THE RELATIONSHIP BETWEEN LEARNING STYLE AND SELECTED
CHARACTERISTICS OF NORTHEAST DISTRICT
OHIO STATE UNIVERSITY EXTENSION AGENTS

THESIS

Presented in Partial Fulfillment of the Requirements for
the Degree of Master of Science in the
Graduate School of The Ohio State University

By

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ABSTRACT

The purpose of this relational study was to examine the extent to which Ohio State University Northeast District County Extension Agents leaned toward the learning style of field dependence or field independence. Also examined was the relationship between these learning styles as measured by the Group Embedded Figures Test (GEFT) and demographical data of gender, age, ethnic background, academic major, level of education, and length of employment with Ohio State University Extension. Field dependence and field independence and demographical characteristics were analyzed both for the entire sample of agents and also by individual program area. Agents within the program areas of Agriculture and Natural Resources/Community Development, Family and Consumer Science and 4-H Youth Development made up the study sample, however no specific program area was required in order to participate in the study.

From the findings of the study it was concluded that Extension agents in the Northeast district differed in their preferred learning style. The agents’ mean GEFT score was 11.68 which is slightly above the nationally mean of 11.4. All the agents’ demographical characteristics had a weak relationship with GEFT
scores except for the characteristic of race. White agents leaned more toward the field independent learning style than Hispanic or African-Americans.

No significant relationship existed between learning style and program area. However, each of the program areas studied, differed in their preferred learning style. Family and Consumer Science agents leaned toward the field dependent learning style. Agriculture/Natural Resources and Community Development agents were evenly split between the learning styles of field dependent and field independent. 4-H Youth Development agents leaned toward the field dependent learning style. None of these conclusions can be compared to previous research as no other research of this type exists.
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CHAPTER 1

INTRODUCTION

Over the years, the Cooperative Extension Service has been changing with the times. As most organizations do, Cooperative Extension has changed leadership, personnel, and program focus. Yet, one of the main changes that has taken place within the Cooperative Extension Service has been the role of, and the information delivered by, the Extension Agent.

During World War I, the Extension Agent became "the patriotic leader of numerous war campaigns." It was through the roaring 1920s the Extension Agent worked one-on-one with farmers teaching agricultural production and marketing. After the depression, Extension Agents taught the public how to deal with shortages and rationing. Through the 1960s, Extension Agents once again changed problem focus and began dealing with urban, low-income, and minority neighborhoods (North Carolina Agricultural Extension Service, 1988). At present, Extension Agents are embracing expansion into non-traditional audiences, issues programming, and budgetary and personnel retrenchment (Safrit, Conklin, & Jones, 1995).

It is evident that the changes within program focus and the role of Extension Agents has been great. In order to survive, the Cooperative Extension
Service will continue to make changes as deemed appropriate by the changing times of our society. Yet, while all these changes were occurring within areas of program focus, were any changes being made in the way these programs were delivered?

**Problem**

Ohio State University Extension has been making changes right along with the Cooperative Extension Service. However, Ohio State University Extension has lacked making changes in program delivery methods in relation to audience learning styles. This is due to the fact that Extension has not yet begun to identify and access the learning style process by which their learners learn and their teachers teach. Therefore, OSU Extension has been unable to make effective changes in program delivery methods in relation to audience learning styles.

The mission of Ohio State University Extension (OSUE) is “To help people improve their lives through an educational process using scientific knowledge focused on identified issues and needs” (Ohio State University Extension, 1994). It is through this mission that OSU Extension has also developed a vision of which one part is to “Teach with appropriate and effective educational techniques and methods.” However, if OSU Extension as a whole, has not yet begun to identify and access the learning style process by which their learners learn and their teachers teach, are they teaching appropriately and effectively?

In an effort to enhance learning, researchers have studied how individuals learn and how the environment can be altered and/or adapted to achieve
maximum learning potential. Modes of functioning labeled "cognitive styles" exhibit the perceptual and intellectual activities of human beings in a highly consistent and pervasive manner (Witkin, 1973). The research that has been conducted thus far relating education and cognitive style, has shown that cognitive style is an important variable in student academic development through their school career, how students learn and teachers teach, and student-teacher interaction in the classroom (Witkin, 1973).

However, in Extension, the problem is that Extension educators lack evidence on the cognitive abilities and learning styles of both themselves and their audiences. As stated by Powell (1996), educators of workshops, clinics, and training sessions need to know their own cognitive patterns and where to be flexible in those patterns and understand their audiences' cognitive patterns and learn to target them.

**Purpose and Objectives**

The purpose of this relational study was to examine the learning styles of field dependence and field independence of Ohio State University Northeast District County Extension Agents within the program areas of Agriculture and Natural Resources, Family and Consumer Science, 4-H Youth Development, Community Development, .......as a whole, and relationships between these learning styles and demographical data, such as gender, age, ethnic background, academic major, level of education, and length of employment with Ohio State University Extension.
The following research objectives were addressed:

1. Describe Northeast District County Extension Agents by selected demographical characteristics.

2. Describe Northeast District County Extension Agents by selected demographical characteristics within individual program areas.

3. Describe the learning styles of Northeast District County Extension Agents.

4. Describe the learning styles of Northeast District County Extension Agents within individual program areas.

5. Describe the relationship between selected characteristics of Northeast District County Extension Agents and their learning styles.

6. Describe the relationship between Northeast District County Extension Agents' learning styles and individual program areas.

**Definition of Terms**

The following terms have been defined for the purpose of this study.

**County Extension Agents**: an employee of Ohio State University Extension who has a designated program area for which they are responsible.

**Northeast District**: consisting of Ashland, Ashtabula, Columbiana, Cuyahoga, Erie, Geauga, Holmes, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark/Summit (these county offices are combined within Ohio State University Extension), Trumbull, and Wayne counties, Ohio (Appendix A).
**Learning Style** - the way in which a person processes information, “Cognitive characteristic modes of functioning in what we reveal through our perceptual and intellectual activities in a highly consistent and pervasive way,” (Witkin, 1976, p. 39).

**Field Dependence/ Field Independence** - as determined by a score achieved on the Group Embedded Figures Test; the degree of which exists between a persons perception of items and their surroundings or field.

**Program Areas** - areas of specialization within Ohio State University Extension, Northeast District. These areas include: Agriculture and Natural Resources, Animal Science, Community Development, Environmental Education, Family and Consumer Sciences, 4-H Youth Development, EFNEP - Expanded food and nutrition education program, Horticulture, and Urban Gardening.

**Four Main Program Areas** - as identified by Ohio State University Extension, Family and Consumer Sciences, 4-H Youth Development, Agriculture and Natural Resources, and Community Development.

**Justification**

A document entitled *Ohio State University Extension Summary of Strategic Plans by Program Area*, December 1994, takes the four main program areas and lists strategic actions necessary within each of these areas in order to achieve the mission (Appendix B) of Ohio State University Extension. In justifying this research it is necessary to look at one of the goals listed within the mission statement; “to teach with appropriate and effective educational
techniques and methods." One of the actions to be taken in this area is to
"customize Extension materials for a variety of audiences and different learning
styles." Yet, this task of customization cannot be accomplished until cognitive
styles are assessed.

Extension educators are expected to deliver programs in an environment
where learning must occur. Understanding cognitive styles of both Extension
educators and their audiences could be very advantageous for planning,
designing, and delivering educational programs. According to Chinien and
Boutin (1993), instruction that is in harmony with an individual's learning style will
improve the student's performance, shorten study time, and improve the
student's attitude toward learning. In addition, Van Vuren (1994) stated that
positive attitudes and improved academic achievement could result when
instructional methods accounted for learning style preferences.

Progress has been achieved in the area of teaching and learning of
college students and instructors in the College of Food, Agricultural, and
Environmental Science at the Ohio State University. In addition, numerous other
studies have been conducted measuring and explaining cognitive style (Jensen,
1969; Witkin, 1973; Gregorc, 1979; Jacobs, 1980). However, this research has
not included informal educational programs such as those conducted by Ohio
State University Extension..

Although there are similarities, Extension, has one eminent difference to
formal educational settings: Extension audiences are volunteer participants and
in many cases pay a program fee in order to participate in various programs.
Therefore, the participants' desire to learn could be greater than those participants in an involuntary formal educational setting. Because these participants are voluntary, it is a necessity that Extension educators teach more effectively in an effort to reach all learners and thus the role of cognitive style in informal educational settings be assessed.

This research is the first to relate the learning styles of OSU Extension Agents and certain demographical characteristics. This research along with the need for several other studies of this kind representing other geographical samples, is the first step in developing OSU Extension programs to meet the organization's mission.

