adult learner who participates in learning projects using print material as a learning resource. The population for the research was composed of 198 residents in the City of Tulsa, Oklahoma who responded to a questionnaire survey. Thirty-four percent of the respondents were between the ages of 26 and 35, followed by the 55 and older group with 23 percent. Results of the research revealed that adults perceive reading as a valuable way for them to learn. Also, respondents from the upper socio-economic class were participating in more self-directed learning projects using print materials as a learning resource than the respondents from the lower socio-economic class.

Brown (1977), conducting research to compare achievement, retention and problem solving between a teacher directed experiment group and a control group composed of students who selected individual projects, concluded that student retention of information did not significantly differ between the groups. Classroom instruction was the same for each group.

### Learning Styles

Many changes have taken place, and are still taking place, in the conception of what human learning is and how it occurs. How learning happens has evolved from an older view

which held that learning is a matter of establishing connections between stimuli and responses, to a more current position that stimuli are processed in **multiple ways** by the human central nervous system. We now know that learning is a matter of understanding how these various processes operate (Gagne, 1970).

Traditionally, the style of teaching that suited the teacher was thought to be the best learning style for the students. No learning style could be considered satisfactory if it did not aid the student to acquire a substantial body of knowledge to apply in situations and circumstances dealing with problems. In this context, the task of the educator is to try to determine how the strength of an individual learning style can be utilized and the weakness reduced or controlled (Reismann, 1976).

Lowenfield (1945), conducting research on a group of partially blind students, discovered that some learners would attempt to utilize their limited sight while others would not. The results of this research rejected the theory that all learners had the same perception and theorized that some students have a visual preference while others possess a haptic preference.

Barbe and Milone (1981) observed the most thoroughly investigated learning styles are those involving perception, the process most intimately associated with learning. Educators refer to the channels through which perception occurs as modalities: vision, audition, and kinesthetic.

The channels most efficient for processing information are called modality strengths. A modality strength may occur in a single channel, or be mixed, involving two or more channels. Individuals may vary with respect to their modality strengths. The most frequent modality strengths are visual or mixed; each accounts for about 30 percent of the population. About 25 percent of the population are auditory, and about 15 percent kinesthetic. Adults are primarily involved with speaking and listening as their modality strengths. While individual differences are important, modality strengths are to be considered when involved in group learning experiences.

Nix (1983), citing French (1975) and Cherry (1981), conceptualized seven perceptual modality learning styles:

- 1) aural, information obtained primarily through listening,
- 2) haptic, information obtained primarily through touching or holding,
- 3) interactive, information obtained primarily through discussion and talking to others,
- 4) kinesthetic, information obtained primarily through performance,
- 5) olfactory, information obtained primarily through the sense of hearing,
- and 7) visual, information obtained primarily through seeing pictures, images, objects, symbols and activities.

Pederson (1984) observed that there was little research about how to organize an instructional program to offer alternative instructional paths consistent with students' varied learning styles. The objectives of each learning

program should be written out and evaluated. Activities should be designed to meet those objectives consistent with each student's learning style. He recommends that individuals with learning disabilities would generally respond better to contract packages which include higher cognitive concepts and processes, and the average students would respond better to programmed learning materials. If a student's learning style indicates structure, a lecture methodology might be utilized.

Williams (1984) concluded that no one style of teaching was favored by adult educators. A clear finding was that adult educators gave low priority to structural teaching style. Adult educators were asked to respond to a questionnaire that categorized their answers according to instructional style: humanism, self-directed learning, functionalism (people will do best by doing what they do best), and structuralism (teacher directed) and behaviorism. Women favored humanism more than men, although there was no significant difference in teaching styles between men and women.

Rezler and Rezomic (1981) defined learning style as a manner in which an individual perceives and processes information in learning situations, as opposed to learning preference, which is the choice of one learning situation or condition over the other. Dunn, Dunn and Price (1977) described learning style as a phenomenon that varies among individuals, and is identifiable, and required complementary

instructional methodology or teaching styles. It can be defined simply as a student's preferred way of learning. Davidman (1981) indicated that learning style describes a student in terms of those educational conditions under which he is likely to learn.

#### Adult Motivation

A substantial portion of learning occurs in unsupervised settings. The ability to engage in substantial autonomous study is viewed as a characteristic of a mature and competent learner (Thomas, 1985). A student's self-concept of ability, which is based largely on past success and failure experiences in academic settings, is particularly influential when it comes to how much effort students are willing to put into a study task (Covington and Omelich, 1979).

The motivation to learn something is present if the individual can see the personal meaning involved. If the goals for the instructor are not those of the learner or not accepted as valid by the learner, the content will have little or no meaning to him (Verduin, Miller and Green, 1977).

Houle (1961) identified three subgroups and their motivations for being involved in learning activities. The first, goal-oriented learners, used learning to gain a specific objective. The second group, activity oriented learners, was interested in the activity rather than

learning a skill. The last subgroup was identified as the learner-oriented, those who pursued learning for its own sake. Cross (1983) refers to Houle's research on adult motivation as the most significant to date. Tough (1968) conducted research to determine what motivates adults to undertake and continue self-directed learning projects. The conclusions were that almost every learner has more than one reason to become involved in learning. Also, adult learners are pragmatic and are motivated to apply what they have learned. Another result of the study was that adults begin with an awareness to secure information and devote the time to satisfy their awareness.

Aslanian and Brickwell (1980a) found that 83 percent of adults interviewed stated that they entered learning to cope with a life change, while 17 percent said they were learning for other reasons.

Seventeen percent learned for the sake of learning experience; 83 percent for the sake of something else. Seventeen percent regarded the learning activity itself as the benefit they wanted; 83 percent were learning to obtain some other benefit.

Seventeen percent got their satisfaction during the learning experience, apart from any later effect.

Eighty-three percent wanted some reward from learning; 17 percent regarded the process of learning or the possession of knowledge to be its own reward.

For 83 percent, learning was utilitarian; for 17 percent, learning was its own satisfaction. For 83 percent, learning was the means; for 17 percent learning was the end (Aslanian and Brickman, 1980b, p. 51).

Knox (1980) identified an additional motivational

influence for adults to learn as life style. An important element of life style is the extent to which the individual achieved in formal education. Only 10 percent of adults who did not complete high school participate each year in adult education programs, while 50 percent of adults who completed at least a master's degree do so.

Ross (1979) indicates that the internal locus of control has been positively associated with work functioning and is useful for explaining effective and ineffective life work functions. Locus of control is based on social learning theory (Rotter, 1954 and 1975). According to the concept, individuals with an internal locus of control tend to see success or failure as an outcome of their own efforts rather than as a result of factors or conditions in their environment. Internals are more likely to have a sense of personal competence, independence and control over their lives and work. The "external locus of control" individuals tend to view their success and failures as a result of environmental factors and conditions.

Drobnie (1984) conducted research comparing two groups of adults between the ages of 55 and 70, one group involved in higher education and the other not involved. He concluded that locus of control was not a characteristic significantly different between the two groups. Falconer (1974) also found that locus of control was not a predictor of participation adult education as measured by the Leisure Activity Survey.

Phares (1968) concluded that internals tend to feel they are effective agents in determining the occurrence of rewards. Internal and external orientations permit one to cope with situations in different ways. Internals demonstrate a greater tendency to recall material immediately present in the environment. Internals are also superior to externals in activity seeking information relevant to problem solving.

#### Closure Information

State vocational rehabilitation programs now exist in an age of accountability. With the present constrained national economic conditions, there is no likelihood that large amounts of new resources will be allocated to the federal-state funded rehabilitation programs. It is now clear to leaders of state rehabilitation programs that if they are to survive in today's economic climate it will be necessary to set relevant performance objectives and to evaluate individual performance against those objectives (Lorenz, 1979a).

Counselor performance appraisals in state rehabilitation programs are emphasized on the basis of the individual counselor closing a predetermined number of cases annually. A successfully closed case is a vocational rehabilitation case in which the client has been successfully employed for a period of 60 days. (Casework Manual, 2262.13). Thomas, Henke and Pool (1976a) concluded

that the case closure determinant of success makes for a deprofessionalized experience and the counselor learns to work around it or learns to "play the game." The closure has been used consistently as a measure of counselor performance because of its success as a measure that is understood in the political and funding areas. Many leaders in rehabilitation feel that a change now would have difficulty in overcoming 50 years of history and tradition in the field (Lorenz, 1979b).

The tendency of executives to stress activities that are easily measurable, at the expense of others equally important, has been revealed in research. Hawryluk (1972) reveals several bureaucratic examples. The Internal Revenue Service found that agents tended to place an emphasis on tax returns containing uncomplicated violations in order to show a high case output. In state employment agencies, interviewers frequently resorted to deception to create placements. Some interviewers would refer temporarily laid off employees back to their previous employers to create a "show of results." Staff members would avoid activities which would take up time without helping to make them look good.

In rehabilitation an applicant who may demonstrate early that he will be difficult to place in training and employment may not receive sufficient attention from the counselor since a closure would be difficult to obtain. The counselor receives the message early in employment, and

views clients in terms of quantity and quality and weighs this against his performance rating (Thomas, Henke, and Pool, 1976b).

