

ABSTRACT

Burke, Travis B. Defining Competency and Reviewing Factors That May Impact the Perceived Importance, Knowledge and Use of Competencies in The 4-H Professional's Job. (Under the direction of R. David Mustian)

The focus of this study was to identify and describe competencies and how they impact knowledge, importance and use in the 4-H professional's job. Relationships of socio-demographic factors (age, education, gender, ethnic background) and organizational factors; program resources, tenure, discipline and staff size were examined.

Data for this study were obtained by surveying 4-H extension professionals using a structured questionnaire. The 4-H professionals serve as staff working for North Carolina Cooperative Extension. Seventy-nine percent of the instruments were returned.

Seven null hypotheses were tested and included: 1) the level of knowledge, importance and use of competencies do not differ by age; 2) the level of knowledge, importance and use of competencies do not differ by gender; 3) the level of knowledge, importance and use of competencies do not differ by education; 4) the level of knowledge, importance and use of competencies do not differ by ethnic background; 5) the level of knowledge, importance and use of competencies do not differ by years of experience; 6) the level of knowledge, importance and use of competencies do not differ by job responsibilities; and 7) the level of knowledge, importance and use do not differ by total staff size.

Data were collected from 69 respondents, which revealed that 6 of 7 hypotheses were not rejected. Ethnic background did influence knowledge, importance and use of competencies, however less than nine percent of the respondents were non-white. Based on the study findings, 4-H competencies are important to the 4-H profession and emphasized in the 4-H professional's role. The competencies also must be an integral part of personal development as a 4-H professional.

DEFINING COMPETENCY AND
REVIEWING FACTORS THAT MAY IMPACT
KNOWLEDGE, PERCEIVED IMPORTANCE AND
USE OF COMPETENCIES IN THE
4-H PROFESSIONAL'S JOB

by
Travis B. Burke

A dissertation submitted to the Graduate Faculty of
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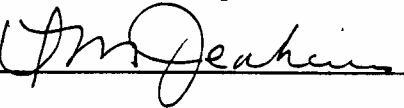
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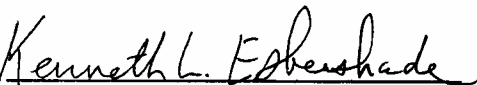
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APPROVED BY:


Chair of Advisory Committee







DEDICATION

TO MY MOTHER AND FATHER, AS THEIR RESILIENCE AND PRESENCE
PROVIDED A SENSE OF COMFORT THROUGHOUT THIS DOCTORAL
PROGRAM.

BIOGRAPHY

Travis Brevard Burke was born August 12, 1961, in Elizabeth City, North Carolina. He was the seventh of eight children of Clarence Burke, Jr. and Emma Seymore Burke. During his early childhood, he lived in Hertford, North Carolina on the family farm, until graduation at Perquimans County High School in 1979. He received a Bachelor of Science Degree in Agricultural Education from North Carolina State University in 1982. His Master of Agriculture Degree was conferred in 1986 by North Carolina State University.

The author began his career with North Carolina Cooperative Extension and North Carolina State University in 1982 as Assistant Agricultural Extension Agent in Pasquotank County. In 1998 he became County Extension Director in Pasquotank County, the position he currently holds.

The author has served in various leadership roles at the county, state and national levels. Examples include State President of the North Carolina Association of Extension 4-H Agents, Southern Region Director for the National Association of Extension 4-H Agents, and Treasurer for the Federation of Cooperative Extension Associations. The author has received numerous awards from extension educational associations, Pasquotank County and other community groups for outstanding educational programming.

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Acknowledgement is given to Dr. R. David Mustian, Chairman of the Author's Advisory Committee, who guided this study from its inception. His scholarly guidance and vision helped the author identify and develop concepts central to the study. The author not only is appreciative of his support, but is grateful for his facilitation in the program of this study.

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Introduction

There are many difficulties and barriers facing educational institutions as well as various industries, particularly the technology sector. Severe budget cuts and downsizing will have a tremendous impact on the American citizen. With the large amount of turnover of personnel, organizations will be required to be more efficient and effective in carrying out its mission.

