

DIFFERENCES BETWEEN ALTERNATIVE EDUCATION STUDENTS
AND TRADITIONAL EDUCATION STUDENTS WHEN
EXAMINING FIELD DEPENDENCE/FIELD
INDEPENDENCE, LEARNING STYLES
AND COPING RESOURCES

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1992

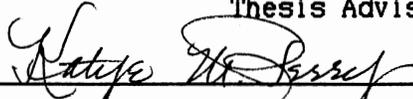
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Thesis Approved:

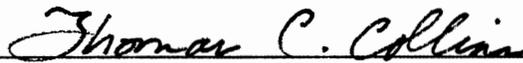


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ACKNOWLEDGMENTS

I wish to express my gratitude to my committee members for their support and encouragement, especially to Dr. Paul Warden.

An expression of gratitude to my family for sacrifices beyond imagination seems inadequate. To my parents, thank you for all of the emotional support and the extras when times got tough and for the thousands of hours you've acted as substitute parents for me. To my children, Jimbo and Jeff, thank you for encouraging me to go on when you needed me at home, being behind me when I was down and for loving me inspite of it all.

A special thank you to Mary Ann Akins, for typing, retyping, and typing it again and for not killing me when she really wanted to. Also, for all the extra pushes to start moving when I hit one of my slumps.

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

In the past few decades, one of the concerns of educators has been how students attain and retain a given piece of information or skill (Posey, 1984). Dunn (1981, p. 312) sums up the need to answer such concerns: "We can no longer afford to assume that all students will learn through whichever strategy the teacher prefers to use." If we, as educators, can clarify how a student learns, then that student can adapt better to a variety of learning situations. We can help that student learn to draw on strengths that they have and overcome weaknesses they possess.

Learning style is similar to cognitive style but is more specifically defined. Cognitive style is defined as "characteristic ways of using the mind" (Cross, 1976, p. 9). Learning style is "a personally preferred way of dealing with information and experience for learning that crosses content area" (Della-Dora and Blanchard, 1979, p. 22). Learning style is a way of analyzing and synthesizing all that we see, remember and think about in specific educational settings (Messick, 1976). Consequently, students differ in style, rate and overall quality of learning (Enochs, 1986).

Postman and Weingartner (1969) list four major components in a learning experience: the teacher, the students, the problem and the

strategies for solving problems. Currently, to deal with these components we assign students to classes, vocational training or label them using I.Q. scores, standardized achievement test scores and occasionally an interest inventory. Tyler (1972) maintains that just because we have some knowledge of a student's general intelligence, we do not necessarily specify what and how to teach that student. If we determined the style in which a student learns we would then know how to teach that student. Classrooms today tend to teach to the middle of the curve and offer primarily auditory education combined with visual aides.

According to Lefcourt (1971, p. 3) what is needed is an "expanded range of instructional alternatives to fit particular children." When individualized instruction is mentioned normally what comes to mind today is the computer based instructional system. Using this system, the student that is placed in special classes on an Individualized Educational Program will spend a good deal of time on a computer based instructional system or some other type of learning machine. Enochs (1986) found that students' performance in a specific learning enterprise may be affected by factors other than classroom training and related learning experiences. As noted by Astin (1971) variables such as learning style, aptitude and level of reading mastery may impact on student achievement. Therefore, it cannot be assumed that all students will learn through arbitrary teaching styles such as computers. Learning styles have been of particular interest to many educators (Canfield, 1980, Kolb 1981).

Some educators believe that "how" the student learns is perhaps the single most important factor for their academic achievement (Dunn and

Price, 1977). As Jeter and Chauvin (1982) note:

Educators are keenly aware that each student possesses unique needs, interests, and abilities, and that each child should have an opportunity to pursue an effective instructional program at a pace that is challenging and interesting (p. 2).

According to Jeter and Chauvin (1982) today's educators interpret "individualized instruction" as allowing youngsters to proceed through predefined curriculum at different rates. Respecting student differences in learning abilities is a major component of individualization as well as individual rate of progression through the material. However, to reap the full benefits from the concept of individual differences, it may become necessary to respect a wider range of characteristics that make students unique as learners.

A recognition of individual difference in learning styles can help curriculum planners understand why some students have difficulty in mastering specific skills (Enochs, 1986). Proponents of the learning styles movement (Barbe and Swassing, 1979) further propose that variability in student performance results not so much from discrepancies in intelligence, but that such deviations are due to different styles of learning. In support of this view, according to Clements (1976), investigations have demonstrated increased academic achievement among students taught as a function of their individual learning styles. Perhaps this will also answer the question as to why some students are "A" students with little or no effort, some are "B" and "C" students with tremendous study time and effort and some leave our traditional school setting altogether.

Statement of the Problem

The major problems on which this study will focus are the differences in field dependence/independence of students attending a traditional high school versus the alternative high school setting. Secondly, the difference of learning style of the two groups will be examined. Thirdly, the coping resources utilized by the two groups will be evaluated. Field independent individuals are believed to utilize internal cues (Witkin, 1954), possess higher analytical abilities (Maccoby and Jacklin, 1974), be more active in dealing with their environment and be more aware of inner emotions (Witkin, 1954). In addition they are also believed to have a socially acceptable manner of dealing with those emotions. Field dependent individuals are believed to be more passive in dealing with their environment, more willing to submit to forces of authority, be more impulsive and have feelings of anxiousness. They are also felt to have poor self-esteem and self-concept.

The second issue addressed will be the learning styles of individuals successfully attending a traditional high school versus those attending an alternative program. Learning style is the instructional strategies through which students typically pursue the act of learning (Smith, Renzulli, 1984). The variation in teaching style is apparent through a teacher choice of lecture, discussion or independent study. However, the individual learning style of each student is not usually known and rarely considered.

The third issue to be addressed will be that of personal coping

skills utilized by the student. Do all students possess the same coping skills necessary to deal with stress and conflict involved with learning? Students will experience failure or stressors in new learning situations and there will be a reaction to that failure. The way the student reacts to that failure or stressors will be labeled as the coping resource. The reaction could encompass a wide range of behaviors from "I quit" to "How could I change to accomplish the desired task?"

Coping resources are those resources possessed by individuals that enable them to handle stressors more effectively, to experience fewer or less intense symptoms upon exposure to a stressor, or to recover faster from exposure (Hammer, 1988). Baum and Singer (1982) define resources as adaptive capacities that provide immunity against damage from stress, where resources are viewed as predispositions derived from genetic factors, environmental influences, and learned relationships. They consider a resource to be a "social and psychological prophylaxis" that can reduce the likelihood of stress induced disease (Baum and Singer, 1982; Kobasa, 1979). Coping resources can be distinguished from coping strategies (Pearlin and Schooler, 1978) by the fact that strategies tend to be the things people do in reaction to a specific stressor occurring in specific context.

To clarify, a fireman develops a specific set of behaviors he exhibits when faced repeatedly with the stress of firefighting. These behaviors become so specific to the situation that his stress is reduced by the routine of the reaction. Strategies refer to behaviors exhibited after the appearance of a specific stressor (Hammer, 1988) or in response to chronic stressors. These strategies can become a resource to a person through prolonged and successful use.

Hypothesis Statement

Ho1: Students in alternative schools do not differ significantly from students in traditional schools in field dependence and independence.

Ho2: Students in alternative schools do not differ significantly from students in traditional schools in learning styles.

Ho3: Students in alternative schools do not differ significantly from students in traditional schools in their coping resources.

Limitations of the Study

The dimensions of this study were established as follows:

1) The procedure used for acquiring this data distinctively designates two groups of students from the original population. This places restrictions upon the ability to generalize this study to a wider population.

2) These findings would only be applicable to students who volunteered to obtain a learning style profile and a coping resources profile, and have field dependence/field independence determined.

3) Restrictions caused by using existing classes for the study may not make results representative of the general population.

Organization of the Study

Chapter I has been presented as an introduction to the problem, a statement of the problem, purpose of the study, research questions and limitations of the study.

Chapter II is a review of related and relevant literature. Attention was given to research using Group Embedded Figures Test and Kolbs Learning Styles Inventory. Unfortunately, due to the recent publication of Hammer's (1988) Coping Skills Inventory, no published research articles using that particular instrument could be found.

Chapter III describes the sample from the population used for the study, procedures and instruments used in the data collection and the methods used for statistical analysis and definition of terms.

Chapter IV is an analysis of the data.

Chapter V is the summary of the findings, conclusions which can be drawn from the study and recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Chapter II will present an overview of literature related to the research questions to be addressed in this study. The Group Embedded Figures Test was used to assess individuals field dependence and field independence as it relates to academic achievement and stress. Kolb's Learning Styles Inventory was utilized in assessing individual learner types and styles. To determine what coping resources an individual possesses and draws from during times of stress Hammer's Coping Resources Inventory was administered to each participant. Discussion of the literature is presented below.