Limitations of the Study

The accessible population for this study consisted of Ohio State University Extension agents, in the following counties: Ashland, Ashtabula, Columbiana, Cuyahoga, Erie, Geauga, Holmes, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark/Summit (these county offices are combined within Ohio State University Extension), Trumbull, and Wayne counties, Ohio. These counties make up the Northeast District within Ohio State University Extension and were chosen because the district is easily accessible by the author of this study. The Extension agents in this district were chosen with no program area specified. Since there is no research of this type to date within Ohio State University Extension, it was not relevant which district was chosen for this study. However, generalizations will be limited to agents in the Northeast District.
CHAPTER 2

REVIEW OF LITERATURE

Learning Styles

All individuals, whether teachers or students, vary in the way they learn and/or teach (Cornett, 1983). Research states that all individuals have basic capabilities for teaching and learning, but all of these capabilities are not equal (Gregorc, 1979). The research that has been conducted thus far, has shown that learning style is an important variable in student academic development through their school career, how students learn and teachers teach and student-teacher interaction in the classroom. Learning style is also a potential variable when students are making academic and vocational choices (Witkin, 1973).

Also referred to by some researchers as cognitive styles, learning styles are defined by the way a person receives and processes information (Garton, 1993). Several other definitions have also been established. One such description is: “individual variations in modes of perceiving, remembering, and thinking, or as distinctive ways of apprehending, storing, transforming and utilizing information” (Kogan, 1971, p. 244). Another definition by Della-Dora and Blanchard (1979), stated that learning style is “a personally preferred way of dealing with information and experience for learning that crosses content areas”
(p. 22). Other researchers described learning styles as "...stable and pervasive characteristics of an individual, expressed through the interaction of one’s behaviors and personality as one approaches a learning task" (Garger & Guild, 1984, p. 11). DeBello (1990) defined learning style as "the characteristic cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (p. 203). And yet another definition provided by Even (1978) stated that:

Cognitive styles, diverse ways of taking in information and processing it, usually develop by 12 years of age and remain rather stable over the years. A style has broad influence on aspects of personality and behavior, perception, memory, problem solving, interests, and career goals as well as social behavior. (p. 9).

Keefe (1991) describes learning style as being made up of two parts, a student characteristic and an instructional strategy. The first part, student characteristic, is an indicator of how a student learns and likes to learn. The second part, instructional strategy, informs to cognition, context, and content of learning.

However, despite the multiple definitions, Talmadge and Shearer (1969) stated that learning styles did not exist. Talmadge and Shearer’s study showed the characteristics of the content of a learning experience were a critical factor affecting relationships that existed between learner characteristics and instructional methods.
Over the years, learning styles have been defined in several different ways. The following is a summary of nine different learning styles as identified by Martinez (1992).

1. **Breadth of categorizing**: prefer broad as opposed to narrow inclusiveness, in establishing acceptable range goals.

2. **Cognitive complexity-simplicity**: differences in individuals’ tendency to interpret the world discriminatory and multi dimensionally.

3. **Conceptualizing styles**: individual difference in categorization of stimuli with perceived similarities or differences; utilization of consistent conceptualization approaches in concept formation.

4. **Constricted-flexible control**: individual differences in susceptibility to distraction and cognitive interferences.

5. **Field dependence-field independence**: the extent to which a learner is able to separate stimuli from the surrounding field.

6. **Impulsivity-reflectivity**: when posed a question, the difference in response time and answer accuracy.

7. **Leveling-sharpening**: individual differences in memory recall and assimilation.

8. **Scanning**: individual variation in vividness of experience and span of awareness which is a result of attention deployment.
9. *Tolerance for incongruous or unrealistic experience:* difference in willingness to accept perceived experiences versus practical experience.

Each of these learning styles is different in that each one assesses a different set of outcomes. These styles are not necessarily exclusive of one another and research measuring a given style guided that particular study.

For the purpose of this research, the field-dependence/field-independence learning style will be evaluated. This type of learning style remains the most thoroughly investigated and was proposed by Witkin and his associates (Witkin, 1973). Witkin (1973) defined field independence/dependence as:

The extent to which a person is able to deal with a part of a field separately from the field as a whole, or the extent to which he is able to disemboby items from organized context or, to put it in everyday language, how analytical he is. Because at one extreme of the performance range perception is strongly dominated by the prevailing field, we speak of that mode as “field dependent.” For the other extreme, where the person is able to deal with an item independently of the surrounding field, we use the designation “field-independent” (p.5).

The learning style of field-independence/field-dependence was chosen for this study as the test measuring this phenomenon could be administered by the author and test results could be easily understood by study participants. In addition, field-independence/field-dependence can be applied cross culturally and once understood can be easily incorporated into formal or informal classroom instruction (Ramirez & Casteneda, 1974).
Measurement of Learning Styles

In order to evaluate a given learning style, some type of instrument must be used for measurement purposes. Witkin’s research used three different types of measurement that explored how a person orients themselves in space.

1. **RFT = Rod and Frame Test**: used a completely dark tilting room in which the subject adjusted a luminous rod, surrounded by a luminous tilted frame, to the true vertical position (Witkin, Dyk, Faterson, Goodenough & Karp, 1974).

2. **BAT = Body Adjustment Test**: used a tilted room in which the subject, seated in a tilted chair, had to adjust their body to the position they perceived as upright (Witkin, Moore, Goodenough, & Cox, 1977).

3. **EFT and GEFT = Embedded Figures Test and Group Embedded Figures Test**: pencil and paper test which required subjects to recognize a simple figure that was embedded within a complex design (Witkin, Oltman, Raskin, & Karp, 1971).

After noting consistent individual differences within the first two tests, Witkin developed his theory of field-dependence/field-independence. He found that the subjects who had difficulty adjusting their bodies to the upright position, had difficulty withstanding the influence of the surrounding room. And, the same subjects who had difficulty with the BAT also had difficulty withstanding the influence of the surrounding frame while attempting to adjust the rod to a vertical position in the RFT (Witkin, 1981; pp. 8-14). Witkin then used the EFT and the
GEFT and found that subjects who had difficulty in separating the small object from the complex design also had difficulty separating body from room and rod from frame; they were field-dependent. Field-independents had no problem in separating any of these items from the surrounding field (Witkin, 1981; pp. 14-15).

The reliability and validity of the Group Embedded Figures Test have been established by the author.

"The validity of the GEFT has been established by determining its relationship with the parent test (EFT), the Rod and Frame Test (RFT), and the Body Adjustment Test (BAT). The correlation coefficients between the GEFT and the EFT ranged from .84 to .90 (Witkin, Oltman, Raskin, & Karp, 1971). Correlation coefficients between the GEFT and RFT and BAT are substantial, .55 and .71 respectively (Witkin, Oltman, Raskin, & Karp, 1971).

Reliability of the GEFT was established by correlating parallel forms of the test with identical time limits (Witkin, Oltman, Raskin, & Karp, 1971). Correlations between the parallel forms of the test were computed using the Spearman-Brown Prophecy formula, resulting in a reliability estimate of .82 for both male and female college students (Witkin, Oltman, Raskin, & Karp, 1971). Furthermore, the reliability of the GEFT compared favorably with the reliability of the parent test (EFT), which ranged from .79 for female to .82 for male college students (Witkin, Oltman, Raskin, & Karp, 1971)" (Garton, 1993).

Although reliable and valid, there are some weaknesses in using the GEFT. Suggesting that something has been measured, but not the style in which the task was done, was an idea brought about by both Shipman and Shipman (1985) and Witkin and Goodenough (1981). Also stated by these researchers was the idea that only field independence was being measured and the presence of field dependence was only implied by absence of field independence. It was
also questioned whether these traits were true opposites or whether or not a person could choose which style would be most effective in a given situation (Shipman & Shipman, 1985; Witkin & Goodenough, 1981).

**Determinants of Learning Styles**

Researchers (Claxton & Ralston, 1978; Dyk & Witkin, 1965; Seder, 1957) have discovered that mothers play a relevant part in determining the learning style of children. Claxton and Ralston say that early childhood experiences between a child and a mother are important in determining learning style. In addition, Witkin and Dyk (1965), and Seder (1957), have found that relations between a child and mother were very influential in determining learning style.

The encouragement of autonomy in child rearing indicated a close association with field-independence (Witkin, 1976). Yet the amount of autonomous functioning used by a child was not always related to the level of field-independence.

Ethnic backgrounds and cross-cultural differences have also been found to play a part in determining learning style. Ramirez and Price-Williams (1974) found Caucasian subjects to be more field-independent than subjects of a Hispanic or African-American origin.

Several researchers have found gender to be yet another determinant of learning style (Garger & Guild, 1984; Claxton & Ralston, 1978; Witkin, 1950; Witkin, 1976; Witkin, 1971). Through the studies of these researchers, females were found to be more field-dependent than males. However, the differences between the genders were small and according to Halpern (1986), gender
differences in field-independence/field-dependence were truly reflections of gender differences in spatial ability. It was suggested by Bonham (1988) that men only be measured against other men, and women against women, to reduce the differential effect of field dependence-independence on the genders.

