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The Relationship of Right Brain/Left Brain Hemispheric Dimensions of Cognitive Style Between Teachers and Principals in Northeast Tennessee

Thomas S. Little
East Tennessee State University

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The relationship of right brain/left brain hemispheric dimensions of cognitive style between teachers and principals in northeast Tennessee

Little, Thomas Steven, Ed.D.

East Tennessee State University, 1993
The Relationship of Right Brain/Left Brain Hemispheric Dimensions of Cognitive Style Between Teachers and Principals in Northeast Tennessee

A Dissertation

Presented to the Faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In Partial Fulfillment of the Requirements for the Degree Doctor of Education

by

Thomas Steven Little

December 1993
APPROVAL

This is to certify that the Graduate Committee of

Thomas Steven Little

met on the

day of ______________________ 19 9 3

The committee read and examined his dissertation, supervised his defense of it in an oral examination, and decided to recommend that his study be submitted to the Graduate Council and Associate Vice-President for Research and Dean of the Graduate School, in partial fulfillment of the requirements for the degree of Doctor of Education in Administration.

Signed on behalf of
the Graduate Council

[Signature]
Chairman, Graduate Committee

[Signature]
[Signature]
W. Hal Knight

Signed on behalf of
the Graduate Council

[Signature]
Associate Vice-President
for Research and Dean, School of Graduate Studies
ABSTRACT

EFFECT OF COGNITIVE STYLE ON

ELEMENTARY TEACHER'S EVALUATION

by

Thomas Steven Little

The Problem of this study was to determine if the cognitive style of elementary school principals affects the principal's evaluation of a teacher when there is a match or mismatch between the principal's and teacher's cognitive style.

Using the Productivity Environmental Preference Survey, the dimensions of right brain/left brain hemispheric dimensions of cognitive style were measured for the sample population. The sample population included 40 elementary school principals and 120 elementary school teachers. The 120 teachers were made up of teachers selected by each of the 40 principals as the most effective teachers in the school.

The statistical analysis of the data indicated there was not a significant correlation between the principal's right brain/left brain dimensions of cognitive style and the right brain/left brain dimensions of cognitive style of the teachers selected as the three most effective teachers in the school ($r=0.10$, $p=0.281$).
EAST TENNESSEE STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD


PRINCIPAL INVESTIGATOR: Tom S. Little

The Institutional Review Board has reviewed the above-titled project on September 15, 1993 with respect to the rights and safety of human subjects, including matters of informed consent and protection of subject confidentiality, and finds the project acceptable to the Board.

Anthony J. DeLucia
Chairman, IRB
DEDICATION

The writer dedicates this dissertation to his wife Lynn, and children Michael, Rachel, David and Joseph, who made tremendous sacrifices which enabled him to pursue his educational goals.
ACKNOWLEDGMENTS

The writer wishes to express his sincere appreciation to Dr. Donn Gresso, doctoral committee chairman, for his encouragement and assistance during the writing of this study and throughout my doctoral program. My sincere thanks is also extended to the other members of the doctoral committee, Dr. Cecil Blankenship, Dr. Robert McElrath, and Dr. Hal Knight, who have provided encouragement, guidance, and assistance to make this study possible.

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Also, a special word of appreciation to those principals and teachers who responded by returning the completed questionnaire. Without their helpful input this study would not have been possible.
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CHAPTER 1
INTRODUCTION

The current movement toward greater accountability in the field of education has resulted in major emphasis being placed on teacher evaluation. This emphasis on improved performance in the classroom is being felt at the local, state, and national levels. The foundation of the learning process in every classroom rests with the classroom teacher. To determine if the classroom teacher is performing at an acceptable standard, someone must be given the responsibility of evaluating the job performance of the teacher. In order to reach a decision regarding the teacher's performance, school administrators must rely on the judgment of the evaluator. The decision regarding a teacher's continued certification, employment, tenure status, and rewards for meritorious service is dependent on the evaluator's judgment. This is an essential issue in the field of education since the judgment of the evaluator, to a great extent, determines the quality of education a child receives. In many cases, the accuracy of this judgment is not always proven, but is
often times assumed (Medley & Cocker, 1987). When looking at teacher evaluation a determination must be made regarding how the effectiveness of the teacher will be measured. With the judgment of the evaluator being of major importance, it is vital for principals and those responsible for evaluating teachers to have a clear understanding of the evaluation process and be able to recognize qualities of a good teacher. The evaluation process must be as free as possible from preconceived notions, prejudices, and other unrelated factors. The issue of teacher evaluation becomes somewhat clouded with the realization that people do not react in the same way to all people or understand the actions of others.

The concept that all people understand and react in different ways is summarized by Henry David Thoreau in his statement "If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music which he hears, however measured or far away" (Burke & Garger, 1985, p.4).

Principals and teachers react differently to various factors in the school environment. This variation in the way people react and interact can be attributed to some degree to the concept of cognitive
style (Evans, 1982). Miller (1991) defined cognitive style as the preferred ways a learner perceives, organizes, uses, and retains knowledge. Style relates to how information is used. The term cognitive styles encompasses such areas as sensory preferences; field independence or dependence, or the importance of context in learning; impulsive versus reflective responses; and diversity versus consistency (Keefe, 1987). The terms left brain/right brain, analytic/global, successive/simultaneous, and inductive/deductive have been used interchangeably in the literature (Dunn, Sklar, Beaudry, and Bruno, 1990). The descriptions of these variables tend to parallel each other.

Research has shown that the two hemispheres of the brain are specialized for different modes of thought (Wheatley & Wheatley, 1979). The person who is analytical prefers the left brain processing style. This person learns sequentially, building details into an understanding. Before an understanding of the whole can be reached, there must be an understanding of the parts. This person often prefers quiet, bright light, a formal seating arrangement, and prefers to continue a task until it has been completed (Dunn, 1990).
The global person can only make sense of the task by looking at the whole while ignoring all details leading to the finished product. This person learns holistically. This person needs to understand the concept first and then concentrate on the details. These people are right brain processors. They often prefer learning with music, soft illumination, an informal seating design, snacks, and prefer lots of mobility. In addition, globals are not persistent (Dunn, 1990).

According to Levy (cited in Webb, 1983) the left brain is analytic in its approach, putting parts into wholes. She concluded that the right brain, by contrast, is holistic in its approach to reasoning, taking the whole and deducting from it how things are assembled.

There is a tendency for people to more closely relate to those people who possess a cognitive style which is compatible with their own style (Frank & Davis, 1982). The effective administrator uses effective communication skills and is always willing to listen to and interact with others (Laughlin, 1984). Without a clear understanding of a person's cognitive style, this open line of communication often does not exist.
Gould (1987) hypothesized that principals' ratings of teacher performance were significantly related to principal teacher life style and interpersonal need compatibility. These findings suggest that school administrators were influenced by nonperformance factors when they evaluate a teacher's performance. They suggested that the way teachers relate to their administrators may be more significant than their performance in the classroom. Mitzel (1960) identified three such factors which have been used to judge teacher effectiveness: (1) product, (2) process, and (3) presage. In the product category, teachers are judged for their ability to change student behavior. Evaluators often seek evidence of changes in students. The process category involves actual classroom behavior of both students and teachers. In the presage category, the evaluator is looking at the teacher's personality or intellectual attributes; their performance in training, knowledge, or achievement (e.g., course grades); or in-service status characteristics (e.g., tenure or years experience). The presage category is of particular interest in that Mitzel (1960) listed personality as a factor in the evaluation process. This is additional support for the contention
that other factors such as cognitive style must be considered in the
evaluation of teachers. It may be difficult if not impossible to
evaluate a teacher's performance if consideration is not given to
cognitive style.