Field Dependence

Field dependence and independence have long been of interest to researchers studying cognitive style and learner types. Witkin (1954) was one of the earliest researchers in the area. There have been years of research to examine the suspected involvement of field dependence with analytic abilities, environmental influences, emotional responses, self-perception and academic achievement.

Witkin first conceived of the concept of field dependence/independence as a generalized perceptual cognitive style. Field

independent (F.I.) individuals were those who utilized internal cues while making judgements about perceptual tasks. Field dependent individuals were those who emphasized external cues.

Maccoby and Jacklin (1974) allege that field independence forms part of a larger cluster of abilities called analytic abilities. Field independent individuals are said to possess the ability to ignore task-irrelevant content while focusing on selected elements of stimulus display. These individuals also are thought to possess the ability to reconstruct problem solving situations and take a fresh approach to arrive at a solution.

Field independent individuals are reported by Witkin (1954) to be more active in dealing with their environment, to have a capacity to initiate and organize; and the power to struggle for control of environmental and social forces. Field independent individuals also are aware of inner emotions, display a tendency to accept the existence of hostile and sexual responses, and have a socially acceptable manner of dealing with those emotions. They also tend to have lower anxiety, more effective ways of dealing with it, high self-esteem, self-acceptance and self-concept.

Field-dependent individuals are thought to be passive in dealing with their environment. This suggests the need for environmental support to function, the absence of initiating activity and the willingness to submit to forces of authority. Field dependent individuals tend not to be aware of inner emotions, fear aggressiveness and sexual impulses and possess poor control over those impulses. These individuals show evidence of considerable anxiety combined with difficulty addressing

impulse control and emotion. In self-perception, the field dependent individual is thought to display low self-esteem, have difficulty with self-acceptance and poor self-concept.

According to a study done by Donnarumma (1980) the concern of the educator to meet individual needs and to recognize potential dropouts has lead to the utilization of numerous cognitive achievement and attitudinal measures. In this study the cognitive style of field dependency/in-dependency and its relation to performance on the General Educational Development Test (GED) and the Test of Adult Basic Education (TABE) and learner attrition were examined.

Forty subjects were selected from students enrolled in a high school completion program sponsored by Comprehensive Employment and Training Administrators (CETA). Eligibility, as outlined by Federal guidelines, requires the participants to be economically disadvantaged. There were 10 black females, 12 black males, 10 white females and 8 white males between the ages of 17 and 30 years old.

The predictions for this study were:

- 1) Field independence would be related to successful completion of the GED, especially those portions measuring mathematical and reading skills.
- 2) Field independence would be related to higher TABE scores on both the math and reading sections.
- 3) Field dependence would be related to a higher rate of attrition.

The subjects were administered the Group Embedded Figures Test (GEFT) developed by Witkin, Oltman, Raskin and Karp (1971). The GEFT was chosen due to ease of administration over the rod and frame test.

Prior to taking the GEFT the participants were administered the reading and quantitative portions of sections of the TABE (Level D California Test Bureau, 1967) as part of the program diagnostic measure. As customary, the TABE raw scores were converted to grade equivalents (Donnarumma, 1980).

The GED was administered using state approved norms to small groups 6 months following the administration of the GEFT. These norms established minimal standards to be met in order to successfully obtain a GED from the State Department of Education. Students who did not complete the instructional part of the program and were not eligible to take the GED were identified as dropouts (Donnarumma, 1980). Data for each subject thus included: GEFT score, TABE reading and TABE math scores, gender, race and age. Those who completed the GED also had a GED reading score, GED math score, GED English score, and GED Total score.

Since norms for the GEFT have not been established the study used the conventional method of the median score to determine field dependence/independence. The range of scores in this sample were from a score of 0, highly field dependent, to score 16, highly field independent. The distribution was skewed toward the high end of the field dependent scale with the median score being 5.

An analysis of variance was performed on the GEFT and GED scores, the GED scores being collapsed into 3 groups: dropout, fail or pass. Those students not completing the program were labeled as dropouts. A 1 x 3 of variance analysis indicated there was a significant difference in performance on the GEFT among the GED students who had failed, passed or dropped out. A Tukey post hoc test indicated group differences, that

GEFT scores of people passing the GED were significantly higher than those failing or dropping out.

A Chi-square test was done between GEFT and the four GED scores to further verify the results. GED scores were again collapsed as in the analysis of variance, and GEFT scores were split at the median (median = 5). Those individuals with scores falling above the median were labeled field independent, those scoring below were labeled field dependent. The results indicated that 57.1% of the field dependents dropped out of the program, 33.3% failed and 9.5% passed the GED. The field independents had 31.6% drop out rate, 15.8% failed the GED and 52.6% passed. A significantly greater percentage of people passing the GED (83%) were field independent. Similar results were found when GED math, reading and English usage scores were analyzed separately (Donnarumma, 1980).

According to Donnarumma (1980) when a stepwise multiple regression was run to determine the contribution of score in prediction of achievement performance, the TABE reading score was seen as contributing a significant amount of unique variance over and above that accounted for by the TABE math score. It was concluded the GEFT score did not contribute any unique variance in the prediction of GED performance.

The findings of this study suggest that 1) field independence as measured by the GEFT significantly correlates with passing all sub-components of the GED. 2) TABE reading and math scores correlate significantly and positively with field independence. 3) More of those who dropped out of GED instruction were field dependent than those who persisted. It should be noted that the GEFT scores of the participants of this study were skewed towards the field dependent range with the

median score being 5. Also, due to the small sample size, learner attrition and restricted range of scores limit the generalizability of the study.

In another study conducted by Garner and Cole (1984) the Congruency of Locus of Control and Field Dependence as related to self-esteem and academic achievement were examined. This study searched through personal variables which effect some students in overcoming academic deficiencies while others continue to fail. Garner (1984) cited Maslow (1954) (p. 77) "that a positive attitude towards oneself was necessary." Coleman (1966) reported:

That a child's attitude relates strongly to school achievement, and his/her self-concept and sense of control over the environment -- or belief in the responsiveness of the environment affects school achievement far more than family background. (p. 16)

One variable considered as possibly effecting a person's predisposition to achieve was locus of control. This concept was introduced by Rotter (1954) as Internal-external locus of control as a function of reinforcement. Rotter (1966) defined this quite specifically:

The degree to which the individual perceives that reward follows from, or is contingent upon, his own behavior or attributes versus the degree to which he feels the reward is controlled by forces outside himself and may occur independent of his own actions. (p. 27)

Another variable considered with regard to achievement was field dependency. While locus of control is viewed as an expectancy variable,

field dependency is a process variable, and is considered to be bi-polar. That is to say, the way an individual assimilates and cognitively restructures or processes information in problem solving situations would be on one end of a continuum; On the opposite end would be the degree to which an individual relies upon external social cues in formulating interpersonal relationships (Witkin and Goodenough, 1981). According to Garner (1984) field dependency, like locus of control, is considered to be on a continuum with the two extremes being identified as field dependent and field independent.

Garner (1984) noted that field dependence, like locus of control, has not shown a consistent relationship to overall academic achievement, so this study focused on data collected by Lefcourt and Telegoll (1977) which supports looking at these two variables together. Their proposal theorized that locus of control, an expectancy variable, and field dependency, a process variable could be used to identify "real internals," "real externals," "false internals" and "false externals." These "types" of locus of control and field dependent individuals fall in categories as follows:

Real Internals = Internal LOC, field independent

Real externals = External LOC, field dependent

False Internals = Internal LOC, field dependent

False externals = External LOC, field independent

The real internals and real externals were considered to be "congruent" and tend to demonstrate behaviors which suggest they are more accepting of themselves.

Thirty-three middle school students (27 males, 6 females) were

selected from the industrial arts clubs. These students possessed above average academic skills, but were from below average economic areas. Two schools were used, one urban, one rural. Using the Norwicki-Strickland (1973) locus of control for children; the Behavioral Academic Self-Esteem Rating Scale by Coopersmith and Gilbert; the Group Embedded Figures Test by Oltman Ruskin and Witkin, data was collected in both October 1983 and May 1984.

For the analysis of data the scores were converted to "Z" scores and then a difference score between the two "Z" scores was obtained. The scores were also plotted on a graph with the locus of control score on the "X" axis and field dependency on the "Y" axis, establishing the following four quadrants: Quadrant I for real internals, Quadrant II for false externals, Quadrant III for real externals and Quadrant IV for false internals. Findings using the post test measures indicate that correlations between locus of control, self-esteem, math and reading scores demonstrated either a significant difference or a strong positive relationship. However, due to the biased sample no conclusions should be drawn. Only suggestions for further research were made (Garner, 1984). Looking at the post hoc analysis the relationship between the different Z scores for field dependence measure, self-esteem, reading and math no significant relationships were found. The correlations fell below $r = .12$.