#### Summary

The following general conclusions are drawn from the review of literature. There is no definitive statement from the research that students may learn more from independent learning when compared with traditional learning methods. Research suggests that students who perform well in independent study perceive themselves as tense and anxious. High ability students appear to learn equally well with either direct instruction or independent study, while middle ability students appear to benefit more from direct instruction. Students who fear failure prefer a more traditional structured learning environment, and direct instruction could be an effective teaching strategy for students who need remediation. Students may accept independent learning after they become more familiar with it, and long term follow up of students exposed to both methods are inconclusive in terms of content retained. There is no significant difference in bureaucratic orientation between self-directed and lecture trained Air Force personnel.

Adults perceive reading as a valuable way for them to learn. Persons in upper socio-economic status participate in more self-directed learning projects than do those of

lower socio-economic status.

Learning styles are characteristics of learning that are observable and are related to the perceptual modality strengths and weaknesses of the individual. A modality strength may occur singularly or mixed, involving two or more channels. Speaking and listening are the primary modality strengths of adults.

Adult motivation may be related to life changes or to life styles. Adult learners have more than one reason for entering independent learning projects, and learners may be identified by three subgroups: goal, activity, and learner oriented. Locus of control has been positively associated with work function and with both effective and ineffective life work functions.

The closure rate concept as a method to determine counselor performance is described as a deprofessionalizing experience and a game which counselors learn to play. Administrators may emphasize easily measurable activities at the expense of others equally important.

## CHAPTER III

### METHODS AND PROCEDURES

#### Population

This research was conducted in the Division of Rehabilitative Services, Department of Human Services, State of Oklahoma. The population for this study was composed of all the vocational rehabilitation counselors involved in casework at the time of the study.

#### Null Hypotheses

Ho. 1 There is no difference between knowledge retention through the reading of print materials alone and knowledge retention through reading supplemented by classroom training.

Ho. 2 There is no difference between client closure rate and performance change before and after the reading of print materials alone.

Ho. 3 There is no difference between client closure rate and performance change before and after reading supplemented by classroom training.

Ho. 4 There is no difference between client closure rate and performance change after the reading of print materials alone and client closure rate and performance

change after reading supplemented by classroom training.

### Research Design

Null hypothesis No. 1 was tested with the randomized control group post-test only design. The randomized selection of the population permits the researcher to declare at the time of selection that both groups are equal. The design also eliminates the possibility of an interaction effect of pre-testing and treatment. Also, when it is not convenient to conduct a pre-test, the control group post-test only design is valid (Isaac and Michaels, 1985a).

The data to be analyzed for null hypotheses No. 2, No. 3 and No. 4 were obtained from computer generated information and may be arranged for between subjects or within subjects inquiry.

### Population Selection

The experimental group was composed of 28 vocational rehabilitation counselors randomly selected by drawing names placed on 4" x 4" cards, well shuffled from a deck composed of all counselors employed in the Division of Rehabilitative Services involved in case work.

Ferguson (1981) comments about the randomness of drawing cards from a deck.

The word random is also used in an operation sense to describe certain operations or methods. Thus the drawing of numbers from a hat after they have been thoroughly mixed, or the drawing of cards from a deck after they have been well shuffled, or certain techniques used in sweepstakes, lotteries, and other

games of chance are examples of random operations or methods (Ferguson, 1981, p. 143).

The control group was composed of all vocational rehabilitation counselors involved in case work who were not selected for the experimental group.

Members of the experimental and control groups did not participate in similar training.

#### Development and Implementation

The experimental group attended classroom training in Oklahoma City on job placement and development sponsored by the National Rehabilitation Job Development/Job placement Institute, Drake University. The classroom training techniques utilized were lecture, group discussions, role playing, films and transparencies.

The control group received a memorandum from the central office regarding job placement and development. The experimental group received classroom training as a supplement to the same memorandum. The memorandum was developed from that section of the Federal Vocational Rehabilitation Manual regarding job development and placement.

A questionnaire inventory was designed from the central office memorandum and pilot tested with a panel of subject matter specialists composed of the acting assistant administrator, the program administrator and the assistant program administrator for content and clarification.

The inventory was administered to both the experimental and control groups three to six weeks after the completion of the classroom training in unit meetings around the state. In order to meet the timeline for the administration of the inventory, trained proctors assisted. The proctors were provided specific instructions in the administration of the inventory questionnaire. The counselors were to respond to the inventory independently, with no visiting or comparing of answers, and the respondents were to be observed during testing.

#### Data Collection, Scoring and Statistical Treatment

##### Null Hypothesis No. 1

After the inventories were completed they were collected by the proctors, placed in an envelope and mailed to a central location for scoring and analysis.

The independent group t test was applied to determine whether there is a mean difference between the experimental and control groups at the .05 level of significance. Linton and Gallo (1975a) indicate that this design meets the assumptions for the independent t test since it was between subjects, two levels only and the samples were drawn from the same population.

##### Null Hypothesis No. 2

The data for hypothesis no. 2 were obtained from the

Department of Human Services computer files. The closure rates for the fiscal year 1986 and 1987 were obtained for the control group. A comparison of the 1986 and 1987 fiscal years provide an opportunity to make a statistical analysis of the effect of the reading of print materials alone on counselor closure rates. Statistical significance at the .05 level was determined by the application of the correlated groups t test (Linton and Gallo, 1975b).

#### Null Hypothesis No. 3

The data for the hypothesis no. 3 were obtained from the Department of Human Services computer files. The closure rates for the fiscal years 1986 and 1987 were obtained for the experimental group. A comparison of the 1986 and 1987 fiscal years provides an opportunity to make a statistical analysis of the effect of the reading of print materials supplemented by classroom training on counselor closure rates. Statistical significance at the .05 level was determined by the application of the correlated groups t test.

#### Null Hypothesis No. 4

The data collection for the hypothesis no. 4 were obtained from the Department of Human Services computer files. At the completion of each fiscal year the closure rates of each counselor were recorded by caseload number on computer tape for information purposes.

The fiscal year 1986 and fiscal year 1987 closure rates were obtained for each member of the experimental and control groups. The closure rate for the experimental group was compared to the closure rate for the control group. The closure rate for each counselor was treated as score data with interval characteristics and unequal n's between subjects which meet the criteria for the application of the independent t test of statistical significance at the .05 level.

#### Summary

The research was conducted with the randomized control group post-test only design. The experimental and control groups were compared to provide documentation regarding the effectiveness of counselor knowledge retention through reading along and through reading supplemented by classroom training.

The data collected for the study was analyzed for significance at the .05 level with the independent t test and correlated groups t test.

## CHAPTER IV

### PRESENTATION OF FINDINGS

#### Introduction

The purpose of this study was to compare vocational rehabilitation counselor training through reading of print materials alone and reading plus classroom instruction by the variables of knowledge retention and performance change to be determined by comparing 1986 and 1987 closure rates.

#### General Information

The experimental group for this study was composed of 28 vocational rehabilitation counselors randomly selected to attend classroom instruction on job placement and development. As part of the classroom instruction, the experimental group received a written memorandum from the central office concerning that section of the Federal Vocational Rehabilitation Manual regarding job placement.

The control group was composed of 78 vocational rehabilitation counselors who had not received the same classroom instruction but did receive the same written memorandum simultaneous with the classroom instruction through normal channels.

Feedback about knowledge retention was obtained through

the experimental and control group responses on an inventory questionnaire developed from the central office memorandum.

The variable of performance change within and between groups was determined by comparing 1986 and 1987 closure rates obtained from the Department of Human Services computer files.

### Validity

Content validity of the inventory questionnaire was established by using a panel of subject matter specialists composed of the acting assistant administrator, the program administrator and the assistant program administrator for the Division of Rehabilitative Services.

### Hypothesis No. 1

Knowledge retention was tested by the following null hypothesis: There is no difference between knowledge retention through the reading of print materials alone and knowledge retention through reading supplemented by classroom instruction.

Both the experimental and control groups were administered the inventory questionnaire by proctors in groups three to six weeks after the completion of the classroom instruction. The data obtained were tested with the between groups independent t test and the results of the analysis are shown in Table I. The mean score for the experimental group was 18.5, the standard deviation was 0.74

and the calculated  $t$  was 6.4. The mean score for the control group was 16.3, the standard deviation was 2.64 and the calculated  $t$  was 4.2. These scores were significant at the .05 level. The data analysis did support a rejection of the null hypothesis.

TABLE I  
COMPARISON OF KNOWLEDGE RETENTION  
SCORES OF CONTROL AND  
EXPERIMENTAL GROUPS

Group	N	Mean	Std. Dev.	t	
Experimental	28	18.5	0.74	6.4	*
Control	78	16.3	2.64	4.2	*

\* These t scores are significant at the 0.5 level.

## Hypothesis No. 2

Comparison between client closure rate and performance change scores before and after reading print materials alone was tested by the following null hypothesis: There was no difference between client closure rate and performance change before and after the reading of print materials alone.