Research shows that students, when asked to evaluate their
teacher, will rate the teacher higher if there is a match in cognitive
style between the teacher and the child (Daniel, Rasmussen,
Jackson, and Brenner, 1984). Toppins and Dunlap (1984) found that
the difference in student and teacher cognitive styles is
significantly related to student evaluation of faculty. Could these
findings also be true for the evaluation of teachers by a principal?
"Does a principal's preferred cognitive style affect the perception
the principal has of a teacher's effectiveness?" The answer to this
question is of vital importance to the field of education. It is
important for those evaluating teachers to guard against letting
their position and authority result in arbitrary judgments of
teachers or unconscious responses to those who are different in
terms of cognitive styles. The question arises, do principals
identify and understand, as well as tolerate, various teaching and
cognitive styles which are different from their own? Do principals allow teachers to "march to the beat of a different drummer," allowing them the freedom to be themselves? Principals who have developed an understanding of and appreciation for varying cognitive styles among school faculty members could find themselves in a prime position to "tap" the strengths of teachers in various administrative decisions.

This study is an attempt to determine if the cognitive style of both teacher and principal is a factor in the principal's evaluation of a teacher. Is the principal's perception of the teacher's effectiveness influenced when there is a match or mismatch of cognitive style between the principal and teacher?

Statement of the Problem

Principals are required to evaluate teachers fairly and objectively on a continuous basis using both formal and informal techniques. This process of evaluation is receiving increased attention in the field of education as the public calls for and often demands increased accountability. To meet this call from the
public, there is a need to examine current practices regarding teacher evaluation. Worthen and Sanders (1987) stated that evaluation is a basic form of human behavior, often complex and multifaceted. One dimension in this complex process is cognitive style. A clear understanding regarding the role cognitive style plays in a principal's determination of teacher effectiveness is needed. Therefore, the problem of this study was to determine if there is a relationship between the principal's cognitive style and the perception a principal has of a teacher's effectiveness.

Purpose of the Study

A clear understanding of the relationship between a principal's cognitive style and that of a teacher's is not known. Consequently the impact of cognitive style to teacher evaluation appears to be a fruitful area of investigation. Therefore the purpose of the study was to determine if there is a relationship between the principal's right brain/left brain dimensions of cognitive style and the perception a principal has of a teacher's effectiveness.
Research Question

The following research question will be addressed in this study: For teachers judged as effective by their principal, is there a positive correlation between the cognitive style of the principal and each teacher?

Hypothesis

There will be a significant ($p < .05$) positive relationship between the right brain and left brain dimensions of cognitive style of a school principal and the right brain and left brain dimensions of cognitive style of those teachers judged by the principal to be effective teachers.

Significance of the Problem

At this time in the field of education, due to a renewed focus on accountability, teacher effectiveness is of critical importance. Thompson (1975) stated as a result of the current emphasis on performance evaluation and fiscal accountability, evaluation for the purpose of providing constructive feedback to instructional staff,
school authorities, and the public has become more significant. These factors have increased the need for answers on the part of principals regarding the importance of evaluation as a critical and necessary skill. Due to the importance of accountability, principals must fairly and accurately evaluate teachers. This study is important to the field of education in that the effects of matches in cognitive styles between evaluator (principal) and evaluatee (teacher) will be tested. This study will identify whether the principal's view of teacher effectiveness is enhanced or limited, based on the cognitive style of the teacher and principal. The study will add to the current research of cognitive styles and its interrelationship between teachers and principals.

Finally, the study may raise some questions about the efficacy of current practice in teacher evaluation that have relevance beyond the specialized concerns of educators. The outcry for accountability of the public schools is directly related to the quality of teaching. Information provided in this study may be relevant to the continuing effort to enhance in-service education for teachers and the expanding concern for the improvement of teacher evaluation.
Limitations

The study has the following limitations:

1. The study is limited to responses from 38 selected elementary school principals and 106 elementary teachers in Northeast Tennessee, and, therefore, may not apply to all principals in the state or nation.

2. The data collection will be limited to the Fall of 1993, and, therefore, may not apply in future years.

3. The survey instrument utilized in the study was the sole source for obtaining data from elementary principals and teachers in Northeast Tennessee.

4. The study was limited to those dimensions measured by the Productivity Environmental Preference Survey.

5. The study is limited to teachers who are perceived by their principal as effective in the classroom and does not address those teachers perceived by the principal as ineffective.
Definition of Terms

Evaluation

Evaluation is a systematic process of determining if expectations are being met including the setting of standards, the assessment of accomplishments, the recognition of performance both above and below standards, the selection of courses of action, and the monitoring of progress (Hall, 1980). For this study the evaluation instrument approved by the Tennessee Department of Education for local evaluation in each school system will be used as the criteria to evaluate teachers.

Right Brain/Left Brain Hemispheric Style

The left hemisphere of the brain processes in a step-by-step fashion, breaking information into component parts and reorganizing it (Keefe, 1987). This processing style is also known as analytic. The right hemisphere of the brain, by contrast, specializes in perceiving spatial patterns and relationships, which can be thought of as more holistic and synthetic (Keefe, 1987). This processing style is also known as global. For the purpose of this study the elements of sound, light, persistence, intake and design as measured
by The Productivity Environmental Preference Survey developed by Price, Dunn, & Dunn (1978) were used to determine the cognitive dimensions right brain and left brain.

**Cognitive Style**

Cognitive Style is the preferred process whereby an individual receives, processes and reacts to information, ideas and concepts (Rhodes, 1975). Cognitive style as defined in this study will address the two dimensions of right brain/left brain cognitive style as determined by the Productivity Environmental Preference Survey through a measurement of the elements of sound, light, design, intake and persistence.

**Overview of Study**

The study will be organized into five chapters. The first chapter contains a brief introduction, problem statement, purpose of the study, research questions and hypothesis, significance of the study, limitations of the study, definitions of terms, and organization of the study. A review of related literature is provided in Chapter 2. Chapter 3 contains the study design and procedures. Chapter 4
contains analyses of data. The summary, conclusions, and recommendations are reported in Chapter 5.
Chapter 2

REVIEW OF RELATED LITERATURE

Introduction

The review of literature is divided into five sections. Cognitive style as a function of the brain and its relationship to learning styles is explained in the first section. Hemisphericity as it relates to right brain/left brain processing is discussed in section two. Communication patterns and the effect of cognitive style is discussed in the third section. Cognitive style, match and mismatch is dealt with in the fourth section. Teacher evaluation is discussed in the fifth section.

There was no literature found regarding the effect of the principal's cognitive style on teacher evaluation in the literature search. There is, however, literature on the effect a teacher's cognitive style has on the learning rate of students when there is a match and mismatch of cognitive style. Also, found in the literature is information regarding the effects on interpersonal attraction generally found in social interactions where cognitive style is matched and mismatched between two groups of people.

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Cognitive Style

The information processing habits which are characterized by a person's typical mode of perceiving, thinking, remembering, and problem solving can be defined as cognitive styles (Messick, 1969). Our cognitive styles continuously interact and react to the environment around us as we go through our daily lives.

Each person in the world views and interacts to the world in different ways. One person's perception of an event may be that of a change process while another may see permanence. This difference is not only in how things are seen but also what is seen. Different people approach information in different ways. While some people are methodical, others are makeshift; some are expedient, while others are exploratory. What is significant for some is insignificant for others. These differences in cognitive style result in a person using different habits of getting and using information for solving problems. This same process is used for the many vague activities of everyday life (Nester & Pulford, 1979).