In a study conducted by Daniel (1984) the GEFT was chosen to determine field dependence/independence. The questions of importance for the study were:

1. Can cognitive style be used as a predictor of achievement?

2. Can cognitive style be used as a predictor of teacher evaluations?

3. Are there interaction effects among cognitive style, achievement and teacher evaluation?

The subjects of the study were 161 undergraduate students in 10 sections of a basic speech course at a large midwestern university. Participation was voluntary, but class time was used to complete the GEFT. Only 141 subjects were included in the study due to subjects not identifying themselves on their evaluations of their instructors. Students and instructors gave permission for course grades and evaluations to be released only for the purpose of research with the condition that names not be reported in the research nor to the teacher on the evaluation outcomes.

The results were obtained by multivariate analysis of variance and was computed on the two independent and two dependent variables. The two independent variables were the Embedded Figures Test (EFT) scores for the students (EFTS) and EFT scores for teachers (EFTT). The two dependent measures were the test grades in the course and teacher evaluations. The major findings are that there is a significant ($p < .023$) main effect for the EFTS as a predictor of test grades and for EFTT as a predictor of teacher evaluations ($p < .028$). These findings were consistent with Witkins (1975) study showing the EFT is a strong predictor of achievement.

Some interesting data from this study shows test grades for FI students in classes with FI teachers were the highest and grades were the lowest for FD students in FD classes. Grades for FD students and FI

students placed with FI teachers did not vary much. It does seem clear that the match/mismatch of students does make a difference for some students. Teacher evaluations proved to be consistent with previous studies, however, the results were the opposite of the grade results. The FD teacher and FD students received the best evaluations and the FI teachers with the FD students received the lowest. Another interesting point in this study indicates the best grades tended to be high and are earned by FI students. Higher grades were also observed with FI teachers. However, the best teacher evaluations came from FD students and were better for FD teachers.

In a similar study conducted by Saracho (1980) the importance of matching cognitive style of student to teacher was investigated. Students were labeled as matched if their individual learning style matched the teaching style of their teacher. Conversely they were labeled mismatched if it was different. The question was: Is there a relationship between the cognitive style of teachers and their discrepancies in ranking matched and mismatched students in regard to academic achievement?

The participants were 36 female teachers from a mid-sized city in the southwest. Twelve students (6 boys, 6 girls) were selected at random from each teacher's classroom. Ages ranged from 7 to 10 years. A number of instruments were used to collect the data: The Comprehensive Test of Basic Skills (CTBS) to measure basic skills in four major areas: reading, language, arithmetic skills; the adult and child forms of the Embedded Figures Test to determine cognitive style. Fourteen schools were utilized in this district representing different socioeconomic

groups. Total N was 36 teachers; 216 seven year olds; 216 ten year olds.

After determining each participant's field-dependent/independent dimension of cognitive style, teachers were asked to rank all of the students (by class) according to how the teacher thought students would succeed academically in the coming year. This ranking was done by the teachers during the first four weeks of school prior to having access to any of the CTBS scores.

The results of the study were analyzed using a 2 X 2 analysis of variance. Two factors were examined: one being cognitive style of the teacher and the other being whether or not the student matched or did not match that style. The data from each teacher were examined individually. Analysis was done using the mean deviation scores from their matched group and the deviation score of the mismatched group.

The results revealed no significant differences for the main effects and a significant finding for interaction between cognitive styles of teachers and students. There was a statistically significant interaction among the matched vs. mismatched and cognitive style ($F(34.1) = 5.99$, $p < .05$); therefore, there is a relationship between the cognitive style of teachers and their discrepancies in ranking matched and mismatched children when examining their academic achievement. There were no discrepancy scores when all teachers (field dependent/independent) were analyzed together. Discrepancy occurred only when scores were grouped according to matched and mismatched cases. The cognitive styles of the teachers did seem to influence the discrepancy scores which were generated by this study.

Educational implications from this study suggest that field

dependent teachers tended to underestimate the academic abilities of mismatched students more than field independent teachers. Previous studies have shown that academic expectations relate to actual success. Some have suggested that the effects of teacher expectations are pervasive and long lasting. Since, according to Witkin (1977), most teachers tend to be field dependent, some field independent children may be consistently underestimated with regard to achievement ability and experiencing teaching strategies which may be inappropriate to their cognitive style. Experiences appropriate to a student's learning style could be developed and implemented to offer a classroom which will nurture the feelings of comfort, trust, and security.

Summary

Finding research to support the assumption that field dependence/independence effects academic success supported the need to address the question of differences among students in traditional vs alternative school settings with regard to field dependence/independence. To be academically underestimated for achievement, to feel no control over your environment and to have difficulty with self-perceptions may contribute to students dropping out of a traditional setting and seeking alternative education.

Learning Styles

Educational implications for determining students' learning styles are not new to this decade. Research has been conducted, projects set in motion and questions asked with regard to learning style. Yet, as Thelen

(1967) points out, the child participates in activities set up, for one reason or another, by the teacher. The teacher holds the image of learning in mind and makes changes in the setting of the classroom to facilitate the learning. Acceptable behavior, participation and attitudes are preconceived by the teacher (Thelen, 1967). Student learning styles are rarely addressed when the teacher is setting up classroom activities. Teaching is mostly directed to the students able to learn from lecture with visual aides. This leads to the question of differences in learning styles of successful traditional students and those seeking alternative approaches to learning.

In an article by Smith and Renzulli (1984) the concept of matching teaching styles with learning styles was examined. Their approach to assessment and educational use of learning styles was guided by an operational definition that considers learning styles as the counterpart of teaching styles. In other words, learning styles are defined in terms of the range of instructional strategies through which students typically pursue the act of learning (Smith, Renzulli, 1984). They restricted the domain of potential teaching strategies only by the requirements of each teaching style: (1) is general enough to apply to a variety of content areas; (2) is a repeatable way of teaching (i.e. can be used on different occasions); (3) can be employed by teachers without extensive training. These requirements were felt to be basic enough to make findings of this study practical in application to the classroom and remove some of the mystery that surrounds learning styles.

Interest in learning styles has caused debate with regard to matching students with learning environments. There are a growing number

of studies addressing student satisfaction and cognitive output when looking at different types of educational environments. These studies usually fall into two categories: (1) matching teacher and student personality and (2) matching students with teaching methods.

Looking first at the studies matching personality types indicates that redirection of disparity and discrepancy between teacher and student personality is the vehicle for maximizing student growth (Smith and Renzulli, 1984). Mismatching of personality has been found to modify student behavior in some cases. For example, impulsive children become more reflective in their thinking when placed with reflective teachers (Kagan, 1966). Hunt (1971) also showed that teachers who function on a more abstract level (on the abstract to concrete continuum) tend to increase student levels of conceptual complexity. Mismatching should be done with extreme caution as it can cause extreme stress, frustration and burnout.

Another avenue for research has been to match similarity and congruency of teacher and student personality. This research is based on the assumption that the more two people are similar on a given variable the more they will be attracted to one another. To say the least, findings have been inconsistent. Thelen (1967) reported that matching increased classroom manageability, students showed higher grades and overall satisfaction was higher. However, Jones (1971) found matching students and teachers on introversion - extroversion traits made little difference in dyadic interaction. McDonald (1972) found mutual attraction had no effect on interaction in the classroom.

The second approach involves matching students to differing

Instructional strategies rather than personality characteristics. Research in this area is based on the theory that students prefer one learning environment over another. The belief is that learning will be maximized when the most appropriate environment is matched with the student. Studies of this nature have been disappointing. While some studies have shown predictable and significant relationships, only a small percentage of the research has found teaching methods to be differentially effective for students with different learning needs.

A final approach to matching is that of having the student examine their own needs and providing teaching styles based on their stated preference. Studies done by Farr (1971) and Domino (1971) support the idea that students are able to predict their own learning style. Numerous studies support the student-based approach to learning style matching. The findings indicate that learner outcome is enhanced when the student is allowed to learn in their own mode. It is possible that matching teaching methods to learner style preferences helps to eliminate barriers to learning which are built when we fail to meet individual needs. Smith and Renzulli (1984) feel that learning style preferences need not be met in all situations but they are saying that every effort should be made (1) to understand these differences and (2) to alter instructional style in those areas and at times that modifications are possible.

The conclusions of the article by Smith and Renzulli (1984) are:

- (1) It is widely accepted that differences in student learning styles exist
- (2) Research has shown that learning style matching can and does

have a positive impact on student achievement, interest, and/or motivation.

- (3) There are now a variety of instruments available to help students identify students' learning style preferences.
- (4) Despite years of searching for the definitive teaching approach, educators have come to realize that there is in fact no such entity. (p. 47)

Evelyn Posey (1984) implemented a research program using learning styles as the basics. This study was conducted at the University of Texas at El Paso. The purpose was to assist students in identifying and mastering particular study weaknesses and enable them to become independent, self-motivated students. Students were administered the Kolb's Learning Styles Inventory (1974) with the hopes that the students would use the results to help themselves adapt better in various instructional settings. It was felt that many students "turn-off" to learning because their particular style of learning is not utilized in the university lecture/reading format.