The client closure rates for the control group for fiscal 1986 and fiscal 1987 were obtained from the computer files of the Department of Human Services. This hypothesis was tested at the .05 level of significance using the correlated groups t test. The within groups mean score was -0.002, the standard error was 0.61 and the calculated t was -0.00. The t score was not significant at the .05 level.

The closure rates met the qualifications for score data with interval characteristics for pre-and post-test scores and were tested with the correlated groups t technique on the Oklahoma State University main frame computer. The results of the data analysis are shown on Table II. There was no significant difference in correlated t scores within groups when comparing the fiscal 1986 and fiscal 1987 closure rates and performance change of the control group. The analysis of the data did not support a rejection of the null hypothesis.

TABLE II

COMPARISON BETWEEN CLOSURE RATE AND PERFORMANCE  
CHANGE SCORES BEFORE AND AFTER READING PRINT  
MATERIALS ALONE BY CONTROL GROUP

---

N	Mean	Standard Error	t
78	-0.002	0.61	-0.00 *

---

\*This t score is not significant at the 0.05 level.

### Hypothesis No. 3

Comparison between closure rate and performance change scores before and after reading supplemented by classroom training was tested with the following null hypothesis: There was no difference between client closure rate and performance change before and after reading supplemented by classroom training.

Client closure rates for the experimental group for fiscal 1986 and fiscal 1987 were obtained from the computer files of the Department of Human Services. This hypothesis was tested at the .05 level of significance using the correlated groups t test. The within groups mean score was -1.04, standard error was 0.79 and the calculated t score was -1.32. The t score was not significant at the .05 level.

The closure rates met the qualifications for score data, with interval characteristics, for pre- and post-test scores and were tested with the correlated groups t technique on the Oklahoma State University main frame computer. The results of the data analysis are shown on Table III. There was no significant difference in correlated t scores, within groups, when comparing the 1986 and 1987 closure rates and performance change of the experimental group. The analysis of the data did not support a rejection of the null hypothesis.

TABLE III  
COMPARISON BETWEEN CLOSURE RATE AND PERFORMANCE  
CHANGE SCORES BEFORE AND AFTER READING  
SUPPLEMENTED BY CLASSROOM TRAINING  
BY EXPERIMENTAL GROUP

---

N	Mean	Standard Error	t
28	-1.04	0.79	-1.32 *

---

\*This t score is not significant at the 0.05 level.

## Hypothesis No. 4

Comparison between closure rates and performance change scores between the experimental and control groups was tested with the following hypothesis. There was no difference between client closure rate and performance change after the reading of print materials alone and client closure rate and performance change after reading supplemented by classroom training.

The 1987 closure rates for the experimental and control groups were obtained from the computer files of the Department of Human Services. The hypothesis was tested at the .05 level of significance using the between groups independent t test and calculated on the Oklahoma State University main frame computer. The results of the analysis are shown on Table IV.

The mean score for the experimental group was 11.2, the standard deviation was 4.02 and the calculated t was -0.54. The mean score for the control group was 11.75, the standard deviation was 6.23 and the calculated t was -0.44. These scores are not significant at the .05 level. There was no significant difference in the independent t scores between groups when comparing the 1987 closure rates and performance changes of the experimental and control groups. The analysis of the data did not support a rejection of the null hypothesis.

TABLE IV  
COMPARISON BETWEEN CLOSURE RATE AND PERFORMANCE  
CHANGE SCORES BETWEEN CONTROL AND  
EXPERIMENTAL GROUPS

---

Group	N	Mean	Std. Dev.	t
Experimental	28	11.2	4.02	-0.54 *
Control	78	16.3	2.64	-0.44 *

---

\*These t scores are not significant at the 0.5 level.

## Summary

The population for this study was composed of 106 vocational rehabilitation counselors employed by the Oklahoma Division of Rehabilitative Services, Department of Human Services during the time of this study.

Hypothesis no. 1 was tested with an independent t analysis at the .05 level and was found to be significant. There is a difference in comparing of scores of knowledge retention among vocational rehabilitation counselors. The experimental group had a significantly higher retention of knowledge than did the control group.

Hypothesis no. 2 was a comparison between client closure rates and performance changes before and after the reading of print materials alone for the control group using the correlated groups t at the .05 level. It was found not to be significant, subsequent to the reading of the state office memorandum alone. Client closure rates did not change in the control group.

Hypothesis no. 3 was a comparison between closure rate and performance change scores before and after reading supplemented by classroom instruction by means of the correlated groups t test at the .05 level. It was found not to be significant.

Hypothesis no. 4 was a comparison between closure rates and performance change scores between control and experimental groups using the independent t at the .05 level. It was found not to be significant.

The experimental group demonstrated greater knowledge retention, but the retention had no effect on closure rates or performance change.

The written memorandum from the central office had no significant effect on knowledge retention, closure rate or performance change on the control group.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

The purpose of this study was to compare vocational rehabilitation counselor training through the reading of print materials alone and reading plus classroom instruction by the variables of knowledge retention and performance change as determined by comparing fiscal 1986 and fiscal 1987 counselor closure rates.

An inventory questionnaire was administered to compare the amount of information retained by counselors who received written information supplemented by classroom training and by counselors who received written information alone. The counselors in the experimental group scored significantly higher on the inventory questionnaire than did the counselors in the control group. Closure rates of the experimental and control groups did not change subsequent to the written memorandum with or without classroom training.

#### Conclusions

The following conclusions of the study are presented. Training as a supplement to written memoranda may enhance

information retention. Counselors who received the written memorandum alone scored significantly lower on information retention. They did not have the advantage of an instructor or the reinforcement of discussing the memorandum contents in a group.

Performance change may not be enhanced by either written memoranda or memoranda supplemented by training. In the present study those counselors who received classroom training also received the central office memorandum. The method of instruction included lecture, discussion, role playing and the use of visual aids.

#### Recommendations for Further Study

The following recommendations are offered for additional research.

1. The study should be replicated in another state wide vocational rehabilitation agency.

2. An analytical technique should be included in the design to further identify equality or differences between groups.

3. Additional research might attempt to compare information retention and closure rates of more experienced counselors to less experienced counselors.

#### Implications

The following implications of the study are suggested. Higher closure rates may be demonstrated if pre-and post-

treatment comparison are made on a quarterly rather than an annual basis. Fluctuations of the economy and seasonal weather may influence client closure rates. Blue collar, agriculture and other "out door" employment may be influenced by seasonal weather changes. The amount of venture capital and business expansion related to the changing conditions of the economy may influence many types of employment.

Where the goal of written memoranda is information retention, the reinforcement of such memoranda with classroom training may lead to greater retention. For example, classroom discussion may lead to greater application of content in the work place. An instructor can provide for content clarification.

Where the goal of written memoranda is performance change, alternatives to both written communicate and training based on the memoranda should be found. Training to bring about performance change may focus on identifiable and measurable behavioral changes. Examples might include simulation , role playing , or behavior modeling.

## SELECTED BIBLIOGRAPHY

- Aslanian, Carol B. and Henry M. Brickell. Americans in Transition . New York: College Entrance Examination Board, 1980.
- Barbe, Walter and Michael N. Milone, Jr. "What We Know About Modality Strengths." Educational Leadership, 38 (1981), 107-110.
- Barnet, James R. "An Experimental Study of Achievement Based Upon Non-Directive Versus Directed Industrial Arts Laboratory Activities." (Unpub. Ed.D. dissertation, East Texas State University, 1982).
- Baskin, S. "Experiment in Independent Study." Journal of Experimental Education, 31 (1962), 183-185.
- Blackwood, H. and C. Trent. "A Comparison of the Effectiveness of Face-to-Face and Remote Teaching in Communicating Education Information to Adults." Extension Service, Manhattan: Kansas State University, (1968), 16.
- Bodenburg, Dorothy A. "A Comparison of Direct Instruction and Independent Study." (Unpub. M.S. Thesis, California State University, Long Beach, California, 1982).
- Bolvin, John O. "Implications of the Individualization of Instruction for Curriculum and Instructional Design." Audiovisual Instruction, (March, 1968), 238-242.
- Brown, Ernest S. "Effects of Two Learning Treatments on Informational Achievement, Retention and Attitudes of Students Varying in Problem-Solving Ability." (Unpub. Ph.D. dissertation, University of Missouri, 1977).
- Cherry, Clarence E., Jr. "The Measurement of Adult Learning Styles: Perceptual Modality." (Unpub. Ed.D. dissertation, University of Tennessee, 1981).
- Covington, M. E. and C. L. Omelich. "Effort: The Double Edged Sword in School Achievement." Journal of Education Psychology, 67 (1975), 116-123.