Cognitive styles according to Even (1982) are "the ways in which an individual perceives, gathers, and processes information in
order to learn, solve problems, work, relate to others, choose a career, raise children, act in groups, or participate in activities" (p. 14). A review of the literature reveals a wide assortment of definitions for cognitive style, all of which indicate a lack of agreement regarding the basic concept of cognitive style (Bonham, 1988). Regardless of the definition used, the term cognitive style involves information processing as a foundation to the process. Daniels et al. (1984) noted that an individual's ability as well as capacity to process information is influenced by unlimited aspects of information processing. According to Daniel et al. (1984):

(1) different people use various means of processing information in the same situation and (2) the same person processes information differently under varying situational conditions. Different cues signal different thought levels at varying times, resulting in different processing outcomes and distinctive patterns for each individual. (p.1)

This concept is reinforced by Witkin and Goodenough (1977) who stated that cognitive style is a combination of characteristics
and ways of acting which are possessed by everyone. They further stated that cognitive style is revealed throughout perceptual and intellectual activities in highly consistent and pervasive ways.

Keefe (1988) noted that the ability to exercise direction and control over specific information processing operations is called cognitive control. When combined with other developmental, psychological, and environmental preferences, this capacity is called learning style. A person who understands his own particular learning style is able to process information more effectively. This is additionally true for the person who is able to exercise active control over his/her cognitive style. This person is better adjusted, has more positive attitudes toward learning, and is able to achieve at higher levels than a person who does not possess similar skills and understanding (Keefe, 1988).

A knowledge of learning style, then, is important to administrators and teachers who want to fashion more supportive learning environments in their schools. Rita and Kenneth Dunn (1978) view learning styles as "the way individuals concentrate on, absorb, and retain new information or skills" (p. 3). Their definition
leads one to believe that concentration is closely related to time-on-task or learning time; and further indicates that absorbing information and retaining it is somewhat related to what educators strive for in a school setting and is a vital link to effective communication.

Keefe and Languis (1985) present a more comprehensive definition of learning style. They suggest that learning style is a composite of cognitive, affective, and physiological factors that determine how we perceive, interact with, and respond to our environment. The elements in these three domains serve as controls and basic orientations by which we learn and process information. A person must possess and be able to apply specific cognitive skills to the information presented in order to achieve success at processing information. This concept is demonstrated in the pattern of behavior and performance selected by an individual for approaching all activities. The basis for this approach lies in the structure of one's personality which both molds and is molded by human development and the learning experiences of home, school, and society (Keefe & Languis, 1985).
Cognition is a major component of learning style and plays a significant role in determining the success of a person's ability to process information. Cognition refers to the various operational phases through which new information passes as the mind makes decisions about the ways that it will be represented in the person's memory.

Cognitive styles as theorized by Bieri, are fixed patterns for viewing the world. Their purposes are to select information to which the person will attend, to organize and integrate what is attended to, to moderate and control affective aspects of personality, and to adapt to situational constraints imposed by a task (cited in Bonham, 1988).

The term "cognitive style" was coined by Allport in 1937 to refer to a quality of living and adapting influenced by distinctive personality types. In the 1940s Thurstone and later Guilford identified factors of perceptual speed and flexibility (through the techniques of factor analysis) which they believed were related to personality (Keefe, 1987). Extensive programs of cognitive style research have been carried out by three major groups: the Fels
Institute group (conceptual style and cognitive tempo), the Menninger Foundation group (cognitive controls), and the Brooklyn group (field independence/dependence) (Bonham, 1988). At the Fels Institute, Kagan and his colleagues focused on analytic styles of thinking and problem solving. Research on analytic and non-analytic modes led to the identification of a "reflection-impulsivity" dimension. The reflective person tends to analyze and thoroughly differentiate a complex concept; an impulsive person is inclined to make quick and often erroneous responses. Asch and Witkin at Brooklyn College worked with the bi-polar trait of "field dependence/independence," the ability of a person to identify a figure against a background field. In time, Witkin and his associates broadened this notion to include "analytic-global" functions and the concept of "psychological differentiation" (Keefe, 1987)

In summary, the two dimensions of cognitive styles are process rather than content variables. The left brain processor views the world in one way, while the right brain processor views the world in a different way. In each case, their view of the world goes hand in hand with the way they process information about it.
For the person who is a left brain processor, the world is orderly, things are neat and clear. Their ideas are well defined, certain, black, and white. The right brain processor's view of the world is fuzzy. Everything in it is ambiguous and subject to a hundred different interpretations (Stacks & Andersen, 1987).

**Hemisphericity**

Hemisphericity as defined by Torrance (1982) is "the tendency for a person to rely more on one than the other cerebral hemisphere in processing information" (p.29). Gadzella & Kneipp (1990) reported two major characteristics of hemisphericity; first, the two hemispheres differ in their modes of processing information and second, individuals differ in their preferences for processing information. Research (Brandshaw & Nettleton, 1981) indicated that the left hemisphere seems to specialize in logical, sequential processing of information and in dealing with verbal, analytical, temporal and digital materials. The right cerebral hemisphere processes information non-linearly and holistically and deals simultaneously with different variables and information.

The following statement by Robert Ornstein (1973), Associate
Professor of Medical Pathology at the University of California, explains the key aspects of the distinction between the left and right hemispheres of the brain:

The cerebral cortex of the brain is divided into two hemispheres, joined by a large bundle of interconnecting fibers called the corpus callosum. The right side of the cortex primarily controls the left side of the body, and the left side of the cortex largely controls the right side of the body. The structure and function of these two "half-brains" influences the two modes of consciousness. The left hemisphere is predominantly involved with analytic thinking, especially language and logic. This hemisphere seems to process information sequentially, which is necessary for logical thought since logic depends on sequence and order. The right hemisphere, by contrast, appears to be primarily responsible for our orientation in space, artistic talents, bodily awareness, and recognition of faces. It processes information more diffusely than the left hemisphere does, and integrates material in a simultaneous, rather than linear fashion. (p. 88)

In general, the left hemisphere appears to process information in a logical-analytical fashion. The right hemisphere processes information synthetically, that is, the right hemisphere seems to intuit holistic patterns (Myers, 1982).
Communication Patterns

Information processing is the center of effective communication. The sending and receiving of messages depends on drawing forth information, analyzing and synthesizing it, coding it, storing and retrieving it. There is significant evidence (Thompson, 1975; Dunn, 1989; Ingham, 1991) suggesting that persons of the same cognitive style use similar modes of communication and that this, in turn, facilitates understanding, with positive consequences for their ability to get along with each other.

All communication is information that must pass through the individual's information processing system to be learned, retained, and recalled. Information is received from the external environment through the senses (perception) and stored briefly in perceptual memory. Then the mind makes a decision regarding what to do with a given message. It may reject the information, memorize it for short-term recall, transform it to conform to prior messages, or learn it by integrating, assimilating, differentiating, or associating it in working and long-term memory. The end result is a changed cognitive structure for the individual.
Cognitive styles are controls that are essential to this information processing system. These cognitive controls, in turn, are influenced by various motivational biases and environmental preferences that the individual possesses. A match in cognitive style facilitates social interaction if there is a shared mode of communication, an atmosphere of cooperation and similar personality characteristics (Witkin, 1976).

Similarity in modes of communication was one of three possible reasons listed by Witkin and Goodenough (1977) for matching students and teachers on cognitive style. They felt this match might produce beneficial effects during student and teacher interaction. Based on this conclusion, a second possibility could exist in that increased communication might also exist between a principal and teachers who have similar cognitive styles.

Stasz, Shavelson, Cox, and Moore (1976) found that teachers and students who were matched for cognitive style have similar cognitive structures. This similarity of cognitive structure may lead to more effective communication between students and teachers who were matched for cognitive style.
Wright (1977) reported that recipients of written messages perceived the producers of the messages to be more reliable when both the receiver and the producer of the message are matched on cognitive style. A study conducted by Frank and Davis (1982) which involved teachers and students, found that individuals are better transmitters and receivers of information when they are matched with a person of similar cognitive style.