To begin the study 183 high-risk entering freshmen were administered Kolb's LSI. They were labeled high risk based on SAT and ACT scores and high school performance. Being labeled high-risk automatically assigned them to the study skills lab for academic support, where the study was conducted. It took approximately 20 minutes to administer the Kolb's. Afterwards a discussion was held about the four learning styles. The students were not to use the inventory as an excuse but to help determine weakness and remediate themselves in those areas. Posey (1984) concluded that each style was well represented which would suggest that teachers

should include lecture, reading, small group discussion and experiments or experience for each instructional objective. This would allow each student exposure to the information in their preferred learning mode, while strengthening the other modes.

To further encourage students it was demonstrated how they had used several styles to take the inventory itself. They had used concrete experience to fill out forms; they had used reflective observation in noticing how others learned and by listening to or contributing to the discussion; finally they used abstract conceptualization in thinking about the strengths and weaknesses of their own individual style and determining how they could use that information to enhance classroom performance.

Prior to administering the inventory it was hypothesized that the majority of these students would be feeling, doing type learners. This hypothesis was based on the fact this group of students were struggling academically because their learning styles did not match typical university teaching styles. However, results did not confirm this hypothesis. The highest represented style was reflective observation with 32 percent of the students perceiving themselves as that type. The other three styles were fairly equally represented: active experimenters 25 percent; 22 percent saw themselves as abstracted conceptualizers; and 21 percent perceived themselves as concrete experience learners. It was assumed that the sample was representative of the average classroom and the four learning styles were fairly equally represented, so instructors were encouraged to present information in a variety of ways.

In yet another study students experiencing academic difficulty as

measured by GPA were compared to students not experiencing academic difficulty using five constructs: reading ability, career decisiveness, learning styles, study habits and attitudes and motivational factors (Judd, et al, 1985). The purpose of the study was to assess the cognitive and affective characteristics of those students experiencing academic difficulty and design a system of appropriate interventions.

The subjects were randomly selected from a pool of students at a community college. There were 19 participants in academic difficulty and 31 who were not. Five instruments were used to assess each student:

- 1) Diagnostic Test for Language Skills - to assess reading comprehension.
- 2) Career Decision Scale - to measure career indecisiveness.
- 3) Learning Styles Inventory (Canfield) - to assess preferred learning style.
- 4) Brown and Holtzman's Survey of Study Habits and Attitudes - to examine use of studying techniques and attitudes.
- 5) Seven factors from Jackson's (1974) Personality Research Form to assess motivational factors.

The results showed that 65% of the students in academic difficulty showed depressed scores on reading comprehension skills and attitudinal factors (study skills and success). The recommendations from the study were to require students experiencing academic difficulty to attend a skill lab for reading comprehension, study habits and attitude about school. In addition to improving classroom performance by the study lab was to provide career counseling and assess expulsion from school if the student remains in academic difficulty for any length of time.

Research resulting in the conclusions that: there is a difference in individual learning styles; that we do not address all learning styles in most learning environments; that learner outcome is enhanced when students learn in their own mode; and that presenting information in a different format increases learning has given rise to many questions. The one addressed in this study will be: Is there a difference in learning styles of successful traditional high school students versus those seeking alternative educational settings?

Coping Skills

With individual learning modes not being accessed and the perception that the environment controlled you, rather than you having influence and choices with regard to the environment leads to the question of how students cope? Do successful high school students possess better coping skills than those who leave that setting? The third area of investigation in this study was the coping skills utilized by those students in the traditional high school setting and those attending the alternative educational setting. There was a paucity of information which specifically linked field dependence/independence to coping strategies.

Dargel and Kirk (1973) researched the relationships of field dependence and anxiety using 160 undergraduates in a small liberal arts college. They found no significant correlations between field dependency and measures of anxiety for all male and female subjects. the instruments used were the Hidden Figures Test, the Taylor Manifest Anxiety Test and the Institute for Personality and Ability Testing

Anxiety Scale Questionnaire, (which is a measure of clinical anxiety). Joshi (1974) also found no relationship between field dependence and anxiety. His sample consisted of 143, 12 year old boys and girls.

In a study conducted by Bergum (1980) 240 undergraduates (120 males, 120 females) representing all colleges of a large university, were administered the Trait Scale of the State-Trait Anxiety Inventory as well as the Group Embedded Figures Test. No significant sex difference was found on both tests. However, the results showed that field dependence was significantly related to anxiety. $(238) = -.17, p < .01$. Those who were less anxious were field independent, the more anxious were field dependent. This relationship existed for both sexes. It appears that field independent individuals have better control over their environment and are able to restructure it more easily. Field dependent individuals appear to feel they have a lesser degree of environmental control and have difficulty restructuring it.

Conclusion

Research surrounding the question of field dependence and achievement indicates that field independent individuals are higher achievers academically than field dependents. They also tend to have less symptoms typically associated with stress apparently because they feel more in control of their environment and are capable of seeing choices and making decisions.

Research with regard to learning style indicated that differences in learning styles do exist and learning style matching can have a positive impact on learner outcomes. It also shows that impulsive students tend

to become more reflective when placed with a reflective teacher.

It is widely accepted that instruction should begin with the active, then progress through concrete, reflective and abstract. This allows information to be presented in every students strongest learning style, while strengthening other learner types.

When looking at anxiety, research indicates that field dependence and anxiety are significantly related. This relationship exists across sexes. This, then, would follow that if the the students leaving the traditional setting are more field dependent, then they would also feel more anxious. If there is a difference in field dependence, is there also a difference in coping skills?

CHAPTER III

METHODOLOGY

Introduction

Chapter III contains descriptions of the methods and procedures of the study. For the purpose of the presentation of this chapter has been divided into six sections: selection of subjects, procedures, instrumentation, research methodology, reliability and analysis.

Selection of Subjects

The subjects selected attended school on two campus sites in the same school system. One campus is the alternative school, the other is traditional school. Both schools are in a rural suburban town in northeast Oklahoma. The number of subjects in the study is 100 with 53 males and 47 females, with race being all caucasian.

The alternative school has a full-time population of approximately 50 students. Age range of these subjects are from 15.3 years to 20.1 years with the mean being 17.9. Class size is limited to 10 students, with five full-time teachers, and a full-time counselor/director available to the students. The entire population of the alternative school was administered the The EFT, LSI and Coping Skills Inventory, with participation being voluntary. No grade point value was used to determine a successful student at the alternative school since they must succeed or they are dropped from the program. To remain in the school

the students must meet contracts of required work which is individualized to meet student needs.

The traditional high school setting houses approximately 950 full-time students. These students are placed in classes of approximately 25 with two full-time counselors, an academic director, an assistant principal and a principal available to the students. Subjects range in age from 16 years to 19 years with the mean age being 17.6. Subjects from the traditional school were enrolled in a sociology course by means of traditional enrollment. These students were asked to participate only if they had an overall grade point of 2.5 or better. Grade point average of 2.5 was defined as a successful student for this study. Gender was not addressed in this study since existing classes were utilized and participation was voluntary.

Procedures

Students at the traditional school and the alternative school were tested under similar conditions. The instructors of the student volunteers made a list with a student's name and an identification number was assigned. Traditional high school student's identification were prefaced with a "T" and alternative high school student's with an "A". The subjects were then given test forms with those identification numbers on them. Profiles were returned to the instructor in sealed envelopes with the identification number on the outside, and were then distributed to the students. The names and the profiles of the students would never be matched by researcher or teacher. Interpretative information for the participant was included with each individual profile.

At the beginning of the test session, numbered test protocols were distributed to the corresponding students by the teacher, using the numbered list. Instructions were read first to the Group Embedded Figures Test and it was administered to the group. Second the group instructions were read for Kolb's Learning Style Inventory and then Hammer's Coping Skills Inventory. There were no set time limits for either inventory and dictionaries were made available to ensure vocabulary understanding.

Instrumentation

The Group Embedded Figures Test (GEFT) was designed to provide a means of administering the Embedded Figures Test (EFT) in a group format. The EFT was designed to determine an individual's ability to visually pull a simple figure from a more complex drawing in which the simple figure has lost its identity. This is a speed test used to determine field dependence/independence.

The range of scores on the GEFT is from 0 to 18. Norms have not yet been established for the GEFT nor any FDI measure. Studies using the GEFT to determine FDI determine the median score for the group, then use that median score as the point of division for FDI (Donnarumma, 1981). The GEFT norms available to date are based on male and female college students from an eastern liberal arts college and are given in Table 1 below.