- Cross, K. Patricia. Adults as Learners. San Francisco: Jossey-Bass Publishers, 1983.
- Davidman, L. "Learning Styles: The Myth, the Panacea, the Wisdom." Phi Delta Kappan, 62 (1972), 641-645.
- Drobnies, Barbara. "Comparison of the Locus of Control Expectations of Two Groups of Older Adults in Relation to Participation in Higher Education." (Unpub. Ph.D. dissertation, University of Oklahoma, 1984).
- Dunn, R., K. Dunn and G. Price. "Diagnosing Learning Styles: A Prescription of Avoiding Malpractice Suites." Phi Delta Kappan, 58 (1977), 418-420.
- Empy, Donald W. "What is Independent Study All About?" Journal of Secondary Education, 32 (3) (1968), 104-108.
- Ferguson, George A. Statistical Analysis in Psychology and Education. 5th Ed. New York: McGraw-Hill Book Co., Inc., 1981.
- French, Russell L. "Teaching Style and Instructional Strategy." (Unpublished paper, University of Tennessee, Knoxville, TN, 1975).
- Gagne, Robert M. "Some New Views of Learning Instruction." Phi Delta Kappan, 51 (9) (1970), 468-472.
- Gayles, Ann R. "Lecture Versus Discussion." Improving College and University Teaching, 14 (1966), 95-99.
- Godorov, Harvey A. "A Comparison of Two Approaches to Teaching Public Speaking at the Community College." (Unpub. Ed.D. dissertation, University of Nevada, Las Vegas, 1979).
- Hanner, Alfred A. "A Program for Staff Development when Initiating an Independent Study Program." (Unpub. Ed.D. dissertation, University of Minnesota, 1982).
- Hawryluk, Alex. "Rehabilitation Gain: A Better Indicator Needed." Journal of Rehabilitation, (1972), 22-25.
- Himmell, C. E. "College Learning with and without Formal Classroom Training." Psychology in Schools, 9 (1972), 272-277.
- Houle, C. E. The Inquiring Mind. Madison: University of Wisconsin Press, 1961.
- Isaac, Stephen and William B. Michael. Handbook in Research and Evaluation. 2nd Ed. San Diego: Edits Publishers, 1985.

- Knox, Allan B. Developing, Administering, and Evaluating Adult Education. San Francisco: Jossey-Bass Publishers, 1980.
- Koeing, K. and W. and J. McKeachie. "Personality and Independent Study." Journal of Education Psychology, 5 (1959), 132-134.
- Linton, Marigold and Philip S. Gallo, Jr. The Practical Statistician: Simplified Handbook of Statistics. Monterey: Brooks/Cole Publishing Co., 1975.
- Lorenz, Jerome R. "Setting Performance Objectives and Evaluating Individual Performance in Rehabilitation Settings." Journal of Rehabilitation Administration, 3 (1), (1979), 5-11.
- Lowenfeld, V. "Tests for Visual and Haptic Aptitudes." American Journal of Psychology, (1945), 100-112.
- MacNeil, Catherine. "A Comparative Study of Two Instructional Methods Employed in Teaching Nutrition: Lecture-Discussion and Self-Directed Study." (Unpub. Ph.D. dissertation, University of Minnesota, 1967).
- Murphy, Robert W. "A Study Concerning the Effects of Self-Directed Learning on the Factor of Bureaucratic Orientation." (Unpub. Ed.D. dissertation, Oklahoma State University, 1984).
- Nix, Joseph H. "The Determination of Adult Learning Styles of United States Coast Guard Personnel." (Unpub. Ed.D. dissertation, Oklahoma State University, 1983).
- Oddi, Lorys. "The Lecture: An update on Research." Adult Education Quarterly, 33 (1983), 222-229.
- Pederson, Jacqueline K. "The Classification and Comparison of Learning Styles Preferences of Disabled Students and Gifted Students." (Unpub. Ed.D. dissertation, Texas Technical University, 1984).
- Phares, E. J., D. E. Ritchie, and W. L. Davis. "Internal-External Control and Reaction to Threat." Journal of Personality and Social Psychology, 10 (1968), 402-405.
- Phillips, Marcia. "The Perceived Value of Printed Material as a Resource for the Adult Learner." (Unpub. M. S. Thesis, Oklahoma State University, 1983).
- Reisman, F. "Students Styles: How to Determine, Strengthen, and Capitalize on Them." Today's Education, 65 (1976), 94-98.

- Rezler, A. and V. Rezomic. "The Learning Preference Inventory." Journal of Allied Health, 10 (1981) 28-34.
- Ross, Caroline K. "Supervision Theory: A Prescription for Practice." Journal of Rehabilitation Administration, 3 (1979) 14-21.
- Rotter, J. B. Social Learning and Clinical Psychology. Englewood Cliffs, N. J.: Prentice-Hall, 1954.
- Rotter, J. B. "some Problems and Misconceptions Related to the Construct of Internal Versus External Control of Reinforcement." Journal of Consulting and Clinical Psychology, 43 (1975), 56-67.
- Stanton, H. E. "Teaching Methods and Student Personality - The Search for an Elusive Interaction." Instructional Science, 2 (1974), 477-502.
- Thomas, Robert E., R. Henke and D. Pool. "Accountability in Vocational Rehabilitation: Difficulties with the "26 Closure" as a Criterion." Journal of Applied Rehabilitation Counseling, 72 (1976), 67-75.
- Tough, A. Why Adults Learn: A Study of the Major Reasons for Beginning and Continuing a Learning Project. Monographs in Adult Education, No. 3, Toronto: Ontario Institute for Studies in Education, 1968.
- Verduin, J. R., H. Miller, and C. Green. Adults Teaching Adults. Austin, Texas: Learning Concepts, 1972.
- Williams, Elizabeth B. "Teaching Styles of Adult Educators." (Unpub. Ph.D. dissertation, University of Michigan, 1984).

**APPENDIXES**

APPENDIX A

PERMISSION TO CONDUCT RESEARCH

STATE OF OKLAHOMA  
DEPARTMENT OF HUMAN SERVICES

To: REHABILITATIVE SERVICES #31                      Date: March 5, 1986  
OKLAHOMA CITY

From: A. C. Adams, Chief                                      Attention: Jerry Deibel, Counselor  
Rehabilitative Services

Subject: REQUEST TO CONDUCT                                      Address Reply To:  
RESEARCH FOR DOCTORAL

I discussed your request to initiate research in the Rehabilitative and Visual Services Units with Mr. Fulton and he has agreed to the basic research outlined in your memorandum of December 17, 1985.

It is understood that there will be no cost to the Department. Please keep our office informed regarding the proposal and the steps that will be needed to initiate the research. It is suggested that when your final proposal has been approved that we meet to discuss the details of how you plan to proceed with your research.



A. C. Adams, Chief  
Rehabilitative Services

ACA/djs

cc: Jerry Dunlap  
Alice Bundy  
Karen Sandini  
Jack M. Roper

STATE OF OKLAHOMA  
DEPARTMENT OF HUMAN SERVICES

To: A. C. Adams, Administrative Assistant      Date: December 17, 1985  
Rehabilitative Services #24

From: Jerry M. Deibel, Senior Counselor      Attention:  
Rehabilitative Services #31

Subject:      In Reply—Address to  
Request to conduct doctoral research.      Attention: \_\_\_\_\_

As we had discussed briefly, I am requesting permission to conduct my doctoral research in the Rehabilitation Division. The research will be for my dissertation in Occupational and Adult Education, Human Resource Development, Oklahoma State University.

The research will consist of establishing the validity of an ECCO analysis in determining counselor training needs in a rehabilitation agency context. ECCO is an acronym for Episodic Channels of Communication in organizations as developed by Keith Davis.

The research will enhance the limited body of literature available to identify vocational rehabilitation counselor training needs in a state agency context. The unique aspect of an ECCO is that it provides a "loop back" to the originator of where information is being distorted, how information is being received and will track the networking system. The research may also demonstrate a methodology for a more efficient and economical expenditure of funds.

The support of the Division Central Office will be needed to conduct the research. The information collecting phase of the research should not take over three months. An ECCO survey must be administered by some one knowledgeable of the technique to groups or individuals. The results of the research will be analyzed statistically with regard to validity and reliability.

A requested beginning date for the project would be August 1986.

If you require additional information, please communicate with me.

  
JMD:dr

APPENDIX B

CENTRAL OFFICE MEMORANDUM

STATE OF OKLAHOMA  
DEPARTMENT OF HUMAN SERVICES

August 18, 1986

RVS-MEMO  
86-31

TO: REHABILITATIVE AND VISUAL SERVICES  
PROFESSIONAL STAFF

FROM: A. C. ADAMS, ACTING ASSISTANT DIRECTOR  
REHABILITATION SERVICES

SUBJECT: PLACEMENT

Attached is information taken from the Federal Casework manual materials concerning placement.

This material provides general information regarding what placement is, where the responsibility for placement lies, and the types of activities considered to be legitimate placement services. A review of this material would be beneficial to all counselors.



A. C. Adams  
Acting Assistant Director  
Rehabilitation Services

### Definitions

Many variations of the word "placement" can be found in present literature and among practitioners. The following brief definitions recognize possible distinctions. Later portions of the chapter attempt to amplify on these meanings. These definitions are not regulatory.