**General Characteristics of Field-Dependence/Independence**

Through research (Witkin, 1976; Garger & Guild, 1984), it has been consistently learned that a person's learning style remains independent of intelligence. In addition, there has been no indication that two different types of people exist or that one learning style is better than another (Witkin, Moore, Goodenough, & Cox, 1977).

Research has found that the field-dependent/independent theory is bipolar. Characteristics and behaviors that describe these learners are at each extreme of the bipolar continuum. Also to be noted, it is not better or worse to be at either end of this continuum (Witkin, Moore, Oltman, Goodenough, Friedman, Own, & Raskin, 1977).

**Field-Dependent Characteristics and Behaviors**

As a whole, field-dependent learners are social, extroverted, and rely on others for their sense of self. Since field-dependents rely heavily on their surrounding field for the processing of information, they often view things “as is” and have difficulty taking things out of context. Because of this “as is” viewpoint, field-dependents accept organization of material and are attentive to social sources of information (Cano, 1993). Field-dependent learners have a very
interpersonal orientation, are much more open in expressing their feelings, and are perceived by others as warm, affectionate and considerate (Weissenberg & Gruenfeld, 1966). The field-dependent learner is drawn to people and like being physically close to others (Holey, 1972). Also, the field-dependent learner learns incidental information of a social nature, favor interpersonal domains of social content, such as teaching at an elementary school, work effectively in conflict resolution, take other people's viewpoint into consideration before forming their own opinion, and are responsive to social reinforcement (Cano, 1993).

Field-dependent learners often experience difficulty with analytical problem solving. Two subject areas where field-dependent learners have trouble are math and science (Witkin, 1976). It is in these areas where field-dependent learners require explicit instruction and details. Field-dependent learners find it necessary to break the problem into smaller segments and become frustrated when they are unable to do so (Witkin, Moore, Goodenough, & Cox, 1977).

Because of this frustration, most field-dependent learners favor the "spectator" approach to learning. They would rather have a teacher provide them with the answer than willfully search for it on their own (Cano, 1993). Furthermore, the field-dependent learner is extrinsically motivated and thus favors small group work (Cano, 1993) and classroom discussions (Witkin, 1976).

Organization is key to the field-dependent learner. Not only do they tend to be organized people, but organization is very important in both the teaching and learning process of field-dependent learners (Cano, 1993). In an effort to
learn more effectively, field-dependent students will often reorganize subject matter to an organizational structure they can better understand. In fact, some filed-dependent learners will rewrite class notes for a better understanding of the subject matter (Cano, 1993).

Field-dependent learners enjoy having a close working relationship with both peers and teachers. When working with peers, the field-dependent learner likes to work as a group to achieve common goals (Cano, 1993) while being sensitive to the opinions and feeling of others (Witkin, Moore, Goodenough & Cox, 1977). When working with teachers, the field-dependent learner views their teacher as a role model and has positive feelings toward their teacher (Cano, 1993). They enjoy working individually with a teacher and are more likely to complete a task if given a great amount of positive reinforcement (Cano, 1993).

**Field-Independent Characteristics and Behaviors**

On the other hand, the field-independent learner is introverted and would rather be an engineer than an elementary school teacher. Because the field-independent learner relies very little on their surrounding field, they do not have a problem taking things out of context or using analytical skills to resolve an issue. Field-independent learners are very task oriented and are less effective at social skills than the field-dependent learner. They are often thought of as demanding, inconsiderate, and/or cold and distant. They rely heavily on their inner resourcefulness, and have high autonomy, initiative and self-reliance (Cano, 1993).
Because of their analytical and problem solving skills, the field-independent learner would rather learn through independent study. They favor an “inquiry” approach to learning and have success at developing their own structure for the learning situation (Witkin, Moore, Goodenough, & Cox, 1977). Field-independent learners prefer to learn through trial and error as opposed to the teacher teaching them the task (Cano, 1993).

Because of intrinsic motivation, as related to learning style, positive and social reinforcement are not appreciated by the field-independent learner. However, they are very competitive persons, not for praise but for self gratification in accomplishing their goal (Cano, 1993).

**Field-Dependent Teaching Style**

Research (Lyons, 1984; Dunn & Dunn, 1979; Witkin, 1976) has concluded that there is evidence to support the idea of correspondence between the way teachers teach and the way they learn. The field-dependent learning style and the field-dependent teaching style are consistent in both behavior and characteristics with one another (Cano, 1993). Field-dependent teachers use positive reinforcement, are very student centered, emphasize social interaction among students, and provide a warm learning environment (Witkin, Moore, Goodenough, & Cox, 1977). Field-dependent teachers encourage work through cooperative efforts and class discussion (Cano, 1993).

Field-dependent teachers are usually willing to aid their students in whatever way necessary to assure their success. Their instructional goals are well established and their lesson plans are organized. The students in these
classrooms are clearly made aware of lesson purposes and concepts. These teachers prefer non-traditional methods of teaching, which include “hands-on” type activities, such as field trips, role play, and group projects, as opposed to the traditional teaching method of lecture (Koppleman, 1980; Cano, 1993).

Field-Independent Teaching Style

Like the field-dependent style of teaching is similar in behavior and characteristics of the field-dependent learning style, the field-independent teaching style is consistent with the field-independent learning style. As opposed to being student centered, these teachers are much more focused on their subject matter (Cano, 1993). With that subject matter, they encourage individual learning efforts and do not positively reinforce student behavior. A field-independent teacher would much rather provide corrective feedback after failure than provide a pat on the back for a job well done. Field-independent teachers feel it is important to inform a student when and why they are wrong in an effort to enhance learning (Mahlios, 1981).

Field-independent teachers prefer lecturing as their method of information delivery (Witkin, 1976) and while standing in front of their class, they wish to be seen as the authority figure (Witkin, Moore, Goodenough, & Cox, 1977). Instead of providing facts and quick answers to questions like the field-dependent teacher, the field-independent teacher uses the problem solving approach to teaching and helps the student to discover the answer themselves.
Koppleman, 1980). In finding the answer, these students are encouraged by the field-independent teacher, to apply concepts and principles taught to them in class (Witkin, Moore, Goodenough, & Cox, 1977).

Summary

Learning style describes the way a person processes information (Garton, 1993). Although there are several different types of learning styles, Witkin’s research in field-independence/dependence has remained the most dominant. This is a style that is concerned with “how” of learning versus the “how much” (Garger & Guild, 1984).

The behaviors and characteristics that describe the field-independent/dependent learner denote direct opposites as the field independent learner relies very little on their surrounding field and the field-dependent learner relies heavily on their surrounding field for their mode of perception (Witkin, Moore, Goodenough, & Cox, 1977). These same opposites apply to teachers as well.

Research has found that learners learn information more effectively when the domain in which they are learning is compatible with their learning style (Witkin & Goodenough, 1977). In addition, successful learning outcomes have been linked to classrooms in which the teacher adapted their teaching style to meet the strengths of the student’s learning styles (MacNeil, 1980). However, Witkin, et. Al. (1977), stated that there was little relation between the learning styles of field-dependence/independence and overall academic achievement.
CHAPTER 3

METHODOLOGY

Research Design

The design of this study was descriptive/correlational, investigating relationships among variables. The purpose of this study was to describe Northeast District Ohio State University Extension Agents in terms of their age, gender, race, program area, academic major, highest degree earned, and length of employment with Ohio State University Extension. The relational aspects of the study were determined by the extent to which relationships existed between these variables and the learning styles of the research study participants.

Population and Sample

The target population for this study was Northeast District Ohio State University Extension Agents (N = 64) without regard to program area. The agents from this district represented the following counties: Ashland, Ashtabula, Columbiana, Cuyahoga, Erie, Geauga, Holmes, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark/Summit (these county offices are combined within Ohio State University Extension), Trumbull, and Wayne counties, Ohio (Appendix 1). The accessible population (n = 41) was determined due to time and funding limitations. Names of the subjects in the population were obtained
from the Ohio State University Extension Personnel Directory, June 1996, and served as the frame for the study. Updated changes in the directory were received from the Northeast district office.

**Instrumentation**

The standardized measure of learning style, the Group Embedded Figures Test, was the instrumentation for this study. Administered by the researcher, the GEFT test is made up of three sections in a booklet format. The first section is made up of seven simple geometric figures and is for practice purposes only. This section is not scored to calculate test scores. The second and third sections each contain nine geometric figures which are more complex. Based on speed and accuracy, the subject can attain a score ranging from 0-18. The test requires 20-30 minutes to administer and is scored using templates provided by the test distributor. Scoring is achieved by adding the correct number of items together from the second and third sections. Individuals scoring greater than the national mean (11.4) are to be considered field-independent while subjects with scores below the national mean are labeled field dependent (Witkin et al., 1971).

Standardizing studies by the author, Witkin (1971) establish validity and reliability for the GEFT. The Group Embedded Figures Test’s reliability coefficient was .82 (n=177) and concurrent validity with the Embedded Figures test was .82 for males and .63 for females (Witkin, et al., 1971, p 29).
The GEFT was administered to all accessible county agents in the population (n = 41). Directions for test administration were followed based on those outlined in the *Group Embedded Figures Tests Manual* (Witkin et al., 1971).