Table 1

Mean, Standard Deviation Scores for GEFT from Manual

	N	\bar{X}	S.D.
Male	80	12.0	4.1
Female	97	10.8	4.2

Validity of the GEFT has been assessed in many ways. The most direct criterion measure is to use the "parent" form, the EFT. One study administered the Second Section in its group form and the Third Section in the individual format to one group. A second group was administered the Second Section individually and the Third Section as a group test. The correlations are reported in Table 2, (Witkin, Oltman, Raskin, and Karp, 1971).

Validity was additionally addressed by administering the Rod and Frame Test (RFT) using a portable unit (PRFT). In the RFT the subject is seated in a totally darkened room, and requested to adjust a tilted luminous rod to the upright position while the tilted luminous frame remains in the original tilted position. Witkin, et al (1971). Each group was administered the GEFT and PRFT. Each subjects score on the PRFT was the absolute size of errors summed over 8 trials. Results are shown in Table 2

A third assessment to evaluate validity was to administer human figure drawings to all subjects taking the EFT and PRFT. The degree of

articulation of body concept was scored by the ABC scale applied to human figure drawings (Witkin et al, 1962). The most articulate drawings received a score of 5, the least articulate a score of 1. The results are presented below in Table 2 (Witkin, Et al, 1971).

Table 2

Validity Coefficients from Witkin, Et at, 1971

Population	N	Criterion Variable	r with GEFT Score
Male Undergraduates	73	Individual EFT Solution Time	--.82
Female Undergraduates	68	Individual EFT Solution Time	--.63
Male Undergraduates	55	PRFT, error	--.39
Female Undergraduates	68	PRFT, error	--.34
Male Undergraduates	55	ABC, degree of body art.	.71
Female Undergraduates	68	ABC, degree of body art.	.55

* r's with EFT on the PRFT should be negative because the tests are scored in reverse fashion.

While the Spearman-Brown coefficient of .82 is acceptable, it should

be noted a small sample size was used to determine that coefficient. Therefore, caution should be used when interpreting this data and generalizing to a larger population.

The GEFT and the EFT are reasonably high in their correlations, especially for men. Correlations on the GEFT and PRFT fall within the range usually found between EFT and PRFT. Correlations between GEFT and ABC also fell within the range of scores reported with the EFT.

Learning Styles Inventory

The Learning Styles Inventory, 1985 (LSI) is defined as a self descriptive instrument to assess and individual's preferred learning style (Kolb, 1986). It is a self-administered test which may also be self-scored and self-interpreted. It may be utilized to help learners identify learning style, how they deal with new ideas and concepts and what they do with new information (Kolb, 1986).

The Learning Styles Inventory, 1985, consists of 12 simple sentence completion items in easy to read language and accessible reading level. The subject is asked to rank one to four endings supplied for the sentence stems. The number four is used to rank how they learn best, one being the least. They are asked not to have ties. e.g.

When I learn: _____ I like to deal with my feelings.
 _____ I like to watch and listen.
 _____ I like to think about ideas.
 _____ I like to be doing things.

A paucity of information exists in professional literature concerning the reliability of LSI scores including the manual.

Comparison of the LSI, 1985 with the Original LSI (OSLI) indicate strong correlations between the instruments and further indicate their results are comparable. Coefficients ranged from .71 to .93 and were all significant at the $p < .001$ level. The four basic scales and two composite scores all show very good internal consistency as measured by Cronbach's Alpha ranging from .73-.88 (n=268) (Kolb, 1985, p. 97).

Table 3

Cronbach's Alpha Scores for LSI Scales from Manual

Scales	Cronbach's Standardized Scale Alpha
Concrete experience (CE)	.82
Reflective Observation (RO)	.73
Abstract Conceptualization (AC)	.83
Active Experimentation (AE)	.78
Abstract - Concrete (AC-AE)	.88
Active - Reflective (AE-RO)	.81

The validity section of Kolb's LSI manual is by far the weakest section. Much of the information provided consists exclusively of construct validity and many of the conclusions drawn are speculative (Sewall, 1986). According to Geller (1979) Kolb's LSI would be

reasonably satisfactory in distinguishing between means of two relatively small groups with a narrow range of difference, but would be unsatisfactory for its use in reliably differentiating individuals or between the means of large disparate groups. According to Ferrell (1983) the only instrument that supported its authors conceptualization of learning styles was Kolb's LSI.

Norms for the LSI are based on a sample of 1,446 adults between the ages of 18 and 60. The sample consisted of 638 men and 801 women of ethnically diverse backgrounds, wide variety of career fields and with average education being two years of college. Scores are reported in Table 4.

Table 4

The Average Raw Scores for the Norming Sample

	Mean	S.D.
Concrete Experience (CE)	26.00	6.8
Reflective Observation (RO)	29.94	6.5
Abstract Conceptualization (AC)	30.28	6.7
Active Experimentation (AE)	35.37	6.9
Abstract - Concrete (AC-CE)	4.28	11.4
Active - Reflective (AE-RO)	5.92	11.0

Coping Resources Inventory

The primary goal in developing the Coping Resources Inventory (CRI) was to provide a tool for identification of resources currently available to individuals for managing stress. Clinical theory and practice largely focus on what is wrong with people rather than what is right with them. The CRI was constructed to facilitate an emphasis on resources currently available to an individual rather than what is wrong with him. Increased knowledge can be utilized in designing prevention programs or initiating primary intervention (Hammer, 1988).

The CRI is constructed of 60 items and measures resources in five domains: cognitive, social emotional, spiritual/philosophical, and physical (Hammer, 1986) (p. 3).

Cognitive (COG): The extent to which individuals maintain a positive sense of self-worth, a positive outlook toward others, and optimism about life in general. The role of a positive self-concept in adaptation to stress is well documented.

A representative item: "I feel as worthwhile as anyone else."

Social (SOC): The degree to which individuals are imbedded in social networks that are able to provide support in times of stress.

A representative item: "I am part of a group, other than my family, that cares about me."

Emotional (EMO): The degree to which individuals are able to accept and express a range of affect, based on the premise

that a range of emotional response aids in ameliorating long-term negative consequences of stress.

A representative item: "I can cry when I am sad."

Spiritual/Philosophical (S/P): The degree to which actions of individuals are guided by stable and consistent values derived from religious, familial, or cultural tradition or from personal philosophy. Such values might serve to define the meaning of potentially stressful events and to prescribe strategies for responding effectively. The content domain for this scale is broader than traditional western religious definitions of spirituality.

A representative item: "I know what's important in life."

Physical (PHY): The degree to which individuals enact health-promoting behaviors believed to contribute to increased well-being. Physical well-being is thought to decrease the level of negative response to stress and to enable faster recovery. It may also help to attenuate potentially chronic stress-illness cycles resulting from negative physical responses to stressors that themselves become major stressors.

A representative item: "I exercise vigorously 3 to 4 times a week" (p.5).

Reliability

Internal consistencies of the CRI were estimated using Cronbach's Alpha. The range and pattern suggest that the CRI scales are fairly homogenous.

As indicated in Table 5 reliability estimates for internal consistency of the CRI range from .71 to .84. Total reliability was reported to be .91.

Table 5

Internal Consistency using Cronbach's Alpha for Norming Sample

Scale	Alpha
Cognitive	.77
Social	.79
Emotional	.84
Spiritual	.80
Physical	.71
Total	.91

The predictive validity, the strongest test of validity, for the CRI is quite high. Using the CRI which yield a Total Symptom Score along with Elkind's Stress Test for Children (Elkind, 1981) a test of lifes events and the Personal Stress Symptom Assessment (PSSA, Numeroff, 1983). 108 junior high school students were administered the CRI and Elkind's Stress Test. Twelve weeks later they were administered the PSSA, The PSSA yielding a Total Symptom Score. The Total Symptom Score was

regressed on the number of life events checked and on the CRI Total Resource Score. Using a hierarchical multiple regression analysis the CRI was a significant predictor of stress symptoms (R change = .15, $p < .001$). CRI Scale scores accounted for 32 percent of the variance in symptoms. Entering 5 individual CRI scale scores allowed for 46 percent of the variance in symptoms to be explained. Physical and cognitive scales were significant univariate incremental predictors once life's events were partialled out (R change = .29, $p < .001$).

Research Methodology

A casual-comparative design was used to determine if field dependence/independence, learning style or coping resources could be used to determine group differences. Differences would be between traditional high school setting or the alternative setting.

Ho1: Students in alternative schools do not differ significantly from students in traditional schools in field dependence/field independence.

Ho2: Students in alternative schools do not differ significantly from students in traditional schools in learning styles.

Ho3: Students in alternative schools do not differ significantly from students in traditional schools in their coping resources.

Analysis of Data

For the analysis of data for the GEFT, an independent t-test between subjects was conducted to determine group differences between students attending the traditional high school and those in an alternative school setting. A Multivariate Analysis of Variance (MANOVA) was conducted on

the data from the LSI to determine if difference exist between traditional high school students and those in alternative educational setting on learning styles. On the variable of Coping Resources a MANOVA was conducted to determine group differences between the two groups. An experiment error was set at the .05 level for the t-test while .01 was set to test results from the MANOVA'S, since separate tests were used.