From relevant research noted in this section, it would appear that similarity of cognitive structure may lead to more effective communication between students and teachers who are matched for cognitive style. Based on this assumption, it could follow that the same similarity of cognitive structure may lead to more effective communication between teachers and principals.

Cognitive Style Match and Mismatch

Witkin, Moore, Goodenough, and Cox (1979) have shown that students' cognitive styles interact with teachers' cognitive styles, affecting how teachers instruct and how students learn. If cognitive style influences the learning process, a match or mismatch, as Witkin (1973) suggest, may influence learning
outcomes; that is matching students' and teachers' cognitive styles may facilitate student learning communication and understanding.

This concept was reinforced by Paradise and Block (1984) in their research which provides support for the contention that matching students and their teachers on cognitive style can affect students' academic achievement. Students perform better when paired with teachers of like cognitive style. Participants in the study came from a large, urban, parochial school system in which students would have the same teacher for reading and mathematics. The student sample contained 100 male and 100 female fourth graders (66 black and 134 white). The teacher sample consisted of the 20 fourth grade teachers of the participating students. All teachers, with an average of approximately four years of teaching experience were female. There were six black teachers and 14 white teachers in the sample group. The findings of this study are consistent with Packer and Bain (1978) who found matching effects on objective test performance.

Results of a study by Witkin (1976) indicated that instructors and students who are of similar cognitive style describe each other
in positive terms. DiStefano (1970) in a study of teacher-student interaction used teachers and students as subjects in a regular classroom situation. He found that, in their responses to several questionnaires, teachers and students matched to each other in style viewed one another positively, whereas teachers and students who were mismatched viewed each other negatively. The positive and negative evaluations included not only personal characteristics, but cognitive characteristics as well.

Witkin (1976) found that teachers differ in their cognitive styles, in their perceptions of students, and in their expectations about students. Cognitive similarity and differences between teacher and student influence the learning process as prior reviews of research have indicated (Andrews, 1991; Ingham, 1991).

Cognitive style influences the way in which information from one's social environment is perceived and processed and in turn influences people's social orientation. This being true, one would expect that cognitive style would have an impact upon social interaction and potentially affect the quality of these relationships (Sabatelli, 1982).
**Teacher Evaluation**

In recent years, a rising chorus of demands from policymakers at all levels have called for the evaluation of America's teachers. Although teacher evaluation is a major issue of concern today, it is not a new topic of interest. Three factors are primarily responsible for the increased emphasis on teacher evaluation: (1) the growth of the public issue of accountability of the educational system, (2) the intrusion of the courts into the matters of student learning and teacher competencies, and (3) the advent of negotiated teacher contracts and its effects on the interactions between teachers and administrators. Many factors which come into play during the teacher evaluation process are becoming increasingly vital to all those involved. These demands have typically been translated into legislatively enacted statewide teacher evaluation requirements or board-authorized procedures at the district or state level (Bickers, 1988). Meeth (1976) stated: "Most evaluation of teaching has resulted . . . in unfair and inconclusive distinctions among teachers without establishing reliable or valid relationships between what teachers do and what students learn" (p. 46).
All across the country, in local school districts and at the state level, people are rethinking the ways in which teachers are evaluated and rewarded. The questions are being asked: What is good teaching? How can we define outstanding teaching? Can we measure excellence in teaching? Questions of this type have been asked for centuries and they now embody a key issue in the minds of our politicians and civic leaders. The process should reflect criteria from both research on effective teaching and expert opinion. Although it is desirable to have ratings on all criteria done as objectively as possible, some criteria will require subjective judgments by the evaluator (Elliott, 1985). Rugg (1922) reported as the halo effect the powerful effect that the rater's overall impression of the person being rated has on ratings on individual characteristics. This effect insured that the teacher who looked most effective to the rater was the one who got the highest rating. Doubts have existed over the years regarding the judgment of teacher performance by principals. These doubts have resulted in the validity of teacher ratings being questioned as well as the accuracy of principals' judgments of teacher performance (Medley &
Coker, 1987).

At the center of the evaluation process is the issue of fairness. Fairness refers to the extent to which the information adequately represents both the criteria used to evaluate instruction and the complexity of the teaching activities. If the information to be collected does not accurately reflect the activities of the instructor or student learning, the information is incomplete.

Teacher evaluation practices are now improving, however, they generally fail to measure up to the current expectations of society and will surely fall short of future needs unless changed in substantial ways. Data gathering for evaluation of teachers is often superficial and subjective. McGreal (1983) reviewed the literature on teacher evaluation criteria and devised the following list of commonly cited traits or qualities: (1) intelligence, (2) education, (3) scholarship, (4) age and experience, (5) knowledge of subject matter, and (6) professional information and attitudes. These same traits are still found today in many evaluation systems. Analytical procedures are largely lacking, in a formal sense, and instead global, judgmental, simplistic expressions of opinion are used. It would be
useful to consider ways in which such unsound evaluation endeavors could serve some useful purposes (Harris, 1986).

The call for renewed emphasis on teacher evaluation, however, should not be viewed as a request for "more of the same" (Stanley & Popham, 1988). All too often, teacher evaluation has been ritualistic rather than rigorous. The evaluation process has failed to yield benefits consistent with the cost of the process. As a result of this ritualistic evaluation process, proponents of tough-minded teacher evaluation are calling for innovative, bold evaluative schemes, and not merely warmed-over appraisal approaches from the past (Bickers, 1988).

Administrators, especially principals who are on the front line in appraising and evaluating teachers, need additional tools to improve their performance in the area of evaluation. (Sapone, 1981). Medley and Coker (1987) have cited research conducted over a twenty five year period as showing that almost all educational personnel decisions are based on judgments which are only slightly more accurate than they would be if they were based on pure chance.

A thorough teacher evaluation system performs three tasks.
First, it identifies teachers who are not performing up to the school district's standards, so they can be given remediation or terminated.

Second, it offers constructive feedback and assistance to the majority of teachers who do meet the performance criteria so they can continue their professional growth. Third, it identifies those teachers whose performance is outstanding so they can be appropriately rewarded. Such a system satisfies the major aims of teacher evaluation, ensuring a competent faculty while facilitating the continued improvement of teachers (Bickers, 1988).

To determine how school districts decide upon criteria used in teacher evaluation, Bickers (1988) surveyed school districts asking what criteria were used to evaluate their teachers, and how the criteria were derived. Approximately three-quarters (75.5 percent of responding districts) stated a checklist of instructional and professional behaviors played a "major part" in evaluations. About 63 percent report that the extent to which a teacher achieves goals/objectives was a "major part" of evaluation criteria.

Assessment of teaching, like assessment of most other human services, is subject to both error and bias. In a study conducted by
Medley and Coker (1987) related to the accuracy of principals' judgments of teacher performance as predictors of teacher effectiveness, the 46 principals surveyed indicated a low accuracy with the average principal's judgments of the performance of the teachers he or she supervises. These findings indicate that it is far more difficult to judge teacher performance than it is generally realized. The study provides a conclusion that a principal's judgment must be based on observations, formal and informal, of teachers' and students' behaviors while the teaching and learning is taking place, and on comparisons between those behaviors and the principal's own conception or model of effective teacher behavior. Teaching, even though a public profession, is a very personal one. Personality and performance are so integrated that they are essentially inseparable (Andrews, 1988). Teacher evaluation is a professional, yet highly personal, undertaking for both teachers and administrators (Duke & Stiggins 1986).

Evaluation involves making judgments (Raths and Preskill, 1982). Inevitably, someone must take the information available and apply a set of values to that information to make a judgment.
Evaluation is ultimately a subjective undertaking. Evaluation is more than description; it requires judgments and interpretation. Evaluation is fundamentally a process - a practical, social, political, subjective, and human undertaking - as well as a technical, analytical procedure.