**Data Collection Procedures**

Approval for this research was obtained from the Ohio State University Extension Administrative Cabinet on January 16, 1997. Prior to approval, on January 6, 1997, an electronic mail message was sent to the Northeast district specialists of the four main program areas, inquiring about when the next inservices by specific program area were going to be held. Responses from the program areas of 4-H Youth Development (4-H) and Family and Consumer Sciences (FCS) were received. Data collection times were scheduled with 4-H and Family and Consumer Sciences on February 14th and 19th respectively. The 4-H data collection site was to take place at a district in-service at the district office. The time set with Family and Consumer Sciences was during a district legislative update in Columbus, Ohio. A response was also received from the program area of Agriculture and Natural Resources and a phone call was placed to the Community Development district specialist. There were no district inservices scheduled for either of these program areas between the data collection months of February through April.

A second electronic mail message regarding this research was sent to Northeast district county chairs on January, 24, 1997. These county chairs were asked when their next staff conference was going to be held and if the
researcher could administer the GEFT at that time. Responses were received from Cuyahoga, Medina, and Columbiana counties, however the scheduling of data collection dates with counties was postponed until after data was collected at the 4-H and FCS district in-services.

The data was collected from the 4-H and FCS district in-services, during which the GEFT was administered to 14 4-H agents and 14 FCS agents. An electronic mail message was then sent to the Northeast district director asking permission for the researcher to administer the GEFT at the county chair meeting in Cuyahoga County on March 7, 1997. Permission was granted and the test was administered to six county agents at the meeting. The test was administered to four additional agents on March 12, 1997, in Cuyahoga County preceding their staff conference. The test was also administered in the Ashtabula county office, home of the researcher, to two agents.

Each data collection session required thirty minutes. At the beginning of each session, participants were given an introduction to the researcher, information on the purpose of the research, data collection process and assurance of confidentiality, and a questionnaire (Appendix C). This introduction took five minutes, followed by the administration of the GEFT which took twenty minutes, and concluded with five minutes to score tests and review scores with participants. In addition to reviewing scores, a handout (Appendix D) was distributed to participants.

The researcher administered the data collection instrument at each session in accordance with the directions outlined by the GEFT test distributors.
The researcher remained in the room during test administration, observing participants. No instances of a disruptive nature occurred during any of the sessions that could have had a biased effect on the data.

**Data Analysis**

Descriptive and correlational statistics were used to organize and summarize data. A priori alpha level of .05 (p<.05) was used. Davis (1971) established the following criteria for use in describing strength of relationships between variables:

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.70 or higher</td>
<td>Very Strong Relationship</td>
</tr>
<tr>
<td>.50 to .69</td>
<td>Substantial Relationship</td>
</tr>
<tr>
<td>.30 to .49</td>
<td>Moderate Relationship</td>
</tr>
<tr>
<td>.10 to .29</td>
<td>Low Relationship</td>
</tr>
<tr>
<td>.01 to .09</td>
<td>Negligible Relationship</td>
</tr>
</tbody>
</table>

Data were analyzed using the Statistical Package for Social Sciences (SPSS, Version 7.0). The characteristics were treated as follows for the purpose of analysis:

- **Nominal**: Gender, Race, Program Area, Academic Major
- **Ratio**: GEFT Score
- **Ordinal**: Age, Education Level, Length of Employment
CHAPTER 4

FINDINGS

The purpose of this relational study was to examine the learning styles of field dependence and field independence of Northeast District County Extension Agents within program areas of Agriculture and Natural Resources, Family and Consumer Science, 4-H Youth Development, Community Development, .......as a whole, and relationships between these learning styles and demographical data, such as gender, age, ethnic background, academic major, educational degrees, and length of employment with Ohio State University Extension.

This chapter contains the findings of the study. The findings were presented in the order of the objectives of the study. The order of the chapter is as follows: 1) agents' characteristics; 2) agents' characteristics by program area; 3) agents' learning styles; 4) agents' learning styles by program area; and 5) correlates of agents' learning style; 6) correlates of agents' learning styles by program area.
Agents' Characteristics

Demographical data were gathered on 41 Ohio State University Northeast District Extension Agents. Demographical data included age, gender, ethnic background, academic major, educational degrees obtained and length of employment with Ohio State University Extension. The ensuing results are a description of these variables.

Program Area

Of the 41 agents, three program area groups were identified. The three groups were Family and Consumer Science (FCS), Agriculture and Natural Resources and Community Development (AGNR/CD), and 4-H Youth Development (4-H). Many agents work in multiple program areas, yet their main program area focus fell into one of these three groups. Although Community Development is listed as one of the main program areas of Ohio State University Extension and is also listed within the purpose of this study, it is a program area that is grouped with another program area for every agent in the sample. Therefore, Community Development was categorized with Agriculture and Natural Resources as this is the most prominent pairing of program areas within the sample. The majority (39.0%) of the agents participating in the study were 4-H Youth Development agents (n=16). Family and Consumer Science agents
made up 36.6 percent (n=15) of the study, followed by Agriculture/Natural Resources and Community Development agents which made up 24.4 percent (n=10) (Table 1).

<table>
<thead>
<tr>
<th>Prog. Area</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS</td>
<td>15</td>
<td>36.6</td>
<td>36.6</td>
</tr>
<tr>
<td>AGNR/CD</td>
<td>10</td>
<td>24.4</td>
<td>61.0</td>
</tr>
<tr>
<td>4-H</td>
<td>16</td>
<td>39.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1: Agents by Program Area (n=41)

**Age**

The age of Extension Agents ranged from 25 to 58 years of age. The mean age for study group was 42.88 years with a standard deviation of 9.26 (Table 2).

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - 30</td>
<td>5</td>
<td>12.2</td>
<td>12.5</td>
</tr>
<tr>
<td>31 - 35</td>
<td>3</td>
<td>7.3</td>
<td>20.0</td>
</tr>
<tr>
<td>36 - 40</td>
<td>8</td>
<td>19.5</td>
<td>40.0</td>
</tr>
<tr>
<td>41 - 45</td>
<td>4</td>
<td>9.8</td>
<td>50.0</td>
</tr>
<tr>
<td>46 - 50</td>
<td>13</td>
<td>31.7</td>
<td>82.5</td>
</tr>
<tr>
<td>55 - 58</td>
<td>7</td>
<td>17.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean = 42.88  
Std. Dev. = 9.26  
Range = 25-58

Table 2: Age of Agents (n=40)
**Gender**

Of the 41 agents who participated in the study, 41.5 percent (17) were male and 58.5 percent (24) were female (Table 3).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>41.5</td>
<td>41.5</td>
</tr>
<tr>
<td>Female</td>
<td>24</td>
<td>58.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3: Gender of Agents (n=41)

**Race**

Three race groups were identified from the 41 agents. The three groups were: White, African-American, and Hispanic. It was found that the 90.2 percent were White (n=37), 7.3 percent were African-American (n=3), and 2.4 percent were Hispanic (n=1) (Table 4).

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>37</td>
<td>90.2</td>
<td>90.2</td>
</tr>
<tr>
<td>Afr.-Amer.</td>
<td>3</td>
<td>7.3</td>
<td>97.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>2.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4: Race of Agents (n=41)
Academic Major

The academic major of agents were categorized into five focus groups. The five groups were Agriculture, Family and Consumer Science, Education, Science, and Other. Agriculture majors included those persons majoring in, but not limited to, animal science, dairy science, agronomy, land use, agricultural education, and environmental education. Family and Consumer Science majors consisted of those persons majoring in, but not limited to, home economics education, nutrition, textiles and clothing, family development, vocational home economics, and child development. Education majors were those persons who majored in education, without a specification. Science majors were those persons majoring in Biology. The fifth group, Other, were those persons whose major did not fall into the four above-mentioned groups. Of the 41 agents participating in the study, fifteen (36.6%) were Family & Consumer Science majors, fourteen (34.1%) were Agriculture majors, five (12.2%) were Other majors, four (9.8%) were Science majors, two (4.9%) were education majors, and one (2.4%) participant did not have a degree, therefore had no academic major (Table 5).
<table>
<thead>
<tr>
<th>Major</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Ag.</td>
<td>14</td>
<td>34.1</td>
<td>36.6</td>
</tr>
<tr>
<td>FCS</td>
<td>15</td>
<td>36.6</td>
<td>73.2</td>
</tr>
<tr>
<td>Educ.</td>
<td>2</td>
<td>4.9</td>
<td>78.0</td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>9.8</td>
<td>87.8</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>12.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 5: Academic Major of Agents (n=41)

**Level of Education**

An overwhelming portion of the 41 agents had obtained their Masters of Science or Masters of Arts degree. The highest level of education for seventy-eight percent (n=32) of the agents was a Masters degree, and seventeen percent (n=7) had a bachelors degree. One participating agent had a doctoral degree (2.4%) and one agent had no degree (2.4%) (Table 6).