CHAPTER IV

RESULTS

Introduction

The results of the statistical analysis of the data pertaining to the hypotheses tested in this study are presented in this chapter. The purpose of this is to determine if learning styles, coping resources, or field dependence/independence can be used to differentiate between those students who have been successful in the traditional high school setting versus those who have dropped out of the traditional setting for various reasons but are now successful in an alternative high school program. Those who were successful in the traditional setting were those who maintained a grade point of 2.5. No grade point value for success was given to the alternative student, due to program design that they either are successful or leave the program.

Test of the Hypotheses

The first null hypothesis stated that field dependence/independence as measured by the Group Embedded Figures Test (GEFT) is not significantly different for students at the traditional high school versus those at the alternative school. An independent t-test between subjects was conducted to determine if the groups (traditional and alternative) differ on a measure of field independence/field dependence. A statistically significant difference between groups was found $t =$

3.10, $p < .003$. Thus, the null hypothesis is rejected.

The Alternative Group 1 obtained a mean score of 6.88 standard deviation of 3.81, with the range of scores from 0 to 18. The Traditional Group 2 obtained a mean score of 9.59, standard deviation of 4.80 and the range of scores from 0 to 18. These scores indicate that the Alternative Group 1 is more field dependent while the Traditional Group 2 is more field independent when comparing the 2 groups.

Table 6

Mean Scores and Standard Deviations for Field Dependence/Independence

	N	\bar{X}	S.D.
Alternative Group 1	49	6.88	3.81
Traditional Group 2	49	9.59	4.80

The second null hypothesis stated that learning style as compared to Kolb's LSI (1986) is not significantly different for students at the traditional high school versus those at the alternative school. A MANOVA was conducted to determine if a significant difference could be detected between the alternative and traditional high school in learning types, four learning types were described using Kolb's LSI.

Kolb's four learning types are:

CE = Concrete experience; an experienced based approach to learning with active involvement.

RO = Reflective observation; observational based, impartial based approach to learning.

ABSCON = Abstract Conceptualization; a conceptually based, analytic learning approach.

ACTEXP = Active experimentation; an action based, actively involved approach to learning.

Table 7

Mean and Standard Deviations for LSI Group

	CE		RO		ABSCON		ACTEXP	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
Alternative	26.86	6.59	33.31	6.01	27.96	7.07	31.66	6.16
Traditional	26.90	5.26	29.52	8.49	28.14	5.63	34.90	6.26

An independent t-test was conducted to determine if the two groups differed. A significant difference was found at the .01 level. Pooled variance estimate t -3.10 was found to be significant at the .003 level.

Table 8

Norms for LSI 1985

Scale	Mean	Standard
Deviation Concrete Experience (CE)	26.00	6.8
Reflective Observation (RO)	29.94	6.5
Abstract Conceptualization (AC)	30.28	6.7
Active Experimentation (AE)	35.27	6.9

Wilks Lambda test for multivariate differences between groups did not yield statistically significant results $F = 2.26, p < .068$. Because the overall test for difference was not significant, univariate analysis is not presented. Based on these data the null hypothesis is not rejected.

The third null hypothesis stated there was no difference between alternative high school students and traditional high school students with regard to coping resources. The Coping Resources Inventory (CRI) (Hammer, 1988) was used to measure coping resources utilized by the two groups. The CRI measures resources in five domains: Cognitive (COG), Social (SOC), Emotional (EMO), Spiritual/Emotional (S/P) and Physical (PHY). A MANOVA was conducted to determine if differences existed between the two groups using the CRI individual scales and Total Resource score for comparison. Results of that study are presented in Table 9.

Standardized means from the manual presented in Table 10.

Table 9

Means and Standard Deviations on Coping Resources Individual Scales by Group

	COG		SOC		EMOT		SPIR		PHY	
	\bar{X}	S.D.								
Alt.	27.61	5.39	40.31	6.11	41.45	7.41	30.98	5.42	28.00	4.98
Trad.	26.86	5.77	34.16	5.41	40.30	5.88	28.00	4.90	25.50	5.86

Table 10

Means, Standard Deviations from Manual for Individual and Total Resource Scale

	COG	SOC	EMO	S/P	PHY	TOTAL
Mean	26.34	39.98	44.07	30.11	27.46	167.95
S.D.	4.98	5.96	6.93	5.41	4.83	20.26

The overall MANOVA was significant $F = 8.97, p < .001$. Further examination of the five factors identified as coping resources indicated two significant contributors as described in Table 11.

Table 11
Univariate Results for Coping Resources

Variable	F	Significance
Social	28.09	.0001 *
Spiritual	8.04	.006 *
Physical	5.31	.023
Emotional	.73	.394
Cognitive	.45	.504

*Sig $p < .01$

The greatest difference existed on the social scale. Hammer (1988, p. 3) defines the social scale as measuring "the degree to which individuals are imbedded in social networks that are able to provide support in times of stress." The Alternative Group 1 scored significantly higher than Group 2 traditional students on the social scale. This would indicate that the Alternative students perceive themselves as having strong social support from their peer group or

social network.

The second scale identified as a contributor to the difference was that of Spiritual/Philosophical (S/P). Hammer (1988) defines this scale as measuring:

The degree to which action of individuals are guided by stable and consistent values derived from religious, familial, or cultural tradition or from personal philosophy. Such values might serve to define the meaning of potentially stressful events and to prescribe strategies for responding effectively. The content domain for this scale is broader than traditional western religious definitions of spirituality. (p.3).

The alternative students again had a higher mean score on this scale than the traditional students.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter represents a general perspective of the study and an interpretation of the results. General conclusions drawn from these results are discussed and recommendations for future research in this area are provided.

Summary

The purpose of this study was to determine differences between field dependence/independence, learning styles, and coping resources to determine if statistically significant differences exist between traditional high school students and the alternative high school students.

Hypotheses

The hypotheses of the study were:

- H1. That a statistically significant difference does not exist between students in a traditional high school setting versus students in an alternative educational setting with regard to field dependence as measured by the Group Embedded Figures Test.
- H2. That there is not a statistically significant difference between students in a traditional school versus students in an

alternative educational setting with regard to learning style as measured by Kolb's Learning Style Inventory.

- H3. That there is no statistically significant difference between students in the traditional high school versus students in an alternative educational setting with regard to coping resources as measured by Hammers Coping Resources Inventory.

Review of Methods

Subjects in the study were obtained from a rural suburban town in northeast Oklahoma. There were a total of 100 subjects with 53 males and 47 females, subjects were classified into groups as traditional or alternative depending on which school they were enrolled in, with 50 participants in each group. Data consisted of the subjects scores on the GEF, Kolb's Learning Styles Inventory and Hammer's Coping Resources Inventory.

The first research question and corresponding hypothesis was tested by using a one-way between subjects t-test to determine if the traditional students and students in an alternative setting differ on the measure of field dependence/independence. The second research question and corresponding hypothesis was tested using a MANOVA to determine if differences existed between traditional students and alternative high school students on learning styles. The third research question and corresponding hypothesis was tested using a MANOVA to determine if differences exist between students in the traditional and students in an alternative high school with regard to Coping Resources.

Discussion and Implications

The analysis of the data collected relative to the principal research questions of this study will follow.

Question 1

A statistically significant difference in field dependence/independence was found between the mean scores of alternative students and those of traditional students. The traditional students scores indicate they are more field independent ($X = 9.59$) while the alternative students are field dependent ($X = 6.88$). This would correlate with the previous research conducted in the area of field dependence/independence and academic achievement (Donnarumma, 1980), (Garner, 1984) (Daniel, 1984). These results would also support research done by Maccoby and Jacklin (1984) indicating that higher scores on field independence is involved in a larger cluster of abilities called analytic abilities. Field independent individuals are said to possess the ability to ignore task-irrelevant content while focusing on selected elements of stimulus display. These individuals are also thought to possess the ability to reconstruct problem solving situations and develop new strategies for arriving at solutions.

Question 2

The Wilks Lambda test for multivariate differences between groups did not yield statistically significant results ($F = 2.26$, $p < .068$) with regard to the LSI, failing to reject null hypothesis.

Question 3

A MANOVA was conducted to determine if differences between the alternative and traditional students with regard to Coping Resources. The overall MANOVA was significant $F = 8.97, p < .001$ thus rejecting the null hypothesis. Further examination revealed two significant contributors to the difference; social scales and spiritual/philosophical.

Practical Implications of Research

The analysis of the data collected relative to the principle objective of this study indicated that a statistically significant difference exists between the two groups on field dependence/field independence. Data revealed that students who are successful in the traditional high school setting are predominately field independent while those attending the alternative school are more field dependent.