According to Cable News Network (CNN, 2001) "17 states in the country are facing budget concerns due to the down turn in the nation's economy." North Carolina is included in those 17 states. The state is continuing to have legislative battles related to the 2001 budget. With these challenges ahead, organizations must look for ways to focus on those learning experiences that will enhance the individual's job performance. Even with smaller staffs, the issue of competency development is increasingly important. Are there competencies which would help the individual with his or her professional development? What are these professional development competencies and how are they relevant to the needs of the organization?

Developing a model to identify those competencies and how they may impact knowledge in one's job will aid the organization and its chance for surviving organizational downsizing and shrinking budgets. Consequently, competencies are quickly becoming a mutual theme for many organizations. Competencies and human competence itself, are rapidly receiving recognition as an essential

element of any organization's success. Since professional development includes all planned and unplanned learning experiences, competencies would be necessary for the 4-H Agent to achieve successful performance. In assessing "successful performance" from a professional development perspective, he or she would reference both one's work (or job) and other roles not related to the specific job at hand. Thus, in the absence of worker competencies, it would be difficult for organizations to achieve desired outcomes. (Dubois, 1998).

The 4-H and Youth Development professional is responsible for his or her own learning and continuous professional development. By providing support and training to 4-H Agents, based on the competencies used in one's job, we can ensure that there is consistency and efficiency within an organization.

Organizational downsizing, shrinking budgets, competition for non-mandated monies, an unsettling economy, and a rising unemployment rate have major consequences for organizational viability and tenure of organizational employees. With a shift where organizations have moved from being "expert systems" to a global perspective with a plethora of information available through efficient and relevant delivery systems, today's employees find themselves competing for short-term positions and almost continuous re-tooling to maintain an acceptable lifestyle.

The accelerating rate of change in world economic, social, political, and environmental domains have created enormous pressure on business and

industry, not only to be competitive, but also to continuously equip and train an effective cadre of employees. For the past decade, American businesses have responded to these challenges by making major investments in technology, restructuring, re-engineering, and ultimately streamlining their employee pools to survive in a global environment. Yet despite these efforts, many businesses are reporting that these strategies have not been effective (Robinson and Robinson, 1995).

Hamel and Prahalad (1996) contend that these strategies have not produced the desired results because the strategies represent misguided solutions for what organizational systems must do in order to survive in the rapidly changing global environment. They contend that the keys to being productive in the future lie not in antiquated management strategies but rather in the strategic development and application of an organization's "brain power" and "intellectual capital". According to this prevailing view, an organization's competitive strengths are the collective learnings of its employees, particularly their ability to assimilate and direct their knowledge to the core processes of the business. Thus, the real competitive advantage of the organization is the collective knowledge and competency of its work force (Prehalad and Hamel, 1990).

In response to these ever-changing conditions, organizations are tapping into their largely ignored and underdeveloped human resources by transforming themselves into "knowledge-creating" companies (Nonaka, 1991) or more

specifically, to adopt the "learning organization" as a way of developing a competitive advantage. A "learning organization" focuses on "continuous learning" as a means of increasing knowledge in the organization to better respond to change (Watkins and Marsick, 1993). Garwin (1993, p. 88) defines a learning organization as one which is "skilled at creating, acquiring, transferring knowledge and at modifying its behavior to reflect new knowledge and insights".

A key concept in a learning organization is that of "competency". McClagen (1998) states that competencies are a participatory strategy. While competencies allow us to be transparent in our experiences, they also may be used as management tools. However, for the professional educator competencies are tools for self application, i.e. for helping us to democratize and empower with discipline. The context of an organization is a major factor restricting the introduction of competency-based models when administrators perceive such a model in a negative sense. There continues to be a lack of clarity as to whether competencies represent "inputs" or "outputs". The American model appears to portray competencies as inputs because they consist of clusters of knowledge, attitudes, and skills that individuals must learn to perform (Parry, 1996).