Goodman (1988) lists factors such as: (1) a warm, caring personality, (2) an ability to get along with other members of the staff and (3) a keen interest in the welfare of others as attributes which need to be reflected in the evaluation of teachers. Faculty evaluation is a complex process, and no single source of data is adequate.

Teacher evaluation in current practice is full of problems and struggles for change. The importance of evaluation gives urgency to improvements in teacher evaluation as demands for instructional accountability grow (Harris, 1986).

What will faculty evaluation be like in the year 2000? What constitutes better faculty evaluation? Seldin (1984) stated that faculty evaluation should be systematic (organized, standardized), comprehensive (taking into account the wide range of
responsibilities for each individual), public (with known criteria and procedures), and flexible (designed to accommodate change and take advantage of the individuals' talents and capabilities as well as to serve the needs of the academic unit).

In most instances, the ultimate test in determining the effectiveness of an evaluation system is the quality of what occurs at the bottom of the system, the relationship that exists between the supervisor and the teacher when they meet one to one (McGreal, 1983). There is no perfect evaluation program, nor can there be. Such a system will probably always remain beyond reach.

**SUMMARY**

In the field of education today, educators and administrators are faced with a mandate from the public for more accountability for what takes place in the classroom. This call for increased accountability places more emphasis on teacher evaluation. This process should be fair, impartial, and accurate. To achieve this desired outcome, the principal must take into account all factors which could influence the way teachers are evaluated.

Current research indicates that one such factor could be
cognitive style. Research conducted by noted experts in the field of
cognitive style indicate that the match or mismatch of cognitive
style could play a role not only in how people view and react to one
another but also in the way people communicate. Research reports
such as Stasz et al. (1976) indicated that more effective
communication could result when there is a match in cognitive
style.

Experts such as, Daniel (1984), Dunn (1990), Goodenough
(1976), Keefe (1987), and others have reported the importance of
matching cognitive style between teachers and students. Witkins
(1976) indicated that people who are matched for cognitive style
view each other in positive terms. Cognitive style influences the
way information is processed which in turn influences social
orientation.

This review of literature indicates a positive relationship
when students and teachers are matched for cognitive styles.
Evidence is also present that communication and social orientation
are affected in a positive way when there is a match in cognitive
style.
CHAPTER 3

METHODS AND PROCEDURES

This chapter describes the procedures followed in conducting the study. It includes the population identification, sample selection, and procedures, followed by a description of the instrument used in gathering the data. The research design and an explanation of the methodology of data analysis conclude this chapter.

Population and Sample

The principals included in this study were randomly selected elementary school principals in Northeast Tennessee. The Tennessee Directory of Public Schools 1993-94 was used to identify 40 principals to be included in the study. The principals selected represented schools in the following systems: Carter County, Cocke County, Greene County, Hamblen County, Hancock County, Hawkins County, Johnson County, Sullivan County, Unicoi County, Washington County, Bristol City, Elizabethton City, Greeneville City, Johnson City, Kingsport City and Newport City. Borg and Gall (1989) stated
that in correlational research it is generally desirable to have a minimum of 30 cases. Best (1981) stated that "samples of 30 or more are to be considered large samples and those with fewer than 30, small samples" (p. 14). He further stated that "it is approximately at this sample size of 30 that the magnitude of student's *t* critical values for small samples approach the *z* critical values of the normal probability table for large samples" (p. 14).

Each of the 40 identified principals selected three teachers from his or her faculty. The selected teachers were those perceived by the principal to be the most effective teachers in the classroom. The criteria for effectiveness was based on both formal and informal evaluations by the principal utilizing criteria and procedures approved by the Tennessee Department of Education as outlined in the approved model for local evaluation. The researcher generalized the results found in this study to elementary principals in Northeast Tennessee.
Sampling Method

After the population was identified, a sample was drawn of 40 randomly selected principals in Northeast Tennessee. The population was identified and listed in alphabetical order. Numbers were assigned to each principal in the population and a sample drawn using a table of random numbers (Borg & Gall, 1989).

The sample also included 120 teachers. Each principal selected three teachers who were perceived by the principal to be the most effective in the classroom. Each of the principals and the selected teachers completed the Productivity Environmental Preference Survey for Adults and returned the completed survey to the researcher. Upon receipt and scoring of the completed surveys the researcher correlated each of the three teacher's mean right brain and mean left brain scores with that teacher's principal's mean right brain and mean left brain scores.

A mean right brain score as well as a mean left brain score was computed using the elements of sound, light, design, persistence and intake, after converting the elements of sound and light to the right side of the scale using this formula: If the element's score is less
than 50 then the converted element's score would equal 50 minus
the unconverted score plus 50. The reverse procedure was used if
the score was above 50. A score of 50 remained unchanged. This
allowed all five elements to be measured on the same side of the
scale, allowing a mean to be computed.

**Measurement of Variables**

Right Brain/ Left Brain characteristics of each principal and
teacher were measured using the *Productivity Environmental
Preference Survey*. This survey was designed by Price, Dunn, and
Dunn in 1981 to identify 20 different elements adults prefer in
their learning environment.

Extensive research employing the *Productivity Environmental
Preference Survey* has made it the most widely documented
assessment instrument for the identification of learning styles
(DeBello, 1989). A review by Curry (1987) of 21 different
learning/cognitive style models through psychometric analyses
reported that the Dunn and Dunn model was among the highest in
reliability and validity ratings. In a two year study of instruments,
Ohio State University's National Center for Research in Vocational
Education reported that the Productivity Environmental Preference Survey had "impressive reliability, face, and construct validity" (Kirby, 1979, p.72).

Since 1979, the Productivity Environmental Preference Survey has evidenced extremely high predictive validity. DeBello (1989) reported that "the award winning experimental and correlational research with the instrument conducted at more than 45 universities distinguishes the model's research base" (p. 5). Keefe (1986) identified the Dunns' model as being practitioner oriented and the most widely used assessment instrument.

The 20 elements in the survey are grouped into the following four areas: environmental (sound, light, temperature and design); emotional (motivation, persistence, responsibility, and structure or flexibility); sociological needs (colleague-oriented, authority-oriented, and/or combined ways); physical needs (perceptual preferences, time of day, intake, and mobility). Questions relating to the 20 elements are answered on the Likert scale; strongly agree is a five and strongly disagree is a one. The estimated time to complete the survey is 30 minutes.
After the survey was completed a profile was developed for each principal and teacher. Each profile contained the individual's identification number, raw score, and standard score. The standard score ranges from 20 to 80 with a mean of 50 and a standard deviation of 10. Individuals having a standard score of 40 or less or 60 or more find that variable very important when they study or work. Individuals having scores that fall between 40 and 60 show less preference with respect to how important that variable is to them.

Of the 20 elements tested, the elements of sound, light, design, persistence and intake were studied to determine the cognitive style of the sample population. These elements were selected based on research which confirms the relationship between learning style and hemispheric preference. One such study conducted at a midwestern school district sought to determine the relationship between selected elements of learning style and hemispheric preference (Dunn, Cavanaugh, Eberle & Zenhausern 1982). Each student completed Dunn, Dunn, and Price's Learning Style Inventory and Zenhausern's Differential Hemispheric...
**Activation Test.** A review of the findings of this study suggested that a statistically significant correspondence exists between certain elements of learning style and hemispheric preference.

A study by Bruno (1988) of 387 students in a New York City technical college sought to show the relationships between students' diagnosed hemisphericity and their learning style preference. The study found a significant difference between students' diagnosed hemisphericity and their learning style preferences.