1. **PLACEMENT PROCESS:** The planning and provision of services to prepare a client for work and to assist him in obtaining appropriate employment. This includes development of client attitudes consistent with the job environment and reconciling problems or barriers stemming from the milieu outside the client. It is part of the counseling process directly focused on employment.
2. **PLACEMENT SERVICES:** Organized and identifiable attempts to establish or improve the linkage of a client and a work situation. These could be advisory, active or promotional such as counseling, employer contact, etc.
3. **PLACEMENT GOAL:** Reaching this is preliminary to "rehabilitation" in the VR program. It is the culmination of efforts to complete a "hire", or otherwise reach the end of an IWRP.
4. **REHABILITATION CLOSURE:** When job placement has been stabilized for an appropriate time indicating that the placement goal has been satisfactorily achieved.
5. **JOB PLACEMENT:** A collaborative process with client participation, generally meaning direct communication and activity regarding handicapped persons, culminating in actual engagement of an individual in the work process. This may include work objectives such as self-employment, etc.
6. **JOB DEVELOPMENT:** Communicating and negotiating with a variety of community resources related to increasing opportunities for employment of handicapped persons. This may or may not be on behalf of specific individuals.
7. **PLACEMENT SPECIALIST:** Usually a person who is not responsible for the full counseling and service process. One who has special training or experience and responsibilities for the placement services which enhance the comprehensive counselor/client relationship and bring particular insights about the world-of-work into the full rehabilitation process.
8. **PLACEMENT AGENT:** Any person, including a counselor or a placement specialist, who assumes primary responsibility for providing placement services to a specific client.
9. **WORK:** Any activity characterized as producing gain for some purpose. Pay is frequently associated with work but is not a criterion, e.g. homemaking.

### Introduction

Placement is more than getting a job. It is part of the total rehabilitation process and, as the primary outcome goal, provides an orientation for many other VR services beginning with the initial determination of eligibility. Each client must have at least a tentative vocational objective. Suitable and satisfying gainful employment is the capstone which justifies a variety of expenditures and professional involvements with a client, all developed and implemented on an individual basis. Although the placement effort may become more concentrated toward the end of the rehabilitation process there should be a substantial amount of planning and attention given to placement early in the case services program. During the diagnostic and evaluation period (Statuses 02, 06) placement goals are under consideration which implies that input regarding placement planning can be an important service to such a client, but an individual client is not regarded as having a defined placement objective until planning is completed and symbolized by entering status 12. The Individualized Written Rehabilitation Program (IWRP) will reflect, at least preliminarily, what "employability" outcome is anticipated and every counselor must assume a sense of responsibility for eventual placement of each client in a work setting. As with other types of VR services, placement can be pursued collaboratively and cooperatively by various specialists in the rehabilitation process.

Having mentioned that placement is part of a process and that it involves special techniques we must note that in common experience, placement is also thought of as a very specific event identified as "having a job", whether that is coupled with getting paid or not. A client can be "placed" as a homemaker, or unpaid family worker, or as a partially-employed person, or in the competitive world-of-work, each of which implies that a rehabilitation process has culminated in a working status. Employment for pay can be considered a higher, although not exclusive, goal but this should not be a delimiting criterion when accepting cases. It should also be pointed out that "placement" is sometimes used to suggest that something happens to or for a client, but, a more preferred concept is that placement involves interaction and may sometimes be relatively self-generated by a client with minimal leadership from a counselor. In other words, placement services frequently only guide a client rather than push him in preconceived directions. The above views of placement a goal, and placement as a process, are complementary and should be kept in mind during the discussion of following sections.

### Nature and Scope of Placement Services

Placement services are closely allied with Counseling services no matter who provides them. The multiple considerations of the client's problems, skills, and potential must be linked with the multiple considerations of the social and work environment. The facilitator who articulates these factors is a placement agent who must use professional skills, artfully applied, in assisting the client reach and maintain an occupation goal.

Placement services build upon other preparatory vocational rehabilitation services such as training and personal restoration.

Although the aspect of placement known as getting a job occurs toward the end of the rehabilitation process, the planning aspects of placement are necessary at the outset of an IWRP. When professional placement specialists are employed by the agency they should serve pervasively in a consultative capacity with counselors toward the beginning of case services so that IWRPs have the benefit of up-to-date information on labor market trends, hiring attitudes, current pay scales and practices, career ladders, task analysis etc. which can help bring specificity to the IWRP. Similarly, it is important that the placement agent, who is the primary liaison with employers, have an adequate knowledge of the client's abilities, limitations, and readiness for employment. This can be assured only if the counselor is a genuine collaborator during the placement process.

When counselors are not augmented by other placement staff they remain as the essential representative of the VR agency in assuring that placement services are provided depending on individual client needs. When there is more than one VR professional dealing with a client regarding placement it is axiomatic that the advisors essentially reach a consensus in their planning so that the client can receive optimal services without undercurrents of confusion or conflict. Specific placement services may begin, selectively, any time after a client is accepted; they usually are more prominent toward the end of the services outlined in the IWRP; and they cease at closure. Placement services as a post-employment service may begin only after closure as rehabilitated, and should be distinguished from the placement services and guidance provided prior to the determination of "26" status.

Types of Placement Services (Examples)

- a. Collaboration with Employment Services and other organizations involved in manpower assistance.
- b. Providing information related to employment during client assessment and IWRP development.
- c. Employer contact and job development.
- d. Task analysis and job restructuring.
- e. Study and interpretation of employment trends and economic forecasting.
- f. Individual and group instruction of clients in job seeking skills, current and potential job openings and development of a job seeking plan.
- g. Individual and group counseling of clients on job retention skills.
- h. Personal assistance in conducting job interviews.

- i. Consulting and advising on job adjustment and/or client/employer conflicts.
- j. Assistance with Affirmative Action programs and projects.
- k. Technical assistance and consultation on the placement process.
- l. Assistance with and consultation on removal of architectural and transportation barriers to employment.

Considerable inter-disciplinary respect must exist when there is a staffing pattern utilizing placement specialists. Although the placement process involves giving advice and recommendations to clients this should be distinguished from personal counseling which remains a fundamental responsibility of the Counselor. Certain knowledge and skills will prevail among the specialists which must be recognized and accepted by others who are planning and providing preparatory services. Those linkages and collaboration patterns should be developed at the local level considering various administrative and organizational system.

For example, as the Counselor begins to work on client goals, skills, and attitudes early in the plan development it would be advantageous for the Counselor to consult any available placement specialist about such things as labor trends, current employment opportunities, etc., and to build such information into the counseling process. By contract, toward the end of the rehabilitation process when a "hire" is being developed or has taken place, a placement professional may be the prominent contact for the client and such professionals should consult the Counselor about special insights into the client's needs and expectations which may influence the employment experience. In such ways the client remains as the central focus and various professionals provide a more unified support for reaching individualized client goals.

#### Where The Placement Responsibility Belongs

Federal Regulations have for many years indicated that the VR agency must provide for placement services. Over time, program guidelines have added emphasis that specific parts of placement, such as job development, might be secured from others on behalf of the client, and VR "responsibility" is interpreted to mean, at least, the coordination of services provided by others on behalf of a specific client. Assisting the client by providing counseling in self-help and job-seeking is also identified as a placement service.

Historically, the case Counselor has generally been the placement agent. The amount of involvement in placement services by a counselor will normally depend on such things as personal inclination and training, familiarity with the community, knowledge of employment resources, size and scope of caseload, strength of allied services, agency philosophy, and in recent years the availability of placement specialists.

**APPENDIX C**

**QUESTIONNAIRE INVENTORY**

## STATE OF OKLAHOMA

DEPARTMENT OF HUMAN SERVICES  
Rehabilitative and Visual Services.

October 6, 1986

Dear Counselor:

The attached Job Development/Job Placement Inventory is part of a statewide vocational rehabilitation study being carried on cooperatively with the School of Occupational and Adult Education, Oklahoma State University.

This project is concerned specifically with obtaining information that will assist us in evaluating future counselor training. We are particularly desirous in obtaining your responses because of your dedication as a vocational rehabilitation counselor.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. C. Adams".