<table>
<thead>
<tr>
<th>Ed. Degrees</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>B.S./B.A.</td>
<td>7</td>
<td>17.1</td>
<td>19.5</td>
</tr>
<tr>
<td>M.S./M.A.</td>
<td>32</td>
<td>78.0</td>
<td>97.6</td>
</tr>
<tr>
<td>PhD</td>
<td>1</td>
<td>2.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 6: Level of Education (n=41)
Length of Employment with Ohio State University Extension

The agents' length of employment with Ohio State University Extension ranged from 0 to 30 years with the majority (n=13) of the agents having been employed 0 to 5 years. The mean length of employment was 11.22 years with a standard deviation of 8.28 (Table 7).

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>13</td>
<td>31.7</td>
<td>31.7</td>
</tr>
<tr>
<td>6-10</td>
<td>9</td>
<td>22.0</td>
<td>53.7</td>
</tr>
<tr>
<td>11-15</td>
<td>8</td>
<td>19.5</td>
<td>73.2</td>
</tr>
<tr>
<td>16-20</td>
<td>4</td>
<td>9.8</td>
<td>82.9</td>
</tr>
<tr>
<td>21-25</td>
<td>5</td>
<td>12.2</td>
<td>95.1</td>
</tr>
<tr>
<td>26-30</td>
<td>2</td>
<td>4.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean = 11.22  
Std. Dev. = 8.28  
Range = 0-30

Table 7: Agents' Years of Employment with Ohio State University Extension (n=41)

Agent Characteristics by Program Area

Family and Consumer Science

Five of the FCS agents were over the age of 40 and the remaining ten agents were between the ages of 41 and 58. All the FCS agents (n=15) were female. The majority (n=13) of the FCS agents were white along with one African-American and one Hispanic agent. Most (n=12) of the FCS agents had majored in an FCS related field, yet two FCS agents majored in education and
one FCS agent did not have a major because of lack of an educational degree. The majority (n=11) of FCS agents had obtained a Master's degree, however there were three agents with a Bachelor's degree and one agent with no degree. Nine of the FCS agents had been employed by Ohio State University Extension 15 years or less and six of the FCS agents had been employed 5 years or less. The remaining (n=6) FCS agents had been employed between 16 to 25 years.

Agriculture/Natural Resources and Community Development

The majority (n=9) of the AGNR/CD agents were between the ages of 46 and 58 while one AGNR/CD agent was between the ages of 25 and 30. All the AGNR/CD agents (n=10) were white males who had obtained a Master's degree. Eight of the AGNR/CD agents had majored in an Agricultural related field and the remaining two AGNR/CD agents majored in science. Seven of the AGNR/CD agents had been employed with Ohio State University Extension for less than 16 years, while the other three AGNR/CD agents had been employed for 21 or more years.

4-H Youth Development

The majority (n=10) of the 4-H agents were between the ages of 25 and 40 and only five 4-H agents were between the ages of 41 and 50. The gender of 4-H agents was almost equally split between male and female. Seven 4-H
agents were male and nine were female. The majority (n=14) of 4-H agents were white, while two 4-H agents were African-American. 4-H agents had a variety of academic majors. Six 4-H agents had majored in an Agricultural related field, three majored in an FCS related field, two majored in science, and five had ‘other’ majors. Of the fifteen 4-H agents, eleven had obtained a Master’s degree, four had obtained a Bachelor’s degree, and one agent had a doctoral degree. 4-H agents were the least experienced of all program areas with ten agents having been employed with Ohio State University Extension for less than 11 years, five agents having been employed between 11 and 20 years, and one agent having been employed for more than 25 years.

Agents’ Learning Styles

Of the 41 agents participating in the study, the majority, fifty-six percent (n=23) leaned toward the field independent learning style and forty-four percent (n=18) leaned toward the field dependent learning style. The mean GEFT score for the 41 agents was 11.68 with a standard deviation of 5.36.

Learning Style by Gender

A gender analysis indicated that 35 percent (n=6) of the males leaned toward the field dependent learning style while a majority (65%; n=11) of the males learned toward a field independent learning style. The females were
evenly split between the field-independent/dependent learning style with 50 percent (n=12) leaning toward each style (Table 8).

The GEFT scores ranged from 1 to 18 for both males and females. The mean GEFT score for males was 12.35 with a standard deviation of 5.35. The mean GEFT score for females was 11.21 with a standard deviation of 5.44 (Table 9).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Field Dependence Frequency</th>
<th>Field Dependence Percent</th>
<th>Field Independence Frequency</th>
<th>Field Independence Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>6</td>
<td>35</td>
<td>11</td>
<td>65</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>50</td>
<td>12</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 8: Learning Style by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>12.35</td>
<td>5.35</td>
<td>1-18</td>
</tr>
<tr>
<td>Female</td>
<td>24</td>
<td>11.21</td>
<td>5.44</td>
<td>1-18</td>
</tr>
</tbody>
</table>

Table 9: Mean GEFT Score by Gender

**Learning Styles by Race**

Of the 37 white participants, fourteen (38%) leaned toward the field dependent learning style and twenty-three (62%) leaned toward the field
independent learning style. The two African-American participants and the one Hispanic participant leaned toward the field dependent learning style (Table 10).

Raw GEFT scores ranged from 1 to 18 for white participants with a mean of 12.38 and a standard deviation of 5.03. The African-American participants' GEFT scores ranged from 1 to 9 with a mean of 4.0 and a standard deviation of 4.36. The raw GEFT score of the Hispanic participant was nine (Table 11).

<table>
<thead>
<tr>
<th>Race</th>
<th>Field Dependence</th>
<th>GEFT</th>
<th>Field Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>White</td>
<td>14</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>Af. Amer.</td>
<td>3</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>44</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 10: Learning Style by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>37</td>
<td>12.38</td>
<td>5.03</td>
<td>1-18</td>
</tr>
<tr>
<td>Afr.-Amer.</td>
<td>2</td>
<td>4.0</td>
<td>4.35</td>
<td>1-9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>9.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11: Mean GEFT Score by Race

**Learning Styles by Age**

Participants fell into one of six age groups, 1) 25-30, 2) 31-35, 3) 36-40, 4) 41-45, 5) 46-50, 6) 51-58 years of age. Two (40%) of the subjects in the 25-30
age group (n=5) leaned toward the field-dependent learning style and three
(60%) leaned toward the field-independent learning style. In the 31-35 age
group (n=3), two (66%) subjects leaned toward the field-dependent learning style
and one (34%) subject leaned toward the field-independent learning style. Three
(38%) of the subjects in the 36-40 age group (n=8) leaned toward the field-
dependent learning style and five (62%) of the subjects leaned toward the field-
independent learning style. In the 41-45 age group (n=4), equal division
occurred with two participants (50%) leaning toward field-dependence and two
(50%) leaning toward field-independence. Five (38%) of the participants in 46-
50 age group (n=13) leaned toward the field-dependent learning style and eight
(62%) leaned toward the field-independent learning style. In the 50-58 age
group (n=7), three (43%) leaned toward the field-dependent learning style and
four (57%) leaned toward the field-independent learning style (Table 12).

Raw GEFT scores for the 25-30 age group ranged from 6 to 18 with a
mean of 12.8 and a standard deviation of 6.22. Raw GEFT scores for the 31-35
age group ranged from 2 to 18 with a mean of 9.67 and a standard deviation of
8.02. For the 36-40 age group, raw GEFT scores ranged from 5 to 18 with a
mean of 12.75 and a standard deviation of 4.53. The 41-45 age group ranged in
GEFT scores from 9 to 15 with a mean of 12.25 and a standard deviation of
3.20. Raw GEFT scores for the 46-50 age group ranged from 4 to 18 with a
mean of 12.61 and standard deviation of 4.91. Raw GEFT scores for the 50-58
age group ranged from 1 to 17 with a mean of 9.43 and a standard deviation of
6.88 (Table 13).
<table>
<thead>
<tr>
<th>Age</th>
<th>Field Dependence</th>
<th></th>
<th>Field Independence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>25-30</td>
<td>2</td>
<td>40</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>31-35</td>
<td>2</td>
<td>66</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>36-40</td>
<td>3</td>
<td>38</td>
<td>5</td>
<td>62</td>
</tr>
<tr>
<td>41-45</td>
<td>2</td>
<td>50</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>46-50</td>
<td>5</td>
<td>38</td>
<td>8</td>
<td>62</td>
</tr>
<tr>
<td>50-58</td>
<td>3</td>
<td>43</td>
<td>4</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>41</td>
<td>24</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 12: Learning Styles by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>5</td>
<td>12.8</td>
<td>6.22</td>
<td>6-18</td>
</tr>
<tr>
<td>31-35</td>
<td>3</td>
<td>9.67</td>
<td>8.02</td>
<td>2-18</td>
</tr>
<tr>
<td>36-40</td>
<td>8</td>
<td>12.75</td>
<td>4.53</td>
<td>5-18</td>
</tr>
<tr>
<td>41-45</td>
<td>4</td>
<td>12.25</td>
<td>3.20</td>
<td>9-15</td>
</tr>
<tr>
<td>46-50</td>
<td>13</td>
<td>12.61</td>
<td>4.91</td>
<td>4-18</td>
</tr>
<tr>
<td>50-58</td>
<td>7</td>
<td>9.43</td>
<td>6.88</td>
<td>1-17</td>
</tr>
</tbody>
</table>

Table 13: Mean GEFT Score by Age

Learning Styles by Educational Level

One (14%) participant whose highest level of education was a BS/BA leaned toward the field-dependent learning style and six (86%) participants at this same degree level leaned toward the field-independent learning style. Of the thirty-two participants with a MS/MA degree, sixteen (50%) leaned toward the field-dependent learning style and sixteen (50%) leaned toward the field-independent learning style. One participant had a doctoral degree and leaned
toward the field-independent learning style and one participant had no degree and leaned toward the field dependent learning style (Table 14).