Educational implications of this study would be to determine field-dependence at an early age as a method of identifying "high-risk" students. The GEFT could be administered and potentially at risk students could be identified as those having a score lower than the group mean. There are age-related changes in field dependence/ independence. There is continuous increase towards field independence between ages 8 and about 15 years. Then it appears to level off through young adulthood. In the geriatric populations research is showing a marked return to field dependence. (Witkin et al, 1971). Education to build self-esteem, self-confidence, problem-solving strategies, develop

appropriate social skills, and impulse control could begin in early elementary. Teaching skills to students to solve these basic issues which describe "high-risk" as-well-as "field-dependence" characteristics might have an impact on the drop-out rate.

Differences obtained on the data from the Coping Resources Inventory support the research conducted by Bergum (1980) in which it was determined that field-dependence and anxiety are significantly related. Field dependent individuals are more anxious and feel they lack control over their environment. Students attending the alternative school lack strong Coping Resources. Educationally, coping strategies could be introduced in early elementary with basic concrete problem solving and could progress through developmental stages.

Recommendations for Further Research

The present study raises several questions for future research:

(1) Since field dependent individuals are thought to possess a low self-esteem, poor self concept and feel as though they have no control over their environment, but are rather controlled by their environment, can we provide opportunities to more individuals towards field independence? These activities could include experiential camping, assertiveness training and social skills instruction on a continuum.

(2) Will determining a students preferred learning style and then offering instruction in that style offer incentive to high risk student's to stay in school? Would offering instruction in all four learning styles strengthen styles that are not preferred by individual students?

(3) Are we able to successfully teach coping strategies in the school? These could be offered in small group settings for instructional

purposes and the applied in role play exercises. Would this type of instruction aide a previously identified student in deciding to "cope" with school and not drop out?

Discussion of Problems and Limitations

One of the problems encountered in this study was being restricted to a small sample of traditional and alternative school students. Ideally a larger sample across geographic locations would be used.

Obviously many variables could not be controlled in this research. Variables that might be controlled for in future undertakings would be emotional/situational factors, length of time a student has attended alternative school and if they have any remediation offered during their school career. This might include special class placement, tutoring or therapy.

A SELECTED BIBLIOGRAPHY

- Anderson, Janis F., Bell - Daquilante, Cheryl A. (1980). The influence of communication behavior and predispositions on individual learning style preference. (Report No. CS 503079). Paper presented at the Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Services No. ED 193707).
- Astin, A. W., (1971). Predicting academic performance in college. New York. The Free Press.
- Baum, A., Singer, J.E., (1980). Psychological aspects of health, stress and illness. Cognitive Social Psychology, Elsvier, New York. (pp. 307 - 356).
- Baxter-Magolda, Marcia B., (1987). Gender differences in cognitive development. (Report No. TM 870 472). Paper presented at Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Services No. ED 284 908).
- Bergum, Judith E. & Bergum, Bruce O., (1980). Field dependence and anxiety. (Report No. CG 014 816). Paper presented at the Annual Convention of the Southwestern Psychological Association. (ERIC Document Reproduction Services No. ED 195 865).
- Canfield, Albert A., (1988). Manual Canfield Learning Styles Inventory. Western Psychological Services.
- Clements, Z.J., (1976). Taking all students from where they really are. NASSP Bulletin, 60, 104-108.
- Coleman, J.S., Campbell, E.Q., Hotson, C.J., McPhartland, J., Mood, A.M., Weinfield, F.D. and York, R.L., (1966). Equality of educational opportunity. (Superintendents of Documents Catalog, No. FS 5.238:38001) Washington, D.C.: U.S. Government Printing Office.
- Cross, P.K. (1976). Accent on learning. San Francisco: Jossey-Bass.
- Daniel, Arlie (1984). Cognitive style as a predictor of achievement: A multivariate analysis. (Report No. SP 025 093). Paper presented at the Annual Convention of the International Communication Association. (ERIC Document Reproductive Services No. ED 248 217).
- Dargel, R., and Kirk, R.E. (1973). Note on relationship of anxiety to field dependency. Perceptual and Motor Skills, 37, 278.

- Della-Dora, D., & Blanchard, L.J. (1979). Moving toward self-directed learning: highlights of relevant research and promising practice. Alexandria, VA: Association for Supervision and Curricular Development, (21-24).
- Domino, G. (1971). Interactive effects of achievement orientation and teaching style on academic achievement. Journal of Educational Psychology, 62, 427-431.
- Donnarumma, Theresa & Cox, David & Beder, Hal. (1980). Success in a high school completion program and its relation to field dependence - independence. Adult Education. 30 (4), 222-232.
- Dunn, R., DeBello, T., Bhrennan, P., Krinsky, J., & Murrain, P. (1981). Learning style researchers define differences differently. Educational Leadership. 38, 371-375.
- Dunn, R.K., Price, G.E. (1984). Diagnosing learning styles: A prescription for avoiding malpractice suits. Phi Delta Kappan, 58, 418-420.
- Enochs, J.R., Handley, H.M., Wollenberg, J.P. (1984). Relating learning style, reading vocabulary, reading comprehension, and aptitude for learning to achievement in the self-paced and computer-assisted instructional modes. Journal of Experimental Education. 135-139.
- Farr, B.J. (1971). Individual differences in learning: predicting one's more effective learning modality. Educational Psychology, 62, 416-421.
- Ferrell, Barbara G. (1983). A factor analytic comparison of four learning style instruments. Journal of Educational Psychology, 75 (1), 33-39.
- Garner, C. William & Cole, Ernest G. (1984). A pilot study on the congruency of locus control and field dependence as related to self-esteem and academic achievement. (Report No. SP 023 943). Rutgers University, Department of Vocational Technical Education. (ERIC Document Reproduction Services, No. ED 241-492).
- Geeler, Lester M. (1979). Reliability of the learning style inventory. Psychological Reports, 44, 555-561.
- Gordon, Virginia N., Coscarelli, William C., Sears, Susan J. (1986). Comparative assessment of individual differences in learning and career decision making. Journal of College Student Personnel. 27, 233-242.
- Hammer, Allen L., (1988). Manual for the Coping Resources Inventory. Consulting Psychologist Press.
- Higher, Jeanne L., Dwinell, Patricia L. (1988). Creating profiles of high risk students. (Report No. TM 012 351). Paper presented at Annual Conference of the American College Personnel Association. (ERIC

Document Reproductive Services No. ED 298 181).

- Highhouse, Scott & Doverspike, Dennis. (1987). The validity of the learning style inventory 1985 as a predictor of cognitive style and occupational preference. Educational and Psychological Measurement, 47, 749-753.
- Hunt, D. E. (1970). A conceptual level matching model for coordinating learner characteristics with educational approaches. Interchange, 1, 3, 68-82.
- Jenkins, Jeannette. (1981). Learning styles: A pivotal point for retention and career decision guidance. (Report No. He 014 984). Paper presented at the Annual Meeting of the National Academic Advisors Association. (ERIC Document Reproduction Services, No. ED 215 624).
- Jeter, J., Chauvin, J. (1982). Individualized instruction: implications for the gifted. Roeper Review, 5, 2-3.
- Jones, V. (1985). The Influence of teacher-student introversion, achievement and similarity on teacher-student dyadic classroom interactions. Unpublished Doctoral Dissertation, University of Texas at Austin.
- Joshi, R.T. (1974). Field-dependence, anxiety and personality: perceptual and motor skills, 38, 13-28.
- Judd, Thomas P. (1985). A research based approach to students in academic difficulty: characteristics and intervention. (Report No. HE 018 512). Paper presented at the Annual Meeting of the Association for the Study of Higher Education. (ERIC Document Reproduction Services No. ED 259 631).
- Karrer, Urs. (1988). Comparison of learning style inventories (LSI). (Report No. IR 013 396). Reports Evaluative/Feasibility. (ERIC Document Reproduction Services. No. ED 296 713).
- Kobasa, S. C. (1979). Stressful life events, personality and health. Journal of Personality and Social Psychology, 37, 1, 1-11.
- Lefcourt, H. M. and Telegoli, M. S. Perceived locus of control and field dependence as predictors of cognitive activity. Journal of Consulting and Clinical Psychology. 1977, 37, 53-56.
- Maccoby, E. E., and Jacklin, C. N. The psychology of sex differences. Stanford, CA.: Stanford University Press, 1974.
- Mahllos, Marc C. (1982). Effects of teacher-student cognitive style on patterns of dyadic classroom interaction. Journal of Experimental Education. 147-156.
- Maslow, A. (1954). Motivation and personality. New York: Harper.