A. C. Adams  
Acting Assistant Director

ACA:gf

## JOB DEVELOPMENT PLACEMENT INVENTORY

County/Counselor Number \_\_\_\_\_ / \_\_\_\_\_

1. \_\_\_\_\_ The placement process may be best described as: (A) a method to improve linkage between the client and employment (B) a comprehensive counseling plan (C) an activity for the client (D) planning and provision of services to prepare the client for appropriate employment.
2. \_\_\_\_\_ Placement services may be best described as: (A) client/counselor activities (B) an organized identifiable attempt to establish linkage of a client and a work situation (C) engaging the client in "busy work" activities (D) a responsibility of the training facility.
3. \_\_\_\_\_ A placement goal may be described as: (A) an activity related to the IWPR (B) a client responsibility (C) a terminal point for the counselor (D) an activity characterized as producing gain for some purpose.
4. \_\_\_\_\_ A rehabilitation closure (26) may be best described as: (A) a counselor activity (B) client introduction to the "world of work" (C) a time when job placement has been stabilized for an appropriate time (D) when the client reports his employment.
5. \_\_\_\_\_ Job placement may be best described as: (A) an indication a job is available (B) a collaborative process with client participation regarding handicapped persons culminating in the actual engagement of an individual in work (C) an activity of the Office Of Handicapp Concerns (D) an activity of the evaluation center.
6. \_\_\_\_\_ In the placement process vocational rehabilitation counselors role may be best described as: (A) a specialized individual who obtains jobs for handicapped citizens (B) an individual whom develops IWPR's (C) an adjunct to the placement process (D) the essential representative of the VR agency assuring placement services are provided depending on individual client needs.
7. \_\_\_\_\_ In the rehabilitation process placement services may begin: (A) selectively, anytime after acceptance (B) at the time of application (C) after a consensus has been reached with the client (D) as the job market dictates.
8. \_\_\_\_\_ With the development of the IWPR each counselor must: (A) discuss the possibility of work with the client (B) explain to the client the benefits of work (C) assume a sense of responsibility for the eventual placement of the client in a work setting (D) recognize the difficulty of his task and explain it to the client.
9. \_\_\_\_\_ The diagnosis and evaluation period is completed in which statuses: (A) 16-24 (B) 02-10 (C) 18-20 (D) 02-06.

10. \_\_\_\_\_ Placement is also thought to be a very specific event identified as (A) having a job (B) ready for a job (C) completing an evaluation (D) completion of training.
11. \_\_\_\_\_ Assisting the client by providing self-help and job seeking skills is also identified as: (A) diagnosis (B) vocational assistance (C) movement of cases (D) a placement service.
12. \_\_\_\_\_ In carrying out placement functions the ultimate responsibility for providing substantial and quality placement rests with: (A) the VR Agency (B) Employment Security Commission (C) JTPA (D) the private sector.
13. \_\_\_\_\_ The development of a cooperative agreement between VR and the Employment Security Commission have been developed for the purpose: (A) creating a sinecure (B) relieving VR of the placement responsibility (C) to coordinate VR placement activities (D) further diagnosis.
14. \_\_\_\_\_ Placement activities are based on: (A) adequate evaluation and preparation of the client (B) when the counselor needs a closure (C) to meet agency quotas (D) the need of the private sector.
15. \_\_\_\_\_ The rehabilitation case record should contain: (A) documentation of counseling activities which occurred during the process and contributed to the suitable placement (B) the counselor advised the client to read the classified advertisements (C) an indication the client is seeking a job (D) the counselor expects the client to find a job.
16. \_\_\_\_\_ An occupation may be considered suitable when: (A) the client receives a paycheck (B) the client is satisfied (C) the client and the employer are each satisfied (D) the client's family is happy.
17. \_\_\_\_\_ Which of the following is not an activity leading to suitable employment: (A) an evaluation of the clients job readiness (B) employers are contacted (C) jobs are analyzed and modified (D) the counselor needs a closure.
18. \_\_\_\_\_ Which of the following is not recognized as a type of placement service: (A) employer contact and job development (B) task analysis and job restructuring (C) collaboration with other agencies (D) counselor has a quota to meet.
19. \_\_\_\_\_ What is the purpose of the Wagner-Peyser Act? (A) requires the State Employment Commission to have special staff for handicapped placement (B) alleviates the VR role in placement (C) to purchase eye glasses for clients (D) exempts handicapped from military service.
20. \_\_\_\_\_ Which of the following is not a suitable occupation: (A) homemaker (B) unpaid family worker (C) ten days on the job (D) partially employed person.

APPENDIX D

STATISTICAL COMPUTER CALCULATIONS

NOTE: COPYRIGHT (C) 1984, 1986 SAS INSTITUTE INC., CARY, N.C. 27511, U.S.A.  
 NOTE: THE JOB U10063AA HAS BEEN RUN UNDER RELEASE 5.16 OF SAS AT OKLAHOMA STATE UNIVERSITY (01354001).

NOTE: CPUID VERSION = 23 SERIAL = 021194 MODEL = 3081  
 CPUID VERSION = 23 SERIAL = 221194 MODEL = 3081

NOTE: SAS OPTIONS SPECIFIED ARE:  
 SORT=4

1	PROC FORMAT;	00061000
2		00062000
NOTE: FORMAT GRPFMT HAS BEEN OUTPUT.		
2	VALUE GRPFMT 1='EXPERIMENTAL GROUP' 2='CONTROL GROUP';	00062000
3		00063000
NOTE: FORMAT GRFMT HAS BEEN OUTPUT.		
3	VALUE GRFMT 7='EXPERIMENTAL GROUP' 8='CONTROL GROUP';	00063000
NOTE: THE PROCEDURE FORMAT USED 0.16 SECONDS AND 180K.		
4	DATA HD1;	00070000
5	INPUT GROUP SCORE ;	00090000
6	CARDS;	00101000

NOTE: DATA SET WORK.HD1 HAS 106 OBSERVATIONS AND 2 VARIABLES. 2346 OBS/TRK.  
 NOTE: THE DATA STATEMENT USED 0.06 SECONDS AND 104K.

113	:	00111800
114	PROC PRINT DATA=HD1;	00111900
115	FORMAT GROUP GRPFMT.;	00112000
116	TITLE 'ANALYSIS FOR GERRY DEIBEL';	00112100
117	TITLE2 'LIST OF DATA FOR HYP #1';	00113000
NOTE: THE PROCEDURE PRINT USED 0.14 SECONDS AND 196K AND PRINTED PAGES 1 TO 2.		

118	PROC TTEST DATA=HD1;	00120800
119	CLASS GROUP;	00120900
120	VAR SCORE;	00121100
121	TITLE2 'COMPARISON OF EXP GROUP VS THE CONTROL GROUP';	00121200
122	TITLE3 'TWO GROUP T TEST (INDEPENDENT T)';	00121300
NOTE: THE PROCEDURE TTEST USED 0.09 SECONDS AND 192K AND PRINTED PAGE 3.		

123	DATA HD2;	00121400
124	INPUT PRETEST POSTTEST;	00121501
125	DIFF=POSTTEST-PRETEST;	00121601
126	CARDS;	00121700

NOTE: DATA SET WORK.HD2 HAS 78 OBSERVATIONS AND 3 VARIABLES. 1676 OBS/TRK.  
 NOTE: THE DATA STATEMENT USED 0.06 SECONDS AND 104K.

205	:	00178000
206	PROC PRINT DATA=HD2;	00179000
207	TITLE 'ANALYSIS FOR GERRY DEIBEL';	00179100
208	TITLE2 'LIST OF DATA FOR HYP #2';	00179200
NOTE: THE PROCEDURE PRINT USED 0.12 SECONDS AND 192K AND PRINTED PAGES 4 TO 5.		

209	PROC MEANS MEAN STDERR T PRT DATA=HD2;	00179301
210	VAR DIFF;	00179501
211	TITLE2 'COMPARISON OF PRE & POST TEST SCORES FOR THE CONTROL GROUP';	00179601
212	TITLE3 'PAIRED-COMPARISONS T TEST';	00179701
NOTE: THE PROCEDURE MEANS USED 0.10 SECONDS AND 212K AND PRINTED PAGE 6.		

213 DATA H03; 00179800  
 214 INPUT PRE POST; 00179901  
 215 DIFF=POST-PRE; 00180001  
 216 CARDS; 00181000

NOTE: DATA SET WORK.H03 HAS 28 OBSERVATIONS AND 3 VARIABLES. 1676 OBS/TRK.  
 NOTE: THE DATA STATEMENT USED 0.05 SECONDS AND 104K.

245 ; 00185700  
 246 PROC PRINT DATA=H03; 00185800  
 247 TITLE 'ANALYSIS FOR GERRY DEIBEL'; 00185900  
 248 TITLE2 'LIST OF DATA FOR HYP #3'; 00186000

NOTE: THE PROCEDURE PRINT USED 0.10 SECONDS AND 192K AND PRINTED PAGE 7.

249 PROC MEANS MEAN STDERR T PRT DATA=H03; 00186101  
 250 VAR DIFF; 00186201  
 251 TITLE2 'COMPARISON OF PRE & POST TEST SCORES FOR THE EXPER. GROUP'; 00186301  
 252 TITLE3 'PAIRED-COMPARISONS T TEST'; 00187001

NOTE: THE PROCEDURE MEANS USED 0.09 SECONDS AND 212K AND PRINTED PAGE 8.

253 DATA H04; 00189100  
 254 INPUT GR SCORE; 00189200  
 255 CARDS; 00189400

NOTE: DATA SET WORK.H04 HAS 106 OBSERVATIONS AND 2 VARIABLES. 2346 OBS/TRK.  
 NOTE: THE DATA STATEMENT USED 0.05 SECONDS AND 104K.