The raw GEFT scores ranged from 6 to 18 for those participants who had a BS/BA degree with a mean of 14.43 and a standard deviation of 4.20. For those who had obtained a MS/MA degree, the raw GEFT scores ranged from 1 to 18 with a mean of 11.22 and a standard deviation of 5.18. The participant with a doctoral degree had a raw GEFT score of 18. The participant with no degree had a raw GEFT score of 1 (Table 15).

<table>
<thead>
<tr>
<th>Educ. Level</th>
<th>Field Dependence</th>
<th>GEFT</th>
<th>Field Independence</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BS/BA</td>
<td>1</td>
<td>14</td>
<td>6</td>
<td>86</td>
</tr>
<tr>
<td>MS/MA</td>
<td>16</td>
<td>50</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>PhD</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>44</td>
<td>23</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 14: Learning Styles by Educational Level

<table>
<thead>
<tr>
<th>Educ. Lev.</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS/BA</td>
<td>7</td>
<td>14.43</td>
<td>4.20</td>
<td>6-18</td>
</tr>
<tr>
<td>MS/MA</td>
<td>32</td>
<td>11.22</td>
<td>5.18</td>
<td>1-18</td>
</tr>
<tr>
<td>PhD</td>
<td>1</td>
<td>18.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 15: Mean GEFT Score by Educational Level

39
Learning Style by Academic Major

Of the fourteen (n=14) participants majoring in Agricultural related field, six (43%) leaned toward the field-dependent learning style and eight (57%) leaned toward the field-independent learning style. Of those majoring in Family and Consumer Science related fields (n=15), nine (60%) leaned toward the field-dependent learning style and six (40%) leaned toward the field-independent learning style. The two (n=2) Education majors were evenly split with one leaning toward the field-dependent and one toward the field-independent learning style. One hundred percent (n=4) of the Science majors leaned toward the field-independent learning style. Of those participants (n=5) falling into the Other category, one (20%) leaned toward the field-dependent learning style and four (80%) leaned toward the field-independent learning style. One participant had no academic major because they had not obtained an educational degree. This participant leaned toward the field dependent learning style. (Table 18).

Raw GEFT scores for those declaring Agricultural related majors ranged from 1 to 18 with a mean of 11.14 and a standard deviation of 5.57. For those with Family and Consumer Science related majors, raw GEFT scores ranged from 2 to 17 with a mean of 10.87 and a standard deviation of 5.21. The raw GEFT scores for the Education majors ranged from 6 to 13 with a mean of 9.5 and a standard deviation of 4.95. Raw GEFT scores for the Science majors ranged from 13 to 18 with a mean of 16.25 and a standard deviation of 2.36. Those participants who had Other majors had raw GEFT scores ranging from 9
to 18 with a mean of 15.0 and a standard deviation of 3.54. The participant with no academic major had a raw GEFT score of 1 (Table 16).

<table>
<thead>
<tr>
<th>Major</th>
<th>Field Dependence Frequency</th>
<th>Field Independence Frequency</th>
<th>Percent</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>AG.</td>
<td>6</td>
<td>8</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>FCS</td>
<td>9</td>
<td>6</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>Educ.</td>
<td>1</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Science</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>4</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>23</td>
<td>44</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 16: Learning Style by Academic Major

<table>
<thead>
<tr>
<th>Major</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG.</td>
<td>14</td>
<td>11.14</td>
<td>5.57</td>
<td>1-18</td>
</tr>
<tr>
<td>FCS</td>
<td>15</td>
<td>10.87</td>
<td>5.21</td>
<td>2-17</td>
</tr>
<tr>
<td>Educ.</td>
<td>2</td>
<td>9.5</td>
<td>4.95</td>
<td>6-13</td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>16.25</td>
<td>2.36</td>
<td>13-18</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>15.0</td>
<td>3.54</td>
<td>9-18</td>
</tr>
</tbody>
</table>

Table 17: Mean GEFT Score by Academic Major
Agents’ Learning Styles by Program Area

A raw GEFT mean score, standard deviation, and range was calculated for each of the three program areas (Family & Consumer Science, Agriculture/Natural Resources & Community Development, and 4-H Youth Development) (Table 18).

Family and Consumer Science

Of the 15 FCS agents, 60 percent (n=9) leaned toward the field dependent learning style and 40 percent (n=6) leaned toward the field independent learning style. The raw GEFT scores ranged from 1 to 17. The mean raw GEFT score was 10.6 with a standard deviation of 5.03.

Agriculture/Natural Resources and Community Development

Of the 10 AGNR/CD agents, 50 percent (n=5) leaned toward the field dependent learning style and 50 percent (n=5) leaned toward the field independent learning style. The raw GEFT scores ranged from 1 to 17. The mean raw GEFT score was 10.1 with a standard deviation of 5.51.

4-H Youth Development

Of the 16 4-H Youth Development agents, 25 percent (n=4) leaned toward the field dependent learning style and 75 percent (n=12) leaned toward the field
independent learning style. The raw GEFT scores ranged from 2 to 18. The mean raw GEFT score was 13.69 with a standard deviation of 5.28 (Table 19).

<table>
<thead>
<tr>
<th>GEFT</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS</td>
<td>15</td>
<td>10.6</td>
<td>5.03</td>
<td>1-17</td>
</tr>
<tr>
<td>AGNR/CD</td>
<td>10</td>
<td>10.1</td>
<td>5.51</td>
<td>1-17</td>
</tr>
<tr>
<td>4-H</td>
<td>16</td>
<td>13.69</td>
<td>5.28</td>
<td>2-18</td>
</tr>
</tbody>
</table>

Note: Based on Raw Scores (total possible score = 18)

Table 18: Mean GEFT Score by Program Area

<table>
<thead>
<tr>
<th>Prog. Area</th>
<th>Field Dependence</th>
<th>Field Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>FCS</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>AGNR/CD</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>4-H</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>44</td>
</tr>
</tbody>
</table>

Table 19: GEFT Scores by Program Area

**Correlates of Agents’ Learning Style**

**Gender**

A Pearson product-moment correlation coefficient (r) was calculated to describe the relationship between agents’ preferred learning style as measured by the GEFT and the dichotomous nominal variable of gender. The relationship
between the agents' gender and GEFT score was negative and low (r=-.11) and not significant (p<.05) (Table 20).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Lev. Educ.</th>
<th>Length Employmt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEFT</td>
<td>-.11</td>
<td>-.08</td>
<td>-.05</td>
</tr>
</tbody>
</table>

Table 20: The Correlation Between GEFT Score and Gender, Age, Level of Education and Length of Employment.

**Race**

Point-biserial correlation coefficients ($r_{pb}$) were calculated to describe the relationship between agents' GEFT score and each of the three (3) racial groups: White, African-American, and Hispanic. Racial groups were dummy coded to represent the racial group in question (race=1) and presence in an other racial group (other race=0).

The relationship between GEFT score and White agents (n=37) was not significant negative, but negligible ($r_{pb}=-.08$; p<.05). A negative significant moderate relationship ($r_{pb}=-.41$; p<.05) existed between GEFT score and African-American agents (n=3). A positive significant moderate relationship ($r_{pb}=.40$; p<.05), existed between GEFT score and the Hispanic agent (n=1) (Table 21).
<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>African-Amer.</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEFT</td>
<td>-.08</td>
<td>-.41</td>
<td>.40</td>
</tr>
</tbody>
</table>

Table 21: The Correlation Between GEFT Scores and Race.

**Age**

The Kendall's tau-b correlation coefficient was used to describe the relationship between GEFT score and the six ordinal age groups. The GEFT score interval variable was recoded into five ordinal variable groups. As opposed to raw GEFT scores being used, GEFT scores were grouped into the five following groups: 1-3, 4-7, 8-11, 12-15, and 16-18. The Kendall's tau-b = -.08 (n=41) which shows a negative negligible insignificant (p<.05) relationship between GEFT score and age (Table 20).