- Messick, S., & Associates. (1976). Individuality in learning. San Francisco, CA: Jossey-Bass.
- Messick, S. (1984). The nature of cognitive styles: problems and promise in educational practice. *Educational Psychologist*, 19(2), 59-74.
- McDonald, C. (1972). The influence of pupil liking the teachers, pupil perception of being liked, and pupil socioeconomic status on classroom behavior. Unpublished Doctoral Dissertation, University of Texas, Austin (1972).
- Pearlin, L. I., Schooler, C. (1985). The structure of coping. *Journal of Health and Social Behavior*, 19, 3, 2-21.
- Pelsma, Dennis M. (1984). The effects of learning style on satisfaction with a system of interactive guidance and instruction. (Report No: CG 017 628). Paper presented at the Annual Convention of the American Association for Counseling and Development. (ERIC Document Reproduction Services (No. ED 247 468).
- Posey, Evelyn J. (1984). Learning style inventory: implementation research. *Journal of Developmental and Remedial Research*, 7(3), 16-18.
- Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80, 1-26.
- Saracho, Olivia. (1980). The relationship between the teacher's cognitive style and their perceptions of their student's academic achievements. *Educational Research Quarterly*. 5(3), 40-49.
- Sewall, Timothy J. (1986). The measurement of learning style: A critique of four assessment tools. (Report No. CE 043 807). Reports Evaluative/Feasibility. (ERIC Document Reproduction Services, No. ED 267 247).
- Smith, Linda H., & Renquli, Joseph H. (1984). Learning style preferences: A practical approach for classroom teachers. *Theory Into Practice*, 23 (1), 44-49.
- Thelen, Herbert A. (1967). Classroom grouping for teachability. Wiley & Sons, Inc.
- Witkin, H. A. and Goodenough, D. R. (1981). Cognitive Styles: Essence and origins field dependence and field independence. New York: International University Press, Inc.
- Witkin, H. A., Oltman, R. K., Raskin, E. and Karp, S. A. (1984). Manual for the embedded figures test. Palo Alto, CA: Consulting Press Psychologists.

APPENDIX

RAW DATA

RAW DATA

Raw Data	Hammer's Coping Resources						Kolb's Learning Styles Inventory					Group Embedded Figures Test
1.	33	44	48	40	29	194	26	33	37	27	26	09
2.	32	42	38	39	33	184	27	40	44	28	26	04
3.	28	44	29	27	24	152	26	47	47	29	30	09
4.	31	38	33	29	22	153	31	41	33	33	39	11
5.	30	31	36	26	23	156	25	38	28	27	20	04
6.	35	43	38	27	26	169	19	29	39	31	14	04
7.	19	43	48	40	38	188	29	39	35	34	26	06
8.	20	28	34	27	26	135	35	45	50	34	38	06
9.	31	45	44	39	28	189	36	44	49	28	32	04
10.	31	40	42	31	27	171	33	45	53	33	37	10
11.	22	36	40	27	25	150	28	32	50	27	25	06
12.	33	49	45	25	24	176	23	32	41	25	22	17
13.	17	38	31	32	32	150	29	49	54	31	23	15
14.	23	43	41	27	24	158	26	30	37	25	25	04
15.	29	32	30	32	36	159	27	33	38	35	22	17
16.	30	34	30	34	25	153	28	34	41	27	27	04
17.	32	41	40	30	26	169	15	31	42	18	22	10
18.	23	43	41	27	24	158	29	32	37	25	23	00
19.	30	43	52	40	34	199	29	32	47	37	34	04
20.	32	41	39	31	20	163	24	33	40	26	23	06
21.	32	42	38	22	22	156	27	29	32	31	34	07
22.	28	38	50	23	28	167	35	48	58	34	33	09
23.	19	35	40	24	24	142	34	41	35	38	21	09
24.	32	39	30	34	27	162	30	40	51	27	27	06
25.	32	44	47	34	35	193	15	32	43	19	22	04
26.	32	47	50	35	28	192	21	33	39	30	25	06
27.	24	44	45	32	27	172	20	29	43	30	30	07
28.	20	36	40	32	30	158	19	31	38	30	29	06
29.	32	48	56	38	30	204	26	27	33	22	14	04
30.	32	46	42	37	26	193	35	32	41	26	20	14
31.	27	47	58	41	30	199	36	41	48	29	31	06
32.	34	51	40	36	39	200	27	36	35	33	27	04
33.	20	46	43	35	28	172	20	30	39	29	13	18
34.	25	43	47	28	29	172	30	35	39	28	27	05
35.	32	46	48	39	26	191	23	33	36	29	26	

Raw Data	Hammer's Coping Resources						Kolb's Learning Styles Inventory					Group Embedded Figures Test
36.	32	42	38	22	22	156	33	44	48	40	29	07
37.	28	38	50	23	28	167	32	42	38	39	33	09
38.	19	35	40	24	24	142	28	44	29	27	24	09
39.	32	39	30	34	27	162	31	38	33	29	22	05
40.	32	44	47	34	35	193	30	31	36	26	23	04
41.	32	47	50	35	28	192	35	43	38	27	26	06
42.	24	44	45	32	27	172	19	43	48	40	38	07
43.	20	36	40	32	30	158	20	28	34	27	26	08
44.	32	48	56	38	30	204	31	45	44	39	28	04
45.	32	46	42	37	26	193	31	40	42	31	27	09
46.	27	47	58	41	30	199	22	36	40	27	25	10
47.	34	51	40	36	39	200	33	49	45	25	24	11
48.	20	46	43	35	28	172	17	38	31	32	32	04
49.	25	43	47	28	29	172	23	43	41	27	24	04
50.	32	46	48	39	26	191	29	32	30	32	36	06
51.	26	40	47	25	19	157	30	34	30	34	25	05
52.	22	36	40	27	25	150	32	41	40	30	26	12
53.	33	49	45	25	24	176	23	43	41	27	24	03
54.	17	38	31	32	32	150	30	43	52	40	34	04
55.	23	43	41	27	24	158	32	41	39	31	20	08
56.	29	32	30	32	36	159	32	42	38	22	22	04
57.	30	34	30	34	25	153	28	38	50	23	28	09
58.	32	41	40	30	26	169	19	35	40	24	24	11
59.	23	43	41	27	24	158	32	39	30	34	27	03
60.	30	43	52	40	34	199	32	44	47	34	35	02
61.	32	41	39	31	20	163	32	47	50	35	28	04
62.	26	47	47	29	30	179	24	44	45	32	27	05
63.	31	41	33	33	39	177	20	36	40	32	30	04
64.	25	38	28	27	20	138	32	48	56	38	30	09
65.	19	29	39	31	14	132	32	46	42	37	26	07
66.	29	39	35	34	26	162	27	47	58	41	30	05
67.	35	45	50	34	38	202	34	51	40	36	39	12
68.	36	44	49	28	32	189	20	46	43	35	28	10
69.	33	45	53	33	37	206	25	43	47	28	29	04
70.	28	32	50	27	25	162	32	46	48	39	26	16
71.	23	32	41	25	22	153	26	40	47	25	19	16
72.	29	49	54	31	23	182	22	29	37	27	33	06
73.	26	30	37	25	25	143	36	36	40	29	29	04
74.	27	33	38	35	22	155	24	31	39	25	29	12
75.	28	34	41	27	27	157	15	28	39	22	20	07
76.	15	31	42	18	22	128	36	46	53	39	34	06
77.	29	32	37	25	23	146	30	31	36	21	19	09
78.	29	32	47	37	34	179	23	32	38	29	25	06
79.	24	33	40	26	23	146	29	40	39	28	29	04
80.	27	29	32	31	34	153	29	31	35	24	26	04

Raw Data	Hammer's Coping Resources						Kolb's Learning Styles Inventory					Group Embedded Figures Test
81.	35	48	58	34	33	208	29	33	39	26	27	12
82.	34	41	35	38	21	169	28	39	41	31	38	07
83.	30	40	51	27	27	175	24	26	38	25	22	06
84.	15	32	43	19	22	131	19	31	41	28	14	09
85.	21	33	39	30	25	158	18	28	36	21	31	14
86.	20	29	43	30	30	152	26	33	39	31	30	06
87.	19	31	38	30	29	157	33	40	34	39	26	04
88.	26	27	33	22	14	122	33	29	36	21	24	18
89.	35	32	41	26	20	154	30	31	38	30	26	05
90.	36	41	48	29	31	184	23	30	39	28	31	05
91.	27	36	35	33	27	158	36	31	39	26	19	05
92.	20	30	39	29	13	131	33	36	31	26	26	15
93.	30	35	39	28	27	159	26	31	38	21	26	18
94.	23	33	36	29	26	147	30	33	41	27	23	14
95.	30	31	36	21	19	137	20	33	38	31	21	12
96.	23	32	38	29	25	147	30	34	30	34	25	17
97.	29	40	39	28	29	165	32	41	40	30	26	10
98.	29	31	35	24	26	145	23	43	41	27	24	05
99.	17	33	36	18	20	124	30	43	52	40	34	05
100.	29	33	39	26	27	154	32	41	39	31	20	05

VITA

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