Of equal importance is the impact of budget issues and economic rationales on competency development. Every individual in an organization has needs and values which are brought to any situation. Even during budget shortfalls, competency development will influence organizational change through: 1)

creation of a compelling vision, 2) development of a common purpose, direction and language, 3) the generation of energy and enthusiasm for the new vision (Hall, 1998). Hall (1998) described the development of a culture for providing a competency-based system for Rhone-Poulenc, a multi-billion dollar pharmaceutical corporation. That company's success resulted from describing what competency based development would mean to the individual employee and through developing a common language of competencies for the employees.

Background Information

Since its creation nearly one-hundred years ago, the purpose of Cooperative Extension has been to aid in diffusing among the people of the United States useful and practical information on subjects related to agriculture, home economics and to encourage the application of the same (Rasnussen, 1989).

Cooperative Extension has always had a very knowledgeable work force that has long been valued as an integral part of a research based organization. The "research based" concept was especially recognized in the 1930's and 1940's in rural communities. By utilizing this knowledge work force, Extension has a long history of local grass roots involvement in the identification of issues, problems and concerns of individuals, organizations and communications. Extension programming also involves local volunteers in planning and implementing Extension educational programs designed to address those issues, problems and concerns (Albright, 2000).

In the past decade, however, the rapid development of a global economy and increasingly complex and changing social, economic and environmental conditions at the community and state levels have produced changing concerns and priorities for Cooperative Extension. In addition, the rapid expansion and distribution of the world's knowledge base is affecting how Extension programming is to be delivered. Colleges of Agriculture and the Land Grant University System are undergoing institutional changes that are affecting their responsiveness to the community, their organizational flexibility and even their mission. Cooperative Extension is also dealing with internal challenges such as the need to be more customer driven, being more cost effective with limited budgets and committing to improve customer expectations (Ladewig and Rohs, 1998).

In Cooperative Extension, the 4-H Agent is beginning to look at methods of improving excellence through individual and organizational growth. Core competencies will achieve this by providing personnel with necessary skills to compete in the new millennium. A set of core competencies will define the values and behaviors of 4-H and Youth Development Professionals in the North Carolina Cooperative Extension Service. (Stone, et al, 2001). Competencies will offer individual and personal success; as well as strategic advantages to the Extension Service. More importantly, a competency based model for the 4-H professional will aid in managing, communicating and evaluating those among the 4-H and

Youth Development profession (Stone, 2000).

The 4-H and Youth Development Program's hallmark is delivering educational programs to the youth of North Carolina. As educational institutions embrace increased program accountability, it is critical that organizations adapt to professional development models that would be more reflective of the 4-H Agent's performance (Segers, 1998).

Professional development includes all planned and unplanned learning experiences that improve an individual's work performance. Currently, 4-H and Youth Development has a no systems approach to professional development. However, 4-H Youth Development does support the recommendations and policies of the Personal Organizational and Development System (Stone, et al, 2000).

How is professional development currently addressed? As a result of the North Carolina Association of Extension 4-H Agents Millennium Report, the National 4-H Strategic Plan and a North Carolina 4-H Work Group, the current components of the 4-H Professional Development System are:

- steered by county program needs,
- competency based - define the values and behaviors of 4-H youth development professionals, and
- focused on the acquisition of a graduate degree, professional certification and/or performance.

Statement of The Problem

Extension 4-H Agents are expected to competently perform job tasks at an acceptable level. Many 4-H professionals lack the skills to perform at a level that meets and exceeds expectations of the organization. The personal development system will be strengthened by the dynamics of competencies, in a knowledge driven organization.

The purpose of this study is to determine what competencies are necessary for the 4-H Agent to be successful. Also, the researcher wishes to determine if the 4-H Agent knows what competencies are necessary for optimum job performance and how often the competencies are utilized. Currently, there are no systems available where the 4-H Agent may seek guidance to learn what is required of them to be high performers. A new system is needed to accomplish this effort, particularly since the role of the extension agent has transitioned from expert oriented to information system.