362 ; 00239800  
 363 PROC PRINT DATA=H04; 00239900  
 364 FORMAT GR GRFMT.; 00240000  
 365 TITLE 'ANALYSIS FOR GERRY DEIBEL'; 00240100  
 366 TITLE2 'LIST OF DATA FOR HYP #4'; 00240200

NOTE: THE PROCEDURE PRINT USED 0.12 SECONDS AND 196K AND PRINTED PAGES 9 TO 10.

367 PROC TTEST DATA=H04; 00241000  
 368 CLASS GR; 00242000  
 369 VAR SCORE; 00243000  
 370 TITLE2 'COMPARISON OF EXP GROUP VS THE CONTROL GROUP FOR 87'; 00244000  
 371 TITLE3 'TWO GROUP T TEST (INDEPENDENT T)'; 00245000

NOTE: THE PROCEDURE TTEST USED 0.10 SECONDS AND 192K AND PRINTED PAGE 11.  
 NOTE: SAS USED 212K MEMORY.

NOTE: SAS INSTITUTE INC.  
 SAS CIRCLE  
 PO BOX 8000  
 CARY, N.C. 27511-8000

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #1

11:24 MONDAY, OCTOBER 12, 1987 1

OBS	GROUP	SCORE
1	EXPERIMENTAL GROUP	17
2	EXPERIMENTAL GROUP	18
3	EXPERIMENTAL GROUP	19
4	EXPERIMENTAL GROUP	19
5	EXPERIMENTAL GROUP	17
6	EXPERIMENTAL GROUP	20
7	EXPERIMENTAL GROUP	18
8	EXPERIMENTAL GROUP	19
9	EXPERIMENTAL GROUP	19
10	EXPERIMENTAL GROUP	18
11	EXPERIMENTAL GROUP	18
12	EXPERIMENTAL GROUP	18
13	EXPERIMENTAL GROUP	18
14	EXPERIMENTAL GROUP	18
15	EXPERIMENTAL GROUP	18
16	EXPERIMENTAL GROUP	19
17	EXPERIMENTAL GROUP	19
18	EXPERIMENTAL GROUP	19
19	EXPERIMENTAL GROUP	20
20	EXPERIMENTAL GROUP	18
21	EXPERIMENTAL GROUP	18
22	EXPERIMENTAL GROUP	19
23	EXPERIMENTAL GROUP	19
24	EXPERIMENTAL GROUP	18
25	EXPERIMENTAL GROUP	18
26	EXPERIMENTAL GROUP	19
27	EXPERIMENTAL GROUP	18
28	EXPERIMENTAL GROUP	19
29	CONTROL GROUP	18
30	CONTROL GROUP	16
31	CONTROL GROUP	15
32	CONTROL GROUP	17
33	CONTROL GROUP	16
34	CONTROL GROUP	19
35	CONTROL GROUP	18
36	CONTROL GROUP	18
37	CONTROL GROUP	17
38	CONTROL GROUP	15
39	CONTROL GROUP	14
40	CONTROL GROUP	17
41	CONTROL GROUP	16
42	CONTROL GROUP	15
43	CONTROL GROUP	18
44	CONTROL GROUP	2
45	CONTROL GROUP	16
46	CONTROL GROUP	9
47	CONTROL GROUP	13
48	CONTROL GROUP	15
49	CONTROL GROUP	17
50	CONTROL GROUP	17
51	CONTROL GROUP	16
52	CONTROL GROUP	17
53	CONTROL GROUP	18
54	CONTROL GROUP	18

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #1

11:24 MONDAY, OCTOBER 12, 1987 2

OBS	GROUP	SCORE
55	CONTROL GROUP	14
56	CONTROL GROUP	15
57	CONTROL GROUP	17
58	CONTROL GROUP	18
59	CONTROL GROUP	20
60	CONTROL GROUP	17
61	CONTROL GROUP	13
62	CONTROL GROUP	15
63	CONTROL GROUP	15
64	CONTROL GROUP	17
65	CONTROL GROUP	18
66	CONTROL GROUP	18
67	CONTROL GROUP	17
68	CONTROL GROUP	17
69	CONTROL GROUP	16
70	CONTROL GROUP	17
71	CONTROL GROUP	17
72	CONTROL GROUP	18
73	CONTROL GROUP	17
74	CONTROL GROUP	18
75	CONTROL GROUP	17
76	CONTROL GROUP	18
77	CONTROL GROUP	19
78	CONTROL GROUP	14
79	CONTROL GROUP	18
80	CONTROL GROUP	17
81	CONTROL GROUP	19
82	CONTROL GROUP	16
83	CONTROL GROUP	15
84	CONTROL GROUP	11
85	CONTROL GROUP	18
86	CONTROL GROUP	17
87	CONTROL GROUP	15
88	CONTROL GROUP	20
89	CONTROL GROUP	19
90	CONTROL GROUP	20
91	CONTROL GROUP	19
92	CONTROL GROUP	18
93	CONTROL GROUP	16
94	CONTROL GROUP	17
95	CONTROL GROUP	18
96	CONTROL GROUP	18
97	CONTROL GROUP	13
98	CONTROL GROUP	17
99	CONTROL GROUP	18
100	CONTROL GROUP	17
101	CONTROL GROUP	16
102	CONTROL GROUP	15
103	CONTROL GROUP	11
104	CONTROL GROUP	19
105	CONTROL GROUP	16
106	CONTROL GROUP	13

ANALYSIS FOR GERRY DEIBEL  
 COMPARISON OF EXP GROUP VS THE CONTROL GROUP  
 TWO GROUP T TEST (INDEPENDENT T)

11:24 MONDAY, OCTOBER 12, 1987 3

TTEST PROCEDURE

VARIABLE: SCORE

GROUP	N	MEAN	STD DEV	STD ERROR	MINIMUM	MAXIMUM	VARIANCES	T	DF	PROB >  T
1	28	18.46428571	0.74446814	0.14069125	17.00000000	20.00000000	UNEQUAL	6.4064	100.8	0.0001
2	78	16.34615385	2.64244536	0.29919802	2.00000000	20.00000000	EQUAL	4.1709	104.0	0.0001

FOR HO: VARIANCES ARE EQUAL, F\*\* 12.60 WITH 77 AND 27 DF      PROB > F\*\* 0.0001

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #2

11:24 MONDAY, OCTOBER 12, 1987 4

OBS	PRETEST	POSTTEST	DIFF
1	12.77	12.41	-0.36
2	14.35	13.56	-0.79
3	15.38	16.67	1.29
4	11.92	14.98	3.06
5	15.65	15.71	0.06
6	8.84	11.61	2.77
7	11.36	13.17	1.81
8	11.83	13.64	1.81
9	13.17	12.89	-0.28
10	10.17	10.05	-0.12
11	11.19	10.61	-0.58
12	12.11	15.15	3.04
13	14.23	12.20	-2.03
14	16.77	13.40	-3.37
15	12.95	9.98	-2.97
16	16.91	11.90	-5.01
17	11.01	10.89	-0.12
18	17.24	17.33	0.09
19	14.81	45.71	30.90
20	17.76	18.27	0.51
21	5.64	6.75	1.11
22	9.28	6.24	-3.04
23	3.98	1.75	-2.23
24	11.11	10.20	-0.91
25	4.98	10.53	5.55
26	11.15	12.53	1.38
27	12.29	9.91	-2.38
28	8.10	10.17	2.07
29	10.63	16.73	6.10
30	10.45	8.70	-1.75
31	11.42	12.72	1.30
32	8.07	8.92	0.85
33	13.43	15.06	1.63
34	8.02	14.22	6.20
35	11.96	8.86	-3.10
36	10.31	10.27	-0.04
37	11.54	6.43	-5.11
38	9.36	8.05	-1.31
39	7.67	9.09	1.42
40	12.32	9.27	-3.05
41	13.00	12.90	-0.10
42	13.98	5.26	-8.72
43	14.95	18.54	3.59
44	8.42	11.80	3.38
45	26.23	17.17	-9.06
46	36.23	31.40	-4.83
47	14.60	16.60	2.00
48	16.76	13.58	-3.20
49	0.78	9.52	8.74
50	7.29	6.98	-0.31
51	9.75	8.04	-1.71
52	12.33	10.19	-2.14
53	4.29	9.89	5.60
54	6.93	12.08	5.15

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #2

11:24 MONDAY, OCTOBER 12, 1987 5

OBS	PRETEST	POSTTEST	DIFF
55	6.49	10.39	3.90
56	18.72	17.68	-1.04
57	5.71	1.46	-4.25
58	13.48	13.60	0.12
59	6.53	14.29	7.76
60	16.22	15.10	-1.12
61	16.96	17.15	0.19
62	13.33	12.31	-1.02
63	13.68	9.02	-4.66
64	3.92	9.52	5.60
65	10.76	5.81	-4.95
66	10.65	9.63	-1.02
67	9.09	9.16	0.07
68	16.03	16.24	0.21
69	19.53	23.01	3.48
70	8.41	5.42	-2.99
71	11.85	2.93	-8.92
72	3.48	7.19	3.71
73	11.69	7.66	-4.03
74	7.11	7.00	-0.11
75	3.87	4.57	0.70
76	12.55	4.18	-8.37
77	12.24	12.10	-0.14
78	16.95	0.86	-16.09