**Academic Major**

Point-biserial correlation coefficients ($r_{pb}$) were calculated to describe the relationship between agents' GEFT score and each of the five (5) academic majors: Agriculture, Family and Consumer Science, Education, Science, and Other. Academic majors were dummy coded to represent the academic major in question (major=1) and presence in an other major (other major=0).

The relationship between GEFT score and Agriculture majors (n=14) was insignificant negative and negligible ($r_{pb} = -.07$; p<.05). A negative low insignificant relationship ($r_{pb} = -.12$; p<.05) existed between GEFT score and agents' with a Family and Consumer Science major (n=15). Agents with
Education majors (n=2) had a negative negligible insignificant relationship ($r_{pb}=-.09; \ p<.05$) with the GEFT score. A positive low insignificant relationship ($r_{pb}=.28; \ p<.05$) existed between GEFT score and Science majors (n=4). Also having a positive low insignificant relationship ($r_{pb}=.23; \ p<.05$), was GEFT score and agent with Other majors (n=5) (Table 22).

<table>
<thead>
<tr>
<th></th>
<th>Ag.</th>
<th>FCS</th>
<th>Educ.</th>
<th>Science</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEFT</td>
<td>-.07</td>
<td>-.12</td>
<td>-.09</td>
<td>.28</td>
<td>.23</td>
</tr>
</tbody>
</table>

Table 22: The Correlation Between GEFT Scores and Academic Major.

**Level of Education**

The Kendall's tau-b correlation coefficient was used to describe the relationship between GEFT score and the three (3) levels of education: Bachelor of Science/Arts degree, Master's of Science/Arts degree, and Doctoral (PhD) degree. The GEFT score interval variable was recoded into five ordinal variable groups. As opposed to raw GEFT scores being used, GEFT scores were grouped into the five following groups: 1-3, 4-7, 8-11, 12-15, and 16-18. The Kendall's tau-b=-.05 (n=41) which shows a negative insignificant ($p<.05$) negligible relationship between GEFT score and level of education (Table 20).
Length of Employment with Ohio State University Extension

The Kendall's tau-b correlation coefficient was also used to describe the relationship between GEFT score and the six (6) ordinal groups of length of employment: 0-5 years, 6-10 years, 11-15 years, 16-20 years, 21-25 years, over 25 years. Once again, GEFT scores were grouped into five ordinal sets. The Kendall's tau-b = -.01 (n=41) which shows a significant (p<.05) negative and very negligible relationship between agents' GEFT scores and length of employment with Ohio State University Extension (Table 20).

Correlates of Agents' Learning Style by Program Area

Point-biserial correlation coefficients ($r_{pb}$) were calculated to describe the relationship between agents' GEFT score and each of the three (3) program areas: Family and Consumer Science, Agricultural and Natural Resources/Community Development, and 4-H Youth Development. Program areas were dummy coded to represent the program area in question (program=1) and presence in an other program area (other program=0).

The relationship between GEFT score and Family and Consumer Science Agents (n=15) was negative and low and unsignificant ($r_{pb}=-.20$; p<.05). A negative low unsignificant relationship ($r_{pb}=-.17$; p<.05) existed between GEFT score and agents' in the program area of Agriculture and Natural
Resources/Community Development (n=10). And having an insignificant positive moderate relationship ($r_{pb}=.30; p<.05$), was GEFT score and 4-H Youth Development Agents (n=16) (Table 23).

<table>
<thead>
<tr>
<th></th>
<th>FCS</th>
<th>AGNR/CD</th>
<th>4-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEFT</td>
<td>-.20</td>
<td>-.17</td>
<td>.30</td>
</tr>
</tbody>
</table>

Table 23: The Correlation Between GEFT Scores and Program Area.
CHAPTER 5

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Purpose

The purpose of this relational study was to examine the learning styles of field dependence and field independence of Ohio State University Northeast District County Extension Agents within the program areas of Agriculture and Natural Resources, Family and Consumer Science, 4-H Youth Development, Community Development, .......as a whole, and relationships between these learning styles and demographical data, such as gender, age, ethnic background, academic major, level of education, and length of employment with Ohio State University Extension.

Conclusions

The conclusions are organized in accordance with the objectives of the study. Objective 1: Describe Northeast District County Extension Agents by selected demographical characteristics.
The majority of the agents participating in the study were 4-H Youth Development agents, followed by Family and Consumer Science agents and Agriculture/Natural Resources and Community Development agents respectively. The age of Extension Agents ranged from 25 to 58 years of age with the majority of agents between the ages of 46 and 50. Of the 41 agents who participated in the study, the majority were female. It was found that almost all the participants were white. The two most popular academic majors fell into the Family and Consumer Science and Agricultural fields. An overwhelming portion of the 41 agents had obtained their Masters of Science or Masters of Arts degree and one agent had a doctoral degree. The agents’ length of employment with Ohio State University Extension ranged from 0 to 30 years with the majority of the agents having been employed 0 to 5 years.

Objective 2: *Describe Northeast District County Extension Agents by selected demographical characteristics within individual program areas.*

The FCS agents were predominately white females between the ages of 41 and 58 who had majored in an FCS related field, obtaining a Master’s degree. The majority of the FCS agents had been employed by Ohio State University Extension 15 years or less.
The AGNR/CD agents were mainly white males between the ages of 46 and 58 who had obtained a Master’s degree. The majority of AGNR/CD agents had majored in an Agricultural related field and had been employed with Ohio State University Extension for less than 16 years.

The majority of the 4-H agents were between the ages of 25 and 40. The gender of 4-H agents was almost equally split between male and female. The majority of 4-H agents were white, had obtained a Master’s degree, and had a variety of academic majors with the most prominent major being Agriculture. 4-H agents were the least experienced of all program areas with the majority having been employed with Ohio State University Extension for less than 11 years.

Objective 3: Describe the learning styles of Northeast District County Extension Agents.

Of the 41 agents participating in the study, the majority, leaned toward the field independent learning style. The males tended to be more field independent than females. White participants, leaned more toward the field-independent learning style and the African-Americans and the Hispanic participant leaned toward the field dependent learning style. Both older and younger agents leaned more toward the field-dependent learning style.
The majority of agents with a Bachelor's degree leaned toward the field-independent learning style. Those agents who had a Master's degree were evenly split between the field-dependent and field-independent learning style. The one agent who had a doctoral degree leaned toward the field-independent learning style. And, the one participant had no degree and leaned toward the field dependent learning style. Agents with an agriculutural major leaned more toward the field-independent learning style. Of those majoring in Family and Consumer Science related fields, the majority leaned toward the field-dependent learning style. The Education majors were evenly split between the field-dependent and the field-independent learning style. All of the Science majors leaned toward the field-independent learning style. Of those participants with 'other' majors, the majority leaned toward the field-independent learning style. One participant had no academic major because they had not obtained an educational degree. This participant leaned toward the field dependent learning style.

Objective 4: Describe the learning styles of Northeast District County Extension Agents within individual program areas.

The FCS agents predominately leaned toward the field dependent learning style. Of the 10 AGNR/CD agents, half leaned toward the field
dependent learning style and half leaned toward the field independent learning style. 4-H Youth Development agents leaned more toward the field independent learning style.

Objective 5:  *Describe the relationship between selected characteristics of Northeast District County Extension Agents and their learning styles.*

No significant relationships were found relating GEFT scores to the variables of gender, academic major, or level of education. Significant relationships were found relating GEFT scores to race and length of employment. The relationship existing between gender and GEFT was negative and low. The relationship existing between GEFT and race was negative and negligible with white agents, negative and moderate with African-American agents, and positive and moderate with the Hispanic agent. When comparing age of agents to GEFT scores, a negative negligible relationship was found. The relationship between GEFT scores and academic major was as follows: Agriculture, negative and negligible; Family and Consumer Science, negative and low; Education, negative and negligible; Science, positive and low; and Other, positive and low.

Objective 6:  *Describe the relationship between Northeast District County Extension Agents’ learning styles and individual program areas.*

Relationships were found to be insignificant relating GEFT scores to program area. A negative low relationship existed between GEFT scores and the program areas of both Family and Consumer Science and Agricultural and
Natural Resources/Community Development. A positive moderate relationship existed between GEFT scores and the program area of 4-H Youth Development.

**Implications**

The following implications apply to the population studied and are based upon the conclusions of the study.

From the findings of the study it was concluded that Extension agents in the Northeast district differed in their preferred learning style. The agents’ mean GEFT score was 11.68 which is slightly above the nationally mean of 11.4 (Witkin, Oltman, Raskin, Karp, 1971). The range of agents’ GEFT scores was from 1 to 18, indicating that no assumptions can be made about which learning style agents preferred based solely on GEFT score range.