A competency model would be functional in providing agents with tools necessary to impact knowledge and provide the means for organizational success. Additionally, a competency model would be a useful instrument which could measure the 4-H Agent's personal development. If the model is to be effective, two items must become inherent:

- 1) the 4-H Agent must be responsible for individualized performance,
- 2) the extension organization must be willing to make the adjustment of

individualized performance standards. The 4-H professional must be competent and be willing to fulfill mutually agreed upon goals and objectives established between the individual and the organization. These professionals must then be successful in representing the organization and the functions they perform to keep the organization viable.

Competency has its place, as a method of achieving growth as a 4-H professional. Every job has tasks that are critical to successful performance. The 4-H Agent is expected to competently perform job duties at an acceptable level of performance. The extent of the use of different competencies are also important in this study. Therefore, the 4-H professional must understand the competencies that are essential to an acceptable level of performance.

Significance of The Study

Since competencies are somewhat of a new idea, the study will provide a means of impacting knowledge and reveal how they may be used in one's job. The study will show how competencies may be used to have an increase in productivity and job performance. It is predicted that the study will show the level of knowledge that extension agents have about competencies. As non-formal organizations embrace educational outreach, they must adjust to the increasing need of accurate, timely research based educational information. In order for educational institutions to remain competitive, Cooperative Extension must embrace a competency based concept which may impact knowledge and enhance the effectiveness of the 4-H professional's job. It is expected that the study will benefit the individual 4-H Agent by providing him/her with the necessary tools to ensure personal growth for competent performance. The study will also provide the following contributions: a) provide the organization with a model for the 4-H Agent that may be utilized for all levels of tenure, b) identify those skills for the 4-H Agent that may be used in daily job tasks which will keep the organization viable, and c) develop a model based on self assessments by 4-H Agents (identified by its population for the benefit of the organization).

Objectives of The Study

Based on the preceding discussion, the following objectives are addressed in this study:

- 1) Validate the core competencies for the 4-H professional;
- 2) Determine the 4-H Agent's knowledge of the core competencies;
- 3) Ascertain the professional's perception of the importance of the core competencies in individual programming;
- 4) Determine use of competencies; and
- 5) Identify socio-demographic and organizational factors that influence the 4-H professional's level of knowledge, perception of importance and use of core competencies.

Concepts, Conceptual Schema and Review of Related Literature

A competency based study is somewhat of a new idea, yet a means of promoting innovation and continuous learning for the extension educator. A competency can be used to increase effectiveness, productivity and lead to an enhanced level of performance.

Presented in this chapter are the concepts derived from a review of literature in the disciplines of education, sociology and psychology. The concepts that undergird the inquiry, the conceptual schema formulated to depict the variables and the findings gleaned from existing research, were believed to provide informed insights about the hypothesized differences, as shown in the conceptual schema, are discussed. The concluding section of the chapter is comprised of the research hypotheses that were formulated to guide the inquiry. Six concepts were central to this research. Those concepts were competency, knowledge, attitudes, perceptions and professional development and competency based models.

Developing A Competency Model

Traditional training practices have typically proven to be less than adequate at meeting the needs of the re-engineered business organization (Pepitone, 1995). The conventional methods of training grew out of the same principles that fit the way in which business has been managed in the past, with complex hierarchies,

employees managed within disciplines, and responsibility and decision making in the hands of a few senior managers. As a result, training became institutionalized as a staff function and motivated training practitioners to promote training solutions more as a function of their own existence rather than to meet any real business needs (Dubois, 1998).

What is required is a new paradigm for training - one that adds value to the business by transforming learning experiences into performance-based outcomes.

The achievement of such a transformation requires a completely new view of training. This view includes activities such as linking learning needs to strategic business objectives; planning management involvement in defining and clarifying learning deficits, planning learning interventions that are integrated with job performance; scheduling learning interventions for high payoff; and creating structures for support of critical activities before and after learning events (Dubois, 1998).