ANALYSIS FOR GERRY DEIBEL  
COMPARISON OF PRE & POST TEST SCORES FOR THE CONTROL GROUP  
PAIRED-COMPARISONS T TEST

11:24 MONDAY, OCTOBER 12, 1987

VARIABLE	MEAN	STD ERROR OF MEAN	T	PR> T
DIFF	-0.00230769	0.60923077	-0.00	0.9970

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #3

OBS	PRE	POST	DIFF
1	10.56	13.84	3.28
2	21.88	19.32	-2.56
3	13.91	13.77	-0.14
4	9.03	8.70	-0.33
5	12.03	9.74	-2.29
6	14.29	13.64	-0.65
7	13.51	4.36	-9.15
8	13.37	8.05	-5.32
9	15.85	13.79	-2.06
10	10.09	6.63	-3.46
11	9.62	10.98	1.36
12	13.16	4.79	-8.37
13	1.62	9.09	7.47
14	14.43	13.25	-1.18
15	14.49	10.85	-3.64
16	11.11	14.56	3.45
17	12.82	4.70	-8.12
18	13.33	16.40	3.07
19	13.43	9.64	-3.79
20	9.13	9.15	0.02
21	13.43	14.17	0.74
22	10.26	8.79	-1.47
23	15.30	16.52	1.22
24	10.51	5.84	-4.67
25	14.69	12.90	-1.79
26	0.78	9.52	8.74
27	11.39	12.82	1.43
28	18.72	17.68	-1.04

ANALYSIS FOR GERRY DEIBEL  
COMPARISON OF PRE & POST TEST SCORES FOR THE EXPER. GROUP  
PAIRED-COMPARISONS T TEST

VARIABLE	MEAN	STD ERROR OF MEAN	T	PR> T
DIFF	-1.04464286	0.79139811	-1.32	0.1979

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #4

ORS	GR	SCORE
1	EXPERIMENTAL GROUP	13.84
2	EXPERIMENTAL GROUP	19.32
3	EXPERIMENTAL GROUP	13.77
4	EXPERIMENTAL GROUP	8.70
5	EXPERIMENTAL GROUP	9.74
6	EXPERIMENTAL GROUP	13.64
7	EXPERIMENTAL GROUP	4.36
8	EXPERIMENTAL GROUP	8.05
9	EXPERIMENTAL GROUP	13.79
10	EXPERIMENTAL GROUP	6.63
11	EXPERIMENTAL GROUP	10.98
12	EXPERIMENTAL GROUP	4.79
13	EXPERIMENTAL GROUP	9.09
14	EXPERIMENTAL GROUP	13.25
15	EXPERIMENTAL GROUP	10.85
16	EXPERIMENTAL GROUP	14.56
17	EXPERIMENTAL GROUP	4.70
18	EXPERIMENTAL GROUP	16.40
19	EXPERIMENTAL GROUP	9.64
20	EXPERIMENTAL GROUP	9.15
21	EXPERIMENTAL GROUP	14.17
22	EXPERIMENTAL GROUP	8.79
23	EXPERIMENTAL GROUP	16.52
24	EXPERIMENTAL GROUP	5.84
25	EXPERIMENTAL GROUP	12.90
26	EXPERIMENTAL GROUP	9.52
27	EXPERIMENTAL GROUP	12.82
28	EXPERIMENTAL GROUP	17.68
29	CONTROL GROUP	12.41
30	CONTROL GROUP	13.56
31	CONTROL GROUP	16.67
32	CONTROL GROUP	14.98
33	CONTROL GROUP	15.71
34	CONTROL GROUP	11.61
35	CONTROL GROUP	13.17
36	CONTROL GROUP	13.64
37	CONTROL GROUP	12.89
38	CONTROL GROUP	10.05
39	CONTROL GROUP	10.61
40	CONTROL GROUP	15.15
41	CONTROL GROUP	12.20
42	CONTROL GROUP	13.40
43	CONTROL GROUP	9.98
44	CONTROL GROUP	11.90
45	CONTROL GROUP	10.89
46	CONTROL GROUP	17.33
47	CONTROL GROUP	45.71
48	CONTROL GROUP	18.27
49	CONTROL GROUP	6.75
50	CONTROL GROUP	6.24
51	CONTROL GROUP	1.75
52	CONTROL GROUP	10.20
53	CONTROL GROUP	10.53
54	CONTROL GROUP	12.53

ANALYSIS FOR GERRY DEIBEL  
LIST OF DATA FOR HYP #4

OBS	GR	SCORE
55	CONTROL GROUP	9.91
56	CONTROL GROUP	10.17
57	CONTROL GROUP	16.73
58	CONTROL GROUP	8.70
59	CONTROL GROUP	12.72
60	CONTROL GROUP	8.92
61	CONTROL GROUP	15.06
62	CONTROL GROUP	14.22
63	CONTROL GROUP	8.86
64	CONTROL GROUP	10.27
65	CONTROL GROUP	6.43
66	CONTROL GROUP	8.05
67	CONTROL GROUP	9.09
68	CONTROL GROUP	9.27
69	CONTROL GROUP	12.90
70	CONTROL GROUP	5.26
71	CONTROL GROUP	18.54
72	CONTROL GROUP	11.80
73	CONTROL GROUP	17.17
74	CONTROL GROUP	31.40
75	CONTROL GROUP	16.60
76	CONTROL GROUP	13.56
77	CONTROL GROUP	9.52
78	CONTROL GROUP	6.98
79	CONTROL GROUP	8.04
80	CONTROL GROUP	10.19
81	CONTROL GROUP	9.89
82	CONTROL GROUP	12.08
83	CONTROL GROUP	10.39
84	CONTROL GROUP	17.68
85	CONTROL GROUP	1.46
86	CONTROL GROUP	13.60
87	CONTROL GROUP	14.29
88	CONTROL GROUP	15.10
89	CONTROL GROUP	17.15
90	CONTROL GROUP	12.31
91	CONTROL GROUP	9.02
92	CONTROL GROUP	9.52
93	CONTROL GROUP	5.81
94	CONTROL GROUP	9.63
95	CONTROL GROUP	9.16
96	CONTROL GROUP	16.24
97	CONTROL GROUP	23.01
98	CONTROL GROUP	5.42
99	CONTROL GROUP	2.93
100	CONTROL GROUP	7.19
101	CONTROL GROUP	7.66
102	CONTROL GROUP	7.00
103	CONTROL GROUP	4.57
104	CONTROL GROUP	4.18
105	CONTROL GROUP	12.10
106	CONTROL GROUP	0.86

ANALYSIS FOR GERRY DEIBEL  
 COMPARISON OF EXP GROUP VS THE CONTROL GROUP FOR 87  
 TWO GROUP T TEST (INDEPENDENT T)

TTEST PROCEDURE

VARIABLE: SCORE

GR	N	MEAN	STD DEV	STD ERROR	MINIMUM	MAXIMUM	VARIANCES	T	DF	PROB >  T
7	28	11.19607143	4.02428861	0.76051906	4.36000000	19.32000000	UNEQUAL	-0.5371	74.2	0.5928
8	78	11.75307692	6.22754049	0.70513011	0.86000000	45.71000000	EQUAL	-0.4407	104.0	0.6604

FOR HO: VARIANCES ARE EQUAL, F' = 2.39 WITH 77 AND 27 DF      PROB > F' = 0.0130

VITA <sup>2</sup>

Jerry Max Deibel

Candidate for the Degree of

Doctor of Education

**Thesis:** A COMPARATIVE STUDY OF INFORMATION RETENTION AND PERFORMANCE CHANGE WITH PLANNED VARIATION IN THE USE OF PRINT MATERIALS AND CLASSROOM TRAINING

**Major Field:** Occupation and Adult Education

**Biographical:**

**Personal Data:** Born in St. Josephs Hospital Ponca City, Oklahoma, August 4, 1936, the third child of Mr. Louis C. Deibel and Irma C. Snavely.

**Education:** Graduated from Ponca City, Oklahoma High School in May 1955; received an Associate In Commerce Degree from Northern Oklahoma College, June 1961; received Bachelor of Arts from Central State University, Edmond, Oklahoma, July 1963; received Master of Teaching Degree in Social Studies from Central State University, 1967; received Master of Education Degree in Guidance and Counseling from Central State University, 1972; completed the requirements for the Doctor of Education degree at Oklahoma State University in December, 1987.

**Professional Experience:** Seventh grade Social Studies teacher, Liberal, Kansas 1961-1962. High School History teacher, Yukon, Oklahoma, 1964-1965. Adult Education teacher Oklahoma City Schools, 1966-1969. Vocational Rehabilitation Counselor, Division of Rehabilitation, Department of Human Services, State of Oklahoma 1969 to present. President of the Oklahoma Rehabilitation Counselors Association 1971-1972; Board of Directors Oklahoma Rehabilitation Association 1971-1972, Executive Board 1971-1972.

**Military:** U. S. Marine Corps 1958-1961.