No significant relationship existed between learning style and program area. This cannot be compared to previous research as no other research of this type exists. However, it should be noted that, Agriculture and Natural Resources/Community Development agents were split evenly with fifty percent leaning toward the field dependent learning style and fifty percent leaned toward the field independent learning style. This does not support previous research (Witkin, Moore, Goodenough, & Cox, 1977; Cano, Garton, & Raven, 1991; Cano & Garton, 1992) that found teachers specializing in agriculture leaned more toward the field independent learning style. The program area of Family and
Consumer Science preferred the field dependent learning style which supports the research of Witkin (1976) who found that students majoring in home economics were more field dependent. (NOTE: Family and Consumer Science was formerly known as Home Economics). The 4-H Youth Development agents preferred the learning style of field independent. This does not support previous research (Witkin, 1976) that found persons choosing vocational fields that require great social skills leaned toward the field dependent learning style.

Agents' age, gender, academic major, level of education, and length of employment were independent of agents' GEFT scores. Prior to this study no research had been conducted to investigate the possible relationship between GEFT score and agents' age, gender, academic major, level of education and length of employment.

All the agents' demographical characteristics had a weak relationship with GEFT scores except for the characteristic of race. White agents were more field independent and minority agents were more field dependent. However, this is not substantial due to the under representation of minority agents in the study. Yet, this does support previous research (Ramirez and Price Williams, 1974) that found white subjects tend to be more field independent than Hispanic or African-American subjects.

The female agents leaned more toward the field dependent learning style which supports previous research (Garger & Guild, 1984; Claxton & Ralston, 1978; Reiff, 1992; Witkin, 1950; Witkin et al., 1954; Witkin et al., 1962; Witkin et al., 1971; Witkin, 1976) that found females were more field dependent.
The majority of agents in this study were field independent with the largest group of agents (n=14) over the age of forty. This does not support previous research (Crosson, 1984) that found field independence declines with age.

No research existed relating learning style to level of education and length of employment with Ohio State University Extension.

The majority (57%) of agents in an agricultural related field leaned toward the field independent learning style. This supports the research of Torres (1993) who found students majoring in an agricultural related field preferred the field independent learning style. This also supported research (Witkin, 1976) that found persons favoring the field independent learning style prefer academic majors which require analytical skills.

Family and Consumer Science majors leaned more toward the field dependent learning style which supports research by Witkin (1976) that found field dependent learners favor domains requiring social skills. In addition, Frank (1986) found that home economic majors were more field dependent.

Science majors preferred the field independent learning style which supports research by Witkin (1976) stating that academic majors requiring much analytical skill were more field independent.
Recommendations

Based on the results of this study the researcher recommendations were made in regard to objectives of the study, methodology, and the need for further study.

Objectives 1 and 2

Ohio State University Extension Agents statewide, should take the GEFT test to determine learning style. Also, those involved in program implementation such as program assistants and volunteers, in all program areas, should take the GEFT test and receive training regarding learning styles.

Objectives 3 and 4

All programming staff, including agents, should not only determine and learn about their own learning style but be trained about the difference in learning style. In addition, staff should be taught creative ways to accommodate both field-independence and field-dependence in their programming efforts. This would not necessarily result in a change in program delivery methods, but would alert those persons implementing the programs that different learning styles do exist and to be aware of the needs of all participants.

Objectives 4 and 5

Those involved in curriculum development and program implementation should examine curriculums and programs to determine if learning opportunities exist for both field-independent and field-dependent learners.
Methodology

The timing of the data collection may be an important fact to consider. The GEFT test should be administered to agents during a time of year when they are not their busiest. If agents are being taken away from their work during the height of their busy season to participate in a research study, their attitude may not be as positive and thus not perform their best when taking the GEFT test.

Need for Further Study

In order for substantial relationships (if any) to be found between program area and the learning style of field independence/field dependence, a larger population needs to be studied. The population to be included in further study should include other if not all districts within Ohio State University Extension. Also, if a larger population is studied, the findings can be compared to the findings of this study.

In future studies, the demographical characteristics of academic major, level of education, and length of employment with Ohio State University Extension can be excluded. These data can be gathered for other purposes, but are not useful in relationship to learning styles.

The significance of using the demographical characteristics of age, gender, and race are questionable in regards to future studies. Although the findings of these characteristics in relation to learning styles, were similar to those findings of previous research, these characteristics are not significant when looking at learning styles in relation to program area. However, Extension
program personnel who work with culturally diverse audiences may find research using these characteristics in relation to learning style useful.

Based on the findings of this research, Northeast District Ohio State University Extension Agents in the program area of 4-H Youth Development, are the youngest and least experienced (lowest years of employment with Ohio State University Extension). History reveals that 4-H agents used to be hired into the system with the intent of one day being promoted to AGNR/CD or FCS agents. The organization now hires 4-H agents not as AGNR/CD or FCS agents in training, but as 4-H agents with the intent they will remain 4-H agents. Yet by looking at the age and length of employment of the 4-H agents in the Northeast District, the question of whether or not this is true could be raised. By looking at the age and length of employment with Ohio State University Extension of 4-H agents in other districts throughout the state, the question of whether or not this a coincidence could be answered. Although, it is true that the highest turnover rate of county agents is within the program area of 4-H Youth Development. This could be another reason for the young age and lowest years of employment for 4-H agents in the Northeast District.
APPENDIX A

Ohio State University Extension Northeast District Map
APPENDIX B

Ohio State University Extension Mission Statement
APPENDIX B

Ohio State University Extension

**Our Mission:** Ohio State University Extension helps people improve their lives through an educational process using scientific knowledge focused on identified issues and needs.

**Our Vision:** Ohio State University Extension is broadly recognized throughout the state as a premier educational network. It is a dynamic organization strengthening individuals, families and communities in partnership with the Federal Extension System.

**Extension Educators:**

- Concentrate on critical economic, environmental, leadership, and youth/family development issues.
- Engage people in their own learning and subsequent actions.
- Address emerging needs by developing programs that anticipate social and economic changes.
- Apply valid, reliable research and information.
- Unite and extend the broad base of university resources.
- Maximize available resources by organizing and leading coalitions.
- Educate without discrimination and employ people representing the diversity in the state's population.
- Recruit and develop volunteers to multiply Extension's efforts.
• Link local needs with researchers.
• Teach with appropriate and effective educational techniques and methods.
• Value teamwork; recognize and support the contribution of one another.

Our Organizational Values:

As Extension educators with the Ohio State University Extension, The Ohio State University, we are dedicated to the following values for our organization:
• We believe in an emphasis on excellence in educational programming
• We believe in programs that help people solve problems
• We believe in useful, practical programs
• We believe in helping people help themselves
• We believe in quick responses to clientele concerns
• We believe in the unbiased delivery of information
• We believe in credibility with clientele
• We believe in honesty and integrity in our work
• We believe in a philosophy of teamwork.
APPENDIX C

Participant Questionnaire
APPENDIX C

Group Embedded Figures Test

Participant Questionnaire

Name ______________________ Age ______ Gender ______

County ______________________ Race ______________________

Program Area/s ________________________________________

Educational Degree/s Obtained ______________________________________

Educational Majors ______________________________________

Length of Employment with OSUE ______________________

THE RELATIONSHIP BETWEEN LEARNING STYLE AND SELECTED CHARACTERISTICS OF NORTHEAST DISTRICT OHIO STATE UNIVERSITY EXTENSION AGENTS.
Marcy A. Hudson - Thesis - The Ohio State University 1997
APPENDIX D

Learning Style Participant Handout
## APPENDIX D

### FIELD DEPENDENT

...includes persons who are heavily influenced by the surrounding field.

### CHARACTERISTICS

- Has a global perception
- Problems with analytical problem solving
- Extroverted - Highly sensitive and attuned to social environments
- Very effective with social skills
  - Developed naturally, instinctively
- Favors "spectator approach" to learning
- Takes others opinions into account before making decisions
- Extrinsicly motivated - likes social reinforcement
- Likes to sit in the back of the classroom

### FIELD INDEPENDENT

...includes persons who are not influenced by the surrounding field.

### CHARACTERISTICS

- Perception of discrete parts
- Good at abstract analytical thought
- Introverted - More individualistic and not as sensitive to emotions of others
- Less effective with Social skills
  - Developed through effort, necessity, demand
- Favors “inquiry” approach to learning and independent study
- More likely to make their own decisions without the influence of others
- Intrinsically motivated - unresponsive to social reinforcement
- Prefers sitting in front of the classroom

### SCORING

- 0.0 - 11.4 = field dependent
- 11.5 - 18.0 = field independent

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**PLEASE REMEMBER, ONE LEARNING STYLE IS NOT SUPERIOR TO ANOTHER.**

*THE RELATIONSHIP BETWEEN LEARNING STYLE AND SELECTED CHARACTERISTICS OF NORTHEAST DISTRICT OHIO STATE UNIVERSITY EXTENSION AGENTS.* Marcy A. Hudson - Thesis - The Ohio State University 1997
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