Competency-based learning and training is a process that can integrate learning events into the ongoing operations of the business. The key to competency-based learning and training is systems thinking, the assumption that training has an interdependent, dynamic relationship with other business processes and the total organization. This view is very much in contrast to the prevailing view of training as a separate, secondary function that produces programs and learning that may not transfer to the workplace. Competency-

based training systems design is a methodology of defining what is to be taught and how it is to be taught, and of determining the most effective media for delivery. The result is a performance-based curriculum design that guides the development of a total system of training within the context of a given job or category of position. This ensures that training works together to produce the desired results by providing employees with all the knowledge and skills needed to do their jobs. Competency-based learning and training is guided by a set of beliefs and a philosophy about the way training is perceived and structured within the organization. Effective learning and training are parts of everyone's job. Everyone is responsible for managing his or her learning and cultivating the knowledge and skills that support the goals of the organization. Thus, the basic model principles for competency models include:

- determining the level of knowledge and skill set required;
- relating training goals to organizational needs;
- finding time for learning;
- deciding on activities, materials, resources and equipment for learning;
- estimating one's own level of progress; and
- managing results so that learning increases and is transformed into added value products and services.

Competency-based learning and training is therefore more than an process for structuring training; it is a situational approach to learning designed to add value

to the organization in the form of improved performance or productivity (Dubois, 1998). Norton (1985) suggests that when developing a competency curriculum, the process operates on the following three promises:

- expert workers are better able to describe/define their jobs than anyone else,
- any job can be effectively and sufficiently described in terms of the tasks that successful workers in that occupation perform, and
- all tasks have direct implications for the knowledge and attitudes that workers must have in order to perform the tasks correctly.

The (PHG) Prudential Health Group (1995) stated that competency models would be based on the following proficiency levels:

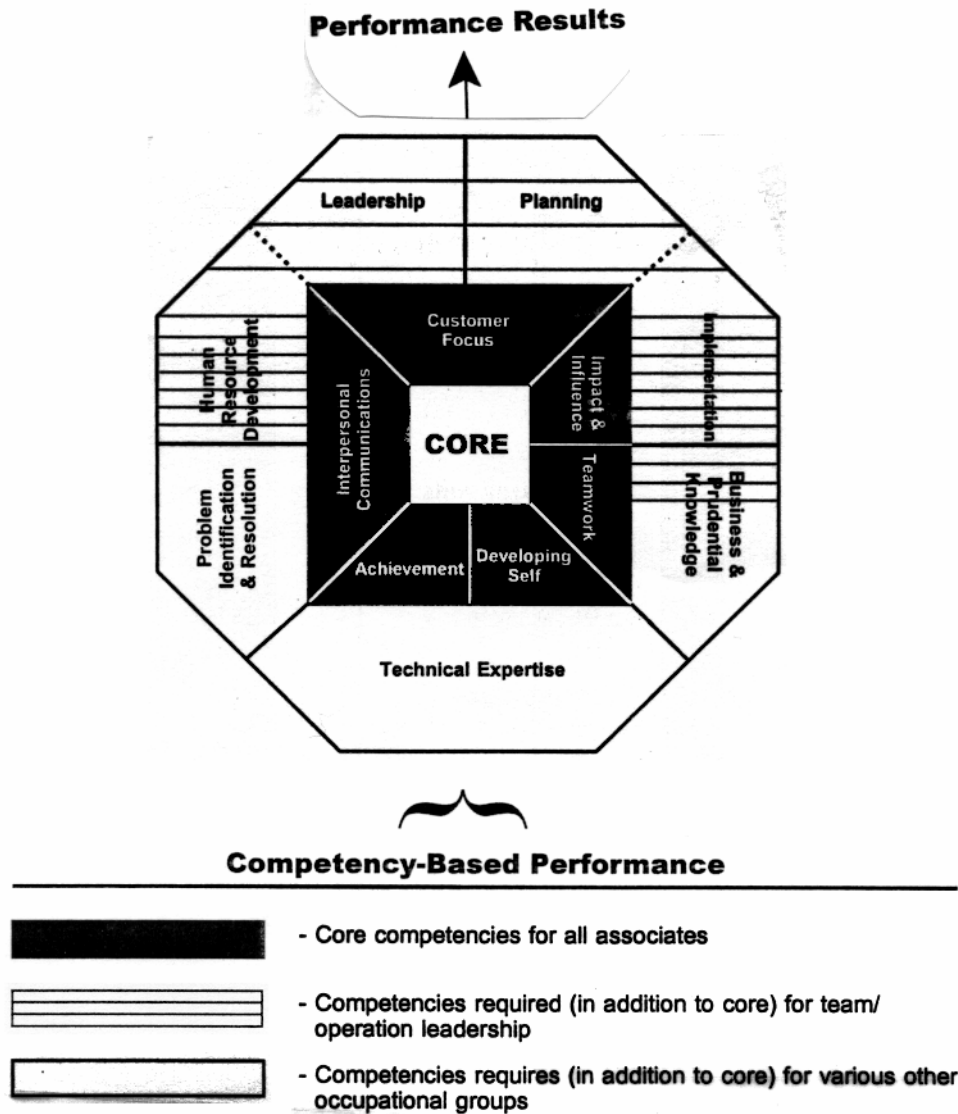
- 1) **Exceptional:** This person is viewed as showing consistent expertise in the performance area. The behavior of this individual consistently has a positive impact on the production of the entire work unit.
- 2) **Highly Competent:** This person is highly effective and occasionally guides and directs others.
- 3) **Effective:** This person is viewed as applying satisfactory knowledge and skills to create fully acceptable performance in the area of responsibility.
- 4) **Less Than Effective:** This person is learning knowledge and skills and is not demonstrating knowledge and skills or appropriate job behavior.