In a Review of the Bruno (1988) study by Dunn, Sklar, Beaudry, & Bruno (1990), a relationship was reported between hemisphericity and learning style. The relationship showed that "simultaneous learners tended to require sound, tactile and kinesthetic learning, intake, and frequent mobility while studying, whereas successive learners preferred bright light and a formal design" (p. 287). Specifically, simultaneous processors revealed a statistically significant correspondence (p < .0001) between selected learning style elements and their hemisphericity preference. These findings confirmed those findings of Dunn,
Cavanaugh, Eberle, and Zenhausern (1982) in their study of high school students.

Results of these studies suggest that a relationship exists between being strongly right brain and needing low light, sound when learning, an informal design, intake and not being persistent. The relationship was also shown between being strongly left brain and needing bright light, quiet while learning, a formal design, no intake and being persistent (Bruno, 1988; Zenhausern, Dunn, Cavanaugh, & Eberle, 1982).

**Research Design**

This study is a correlational study, utilizing the questionnaire method of collecting data. Data was collected in 20 areas on each of two groups of subjects. The **Productivity Environmental Preference Survey** was completed by each of the 40 principals who were randomly selected. Of the 20 elements tested, five were studied. These five stimuli which provide an indication of the principal's or teacher's preference for right brain hemispheric processing style or left brain hemispheric processing style are
sound, light, design, intake and persistence. Each of the 40 principals were asked to identify the three teachers on their faculty whom they perceived to be the most effective in the classroom. Each of these teachers then completed the Productivity Environmental Preference Survey. A coefficient of correlation was used to determine the level of the relationship of the mean scores for the five areas between each principal and each of the three identified teachers. The purpose in studying the five areas of light, sound, design, intake and persistence was to determine if there was a correlation between the principal's and teacher's preference for right brain or left brain hemispheric style. The correlational study was guided by one hypothesis which stated an expected relationship between two variables. The two variables being studied are the principal's and teacher's preference for right brain or left brain hemispheric style. Following the analysis of the five stimuli, a second purpose of the study involved a correlation between the other 15 stimuli which were tested. The purpose of this analysis was to determine if there are common elements between the principal and teachers in the 15 stimuli.
Materials and Procedures

The first step completed in this study was to conduct a review of literature to ascertain whether sufficient research data could be located to support this study. Once the review of literature was completed, approval to conduct the investigation was obtained from the Institutional Review Board of East Tennessee State University. In addition, permission was obtained to use the Productivity Environmental Preference Survey.

The Productivity Environmental Preference Survey is a comprehensive approach to identify an adult's individual learning style (Price et al 1991). To develop the survey those variables that appeared to describe the way individuals prefer to learn or work were identified. As a means to assess individual performances in each of the various areas, items were designed and the responses to those items were analyzed using both content and factor analysis.

Seventy-five percent of the reliabilities for the areas tested on the Productivity Environmental Preference Survey are equal to or greater than .60. The areas with the highest reliabilities included: sound, light, temperature, design, persistence, responsibility,
structure, learning alone/peer oriented, auditory, visual, intake, learning/working in evening/morning, late morning, afternoon, and mobility. The areas with low reliabilities include: motivation, authority figures present, learning in several ways, tactile, and kinesthetic (Price et al 1991).

After the random selection of principals was completed, a packet of information was sent to each of the identified principals. In the packet of information was a cover letter to the principal requesting the principal’s assistance in the study and an explanation of the study. Additionally, a copy of the Productivity Environmental Preference Survey for the principal to complete was included in each packet. The principal’s survey contained a code marked on the survey to assist the researcher in knowing which surveys were returned. The code for each principal was a letter of the alphabet or a combination of letters.

As part of the cover letter, the principal was asked to select three teachers on the school’s faculty who were perceived by him/her to be the most effective in the classroom. The criteria for effectiveness was based on both formal and informal evaluation
techniques as measured by the local model for teacher evaluation approved by the Tennessee Department of Education. The principal then gave the three teachers a packet which contained a cover letter explaining the study and requesting the teacher's assistance. Following the instructions in the cover letter, each teacher completed the Productivity Environmental Preference Survey found in this packet. The survey was returned to the researcher in the stamped envelope provided in the packet. Each of the three teachers' surveys also contained a code consisting of the principal's code and one of three letters of the alphabet from B to D. For example, a school would be coded AB and the principal would be coded "ABA". The three identified teachers on the faculty were then coded either ABB, ABC, or ABD. A final instruction to the principal was to return his/her survey to the researcher. Follow-up contacts were made first by mail then a second time by telephone to those principals and teachers who did not return completed surveys.

**Data Analysis**

The collection and analysis of data in the study was for the purpose of determining relationships between the principal's right
brain/left brain dimension of cognitive style and the right brain/left brain dimension of cognitive style of those teachers judged to be effective in the classroom. The Productivity Environmental Preference Surveys given to each principal and teacher were machine scored with the result being that a determination was made regarding whether the respondent exhibited the characteristics of right brain or left brain hemispheric preference. To test the stated hypothesis a Pearson's r correlation of coefficient was used.
The purpose of this study was to determine if there was a relationship between the principal's right brain/left brain hemispheric dimensions of cognitive style and the teacher's right brain/left brain hemispheric dimensions of cognitive style when that teacher is judged effective by the principal. The study sought to determine if a relationship existed between the right brain/left brain hemispheric dimensions of cognitive style and teacher evaluation through a correlational research design.

One hundred and sixty Productivity Environmental Preference Surveys were mailed. Forty were sent to randomly selected elementary school principals in Northeast Tennessee. These principals were selected using the Tennessee Directory of Public Schools 1993-94. Once the list of principals in Northeast Tennessee was completed, a number was assigned to each principal. Using a table of random numbers located in Borg and Gall (1989) the sample group was identified. Each of the forty principals were asked to select the three teachers on their faculty who they...
perceived to be the most effective in the classroom based on both formal and informal evaluations by the principal. Based on each of the 40 principals selecting three teachers, a total of 120 teachers were identified. A second mailing to non-respondents, telephone calls, and postcards were used as follow-ups. The total number of surveys returned was 142 or 89 percent of the 160 sent to principals and teachers. Of the 40 surveys sent to principals 38 or 95 percent were returned. Of the 120 surveys given to teachers 106 or 88 percent were returned. A total of 38 schools were represented by the 106 surveys returned by teachers. For the two schools where principals did not respond to the survey, there were no teachers responding to the survey.

Using the preidentified code found on each survey, the surveys were grouped with the principal's survey being placed with those surveys being returned from one or more of the three identified teachers. At least two teacher surveys of the three identified teachers were returned for each of the 38 principals who returned a survey. For the purpose of correlational analysis each principal's survey was correlated with each of that principal's teachers
responding to the survey.

The answer forms were mailed to Price Systems Inc. to be scanned. Data was compiled based on the responses given by principals and teachers to a set of 100 questions on the survey. The principals and teachers indicated their answers to the questions by ranking their responses either: strongly disagree, disagree, undecided, agree or strongly agree.

The results and findings obtained from the data gathered in this study are presented in this chapter. Data was gathered and treated to test the hypothesis set forth in Chapter 1. This hypothesis was tested to determine whether a significant relationship existed between the right brain/left brain hemispheric dimensions of cognitive style of a school principal and the right brain/left brain hemispheric dimensions of cognitive style of those teachers judged by the principal to be the most effective teachers. The results of the sampling method used in the research is described in section one. The data for the tables were tabulated from the responses of principals and teachers to the 100 item survey completed by each principal and teacher.
Findings

No significant relationship was found between principal's right brain/left brain hemispheric dimensions of cognitive style score and the teacher's right brain/left brain hemispheric dimensions of cognitive style ($r=.10$, $p=.281$). Therefore we reject the hypothesis that there is a significant ($p<.05$) relationship between the right brain/left brain hemispheric dimensions of cognitive style of a school principal and the right brain/left brain hemispheric dimensions of cognitive style of those teachers judged by the principal to be effective teachers.

Of the 114 teachers responding 49 were found to be left brain processors with 57 scoring in the right brain processing range. There were eight teachers who had data missing. The mean right brain/left brain hemispheric processing score for teachers was 50.751 (see Table 1) with a mode of 47.800 and a median of 51.000. The standard deviation was 5.384 and a variance of 28.987. Of the 38 principals responding, 16 were found to be left brain processors with 22 scoring in the right brain processing area. The mean right brain/left brain hemispheric processing score for principals was
<table>
<thead>
<tr>
<th>Element</th>
<th>Teacher's mean</th>
<th>Principal's mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound</td>
<td>53</td>
<td>54</td>
</tr>
<tr>
<td>Light</td>
<td>53</td>
<td>52</td>
</tr>
<tr>
<td>Temperature</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>Design</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Motivation</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Persistent</td>
<td>53</td>
<td>52</td>
</tr>
<tr>
<td>Responsible</td>
<td>51</td>
<td>50</td>
</tr>
<tr>
<td>Structure</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Alone/Peers</td>
<td>52</td>
<td>53</td>
</tr>
<tr>
<td>Authority Figures</td>
<td>54</td>
<td>55</td>
</tr>
<tr>
<td>Several Ways</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Auditory</td>
<td>50</td>
<td>52</td>
</tr>
<tr>
<td>Visual</td>
<td>50</td>
<td>49</td>
</tr>
<tr>
<td>Tactile</td>
<td>54</td>
<td>56</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>Intake</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Time of Day</td>
<td>55</td>
<td>53</td>
</tr>
<tr>
<td>Late Morning</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Afternoon</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>Mobility</td>
<td>52</td>
<td>55</td>
</tr>
</tbody>
</table>
50.200 with a mode of 53.600 and a median of 51.300. The standard deviation was 5.878 and a variance of 34.549 (see Table 2).

The correlation of the 20 elements tested found there was not a correlation between principals and teachers across the same element. A correlation (-.2579) was found between principals who prefers structure and teachers who are visual learners. A correlation (.2865) was also found between principals who are tactile learner and teachers who prefer mobility. A relationship of .2569 was found between teachers who prefer formal design and principals who prefer intake.

There was not a correlation between left brain/right brain hemispheric processing scores between teachers and principals when scores were averaged together. A correlation between each of the 38 principals and the individual teachers they selected showed there was not a relationship between the dimensions of right brain/left brain hemispheric cognitive style.

Summary

The purpose of this study was to investigate the role cognitive
### TABLE 2

**Standard Deviations Scores Of Principals and Teachers**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Principal's Std dev</th>
<th>Teacher's Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound</td>
<td>7.191</td>
<td>9.406</td>
</tr>
<tr>
<td>Light</td>
<td>11.092</td>
<td>9.789</td>
</tr>
<tr>
<td>Temperature</td>
<td>9.655</td>
<td>8.755</td>
</tr>
<tr>
<td>Design</td>
<td>9.803</td>
<td>9.306</td>
</tr>
<tr>
<td>Motivation</td>
<td>5.800</td>
<td>6.302</td>
</tr>
<tr>
<td>Persistent</td>
<td>6.451</td>
<td>6.920</td>
</tr>
<tr>
<td>Responsible</td>
<td>9.854</td>
<td>8.470</td>
</tr>
<tr>
<td>Structure</td>
<td>9.354</td>
<td>8.596</td>
</tr>
<tr>
<td>Alone/Peers</td>
<td>10.626</td>
<td>11.180</td>
</tr>
<tr>
<td>Authority Figures</td>
<td>8.317</td>
<td>9.371</td>
</tr>
<tr>
<td>Several Ways</td>
<td>7.730</td>
<td>7.899</td>
</tr>
<tr>
<td>Auditory</td>
<td>8.780</td>
<td>8.766</td>
</tr>
<tr>
<td>Visual</td>
<td>8.600</td>
<td>7.866</td>
</tr>
<tr>
<td>Tactile</td>
<td>7.536</td>
<td>9.355</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>5.864</td>
<td>5.496</td>
</tr>
<tr>
<td>Intake</td>
<td>10.488</td>
<td>9.915</td>
</tr>
<tr>
<td>Time of Day</td>
<td>8.344</td>
<td>9.372</td>
</tr>
<tr>
<td>Late Morning</td>
<td>7.877</td>
<td>8.175</td>
</tr>
<tr>
<td>Afternoon</td>
<td>10.392</td>
<td>9.926</td>
</tr>
<tr>
<td>Mobility</td>
<td>8.125</td>
<td>7.824</td>
</tr>
</tbody>
</table>
style plays in the evaluation of teachers by principals when there is a match or mismatch in cognitive style. To determine the cognitive style of those principals and teachers in the sample, the Productivity Environmental Preference Survey was used. A total of 142 responses from principals and teachers in Northeast Tennessee public schools was utilized in the study. This return represented 89 percent of the surveys mailed.

The hypothesis stated in Chapter 1 was tested using a Pearson's r correlation of coefficient. No significant relationship existed between teachers and principals in their left brain/right brain hemispheric dimensions of cognitive style. This hypothesis was rejected.
Chapter 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The problem of this study was to determine if a relationship exists between teachers' and principals' left brain/right brain hemispheric dimensions of cognitive style when the principal rates the teacher effective.

Five dimensions of the Productivity Environmental Preference Survey: sound, light, design, persistence and intake were selected to assess whether the selected principals and teachers were right brain hemispheric processors or left brain processors. A descriptive analysis was also completed to determine patterns between the dimensions of: temperature, motivation, persistence, responsibility, structure, colleague-oriented, authority-oriented, perceptual preferences, time of day and mobility.

A population of elementary principals in Northeast Tennessee was identified by using the 1993-94 Tennessee Directory of Public Schools. A sample was drawn using a table of random numbers (Borg & Gall, 1989). Each principal in the sample group identified three
teachers in their school who they perceived to be the most effective in the classroom. The determination of effectiveness was based on the both formal and informal evaluations completed by the principal using a state approved model for local evaluation. A total of 38 principals and 106 teachers completed the survey for the correlational study. The study was limited to the selection of a random sample of 40 elementary principals from the 120 principals in Northeast Tennessee. The study was also limited to those dimensions measured by the Productivity Environmental Preference Survey.

Findings

From the results of the data analysis and interpretation, the following findings are presented. Findings are reported as they pertain to the hypothesis originally formulated.

For the stated Hypothesis there was not a significant correlation between the principal's left brain/right brain dimensions of cognitive style and the cognitive style of the teachers selected as the three most effective teachers in the school.
Conclusions

The following conclusions were warranted by the analyses of data reported in Chapter 4.

1. The principal’s left brain/right brain dimensions of cognitive style and the teacher’s left brain/right brain dimensions of cognitive style are not related.

2. The data indicated principals are able to address the vastly different needs of those teachers who were judged effective teachers. For example, teachers who are left brain processors need closer direction from their principal than do those teachers who are right brain processors. The fact that principals judged both groups of teachers effective leads to the assumption that since the teachers are effective, the principal addresses this need. This same conclusion may be drawn based on other elements of left brain/right brain hemispheric dimensions of cognitive style.

3. Effective teachers do not all teach in the same way or possess the same elements of left brain/right brain hemispheric dimensions of cognitive style. This is true for not only teachers in different schools but for teachers in the same school. The teacher
variance for the 20 elements of learning style range from 30.201 for kinesthetic learners to 125.001 for those who prefer to work alone/peers.