To validate the competency model, these six steps were used:

- 1) Planning The Project
- 2) Education (transfer of knowledge)
- 3) Data Collection
- 4) Benchmarking The Best Practices of Other Organizations
- 5) Data Analysis and Model Development
- 6) Presentation of The Refined Competency Model

The finished model is shown in Figure 1 below:

Figure 1: Competency Based Performance Model - Dubois, David. 1998, pp. 112



The success of developing a competency model is determined by personal involvement, commitment, and support of the organization. New model development may result in changes in management requirements and organizational structural changes which may be helpful in improving customer service.

Competency

Leadership Competencies:

Seven leadership competencies were developed by Hamel and Prohalad (1994).

- **Problem Solving** - Recognizes problems and knows what is necessary and whom to contact to resolve them. Troubleshoots to avoid encountering problems and takes initiative to gather relevant information to solve those problems.
- **Coaching** - Is willing to help and/or instruct individuals on work activities. Openly communicates and shares knowledge with co-workers. Volunteers to train new employees on products, processes, system and/or functions.
- **Organizational Skills** - Successfully organizes time to cope with multiple assignments and completing priorities. Meets production deadlines, must be able to shift back and forth from one process to another and is able to organize tasks to handle crisis situations.
- **Team Goals** - Focuses on organizational goals and promotes collaboration

and teamwork as the preferred means to achieve those goals.

- **Personal-Interaction Skills** - Works well with others and is able to adapt to changing personnel, open-minded, gives thought to others' ideas and is able to compromise.
- **Verbal Communication** - Communicates complex issues in understandable terms; demonstrates an understanding of concepts; and is able to adapt messages to varying expertise levels.
- **Written Communication** - Provides well-organized, thorough and clearly written instructions. Uses appropriate terminology, grammar, and punctuation. Clearly documents what had been accomplished.

A competency is a cluster of related knowledge, attitudes and skills that affects a major part of one's job that can be measured against well-accepted standards. These standards can be improved via training and development. Carrolle and McCrakin, (1996) indicated that competencies are knowledge, skills, abilities, attitude traits or behaviors that characterize excellent performance within a specific job context. Stone (1997) describes competencies as the application of knowledge, technical skills and personal characteristics which are designed around the skills individuals and groups need to be effective in job performance and are used for making human resource decisions.

In studying the competency area, one is immediately struck by the lack of

uniform, definitions, terminology and the resulting misunderstanding. The difficulty appears to stem from drawing