4. Teachers in Northeast Tennessee selected by their principal to be effective operate using a variety of different elements which are associated with left brain/right brain dimensions of cognitive style. In looking at the teacher's variance of the five elements which address the left brain/right brain dimensions of cognitive style, the following variances were found: sound 88.482, light 95.834, design 86.587, persistent 48.008, intake 98.306. This data indicated that no one single element can be considered an element possessed by effective teachers since the effective teachers in this study possess a wide variance in their preference for the various elements.

5. The smallest variance for teachers was found to be the element of kinesthetic learners (30.201). The next smallest variance for an element was motivation (39.719). The greatest variance for an element was alone/peers (125.001), with the element of afternoon learning being a preference (98.518). This
would indicate that of the group selected as effective, more of the
group were kinesthetic learners who were highly motivated. The
greatest variation occurred in whether this group of teachers
preferred working alone or with peers. With the same group showing
a variation in their preference for afternoon learning.

6. Teachers in the sample population as a group did not show a
preference for any of the 20 learning style elements.

**Recommendations**

1. Within five years, a replication of this study should be
   conducted in Tennessee to ascertain the reliability of the findings.

2. Replication of the study should be made with a larger
   sample population as well as in other geographical areas in order to
   increase the ability to generalize the results and determine the
   validity of the findings.

3. Different research methodology should be used in another
   study in order to check the validity of the findings. Another
   instrument should be selected and other statistical tests used with
   the hypothesis.
4. A study should be conducted to determine the effect of cognitive style match or mismatch on the principal perception of the most ineffective teachers based on the principal's formal and informal evaluations of teachers.

5. A study should be conducted to determine the knowledge level possessed by principals and teachers regarding cognitive style.

6. A comparative study should be conducted to determine the relationship between the superintendent's perception of effective principals when there is a match and mismatch between the cognitive style of superintendents and principals.

7. Research studies need to be conducted to determine if high school principals' judgment regarding effective and ineffective classroom performance by teachers is affected when there is a match or mismatch between cognitive style.
References


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Hemispheric preference: The newest element of learning style.

APPENDICES
APPENDIX A

REQUEST TO USE SURVEY
Dear Sir or Madam:

I am a doctoral student at East Tennessee State University in the Department of Educational Leadership. My major area of study is Educational Administration. At the present time I am preparing to begin work on my dissertation. Since the field of Learning Style is of particular interest to me, the planned topic of my study will be The Effect of Cognitive Processing Style on the Elementary Principal's Perception of Teacher Effectiveness in Northeast Tennessee. The purpose of the study is to determine if the cognitive style of both teacher and principal is a factor in the principal's evaluation of a teacher's effectiveness.

I plan to give a learning style inventory to forty principals and one hundred twenty teachers who are identified by their principal as being effective in the classroom.

After a review of the various instruments to determine learning style, I have found the Productivity Environmental Preference Survey to be the best indicator of learning style based on my judgment.

At this point, I am requesting your permission to use the Productivity Environmental Preference Survey for my study. Should you need additional information, I will be happy to provide that information.

I would appreciate your response in written form which will become a part of the appendix of my study.

Thank you in advance for your assistance.

Sincerely,

Tom Little
APPENDIX B

LETTER OF CONSENT TO USE INSTRUMENT
August 13, 1993

Tom Little  
1728 Charlotte Drive  
Elizabethtown, TN 37643  

Dear Mr. Little:

I am pleased that you are interested in studying the area of Learning Style/Cognitive Style for your dissertation.

You have permission to use the PEPS for your dissertation. I also want to let you know that for an approved dissertation proposal that is approved by me you can get scoring for 50 cents each on each of your profiles.

If you have any questions please let me know.

Sincerely,

Gary E. Price

GEP:asm
APPENDIX C

PRODUCTIVITY ENVIRONMENTAL PREFERENCE SURVEY

INSTRUMENT
PLEASE NOTE

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APPENDIX D

SAMPLE OF INDIVIDUAL PROFILE
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APPENDIX E

LETTER TO PRINCIPAL
Dear Principal:

I am a doctoral student in the Department of Educational Leadership and Policy Analysis at East Tennessee State University. At the present time I am developing a study of cognitive style and the role this process plays in the principal's perception of teacher effectiveness.

In my role as an elementary principal, I know the demands placed on a principal's time. Because of this knowledge I am hesitant to ask you for even a portion of your busy schedule, however, without your help the completion of my dissertation will not be possible.

You will find enclosed a survey form I am asking you to complete and a stamped, self-addressed envelope. Please give your immediate or first reaction to each question. Please answer all the questions on both sides of the form. After completing the survey please fold and place it in the envelope provided. Your responses will be kept confidential and only a summary of the data will be used in the study.

Also enclosed are three envelopes, each of which contain a survey form with a letter of explanation and a self-addressed, stamped envelope. Please give these envelopes to the three teachers on your faculty who you judge to be the most effective teachers in the classroom. The criteria for effectiveness should be based on both formal and informal evaluation by you as measured by your local teacher evaluation model approved by the Tennessee Department of Education.

Thank you in advance for your cooperation and assistance.

Sincerely,

Tom Little
APPENDIX F

LETTER TO TEACHERS
Dear Classroom Teacher:

I am a Doctoral student at East Tennessee State University in the Department of Educational Leadership and Policy Analysis. At the present time I am conducting research into the role cognitive style plays in the perception a principal has of teacher effectiveness.

Your principal has identified you as a teacher who is considered effective in the classroom. I would very much appreciate your completing the enclosed survey and returning it to me in the enclosed self-addressed, stamped envelope. You may fold the survey to place it into the envelope. Please give your immediate or first reaction to each question. Please answer all the questions on both sides of the form. Your responses will be kept confidential and only a summary of all responses will be used in the study.

Thank you in advance for your assistance in helping me to complete my study.

Sincerely,

Tom Little
Dear Principal:

Two weeks ago I sent you a Survey requesting your assistance with a study I am conducting regarding the cognitive style of principals and teachers. To date I have not received a response from you.

If for some reason you have not completed and returned the survey, I would appreciate it very much if you would take time to complete it as soon as possible and return it to me in the enclosed stamped, self-addressed envelope.

Also included in the envelope sent two weeks ago were three surveys for you to give to the three teachers on your faculty who you judge to be the most effective in the classroom based on your formal and informal evaluation of their performance. To date two of these surveys have been returned. Would you please ask each of these three teachers if they have not returned the survey to me to please do so. In the event the one teacher who has not returned the survey has lost or misplaced the survey, I am enclosing an additional survey and stamped, self-address envelope for you to give to that person.

Your response and that of your teachers are greatly valued and significant. Please be assured that any information provided by you will be absolutely confidential.

Thank you very much for your effort, time, and cooperation. A prompt response will be appreciated.

Sincerely,

Tom Little
VITA

THOMAS STEVEN LITTLE

Education:

East Tennessee State University, Johnson City, Tennessee; Elementary Education and Special Education; B.S., 1972
East Tennessee State University, Johnson City, Tennessee; Special Education; M.A., 1976
East Tennessee State University, Johnson City, Tennessee; Administration; Ed.S., 1979
East Tennessee State University, Johnson City, Tennessee; Administration; Ed. D., 1993

Professional Experience:

Teacher, Unaka Elementary School, Carter County School System, Elizabethton, Tennessee, 1972-1980
Principal, Keenburg Elementary School, Carter School System, Elizabethton, Tennessee, 1980-84
State Evaluator, Tennessee Department of Education, 1984-85
Curriculum Director, Kindergarten - Grade 12, Carter County School System 1985-87
Principal, West Side Elementary School, Elizabethton City School System, 1987-present

Honors:

1990, Principal of the Year, Elizabethton School System
1993,Principal of the Year, Elizabethton School System
1993, Superintendent's Choice Award
1993, First Tennessee District Principal of the Year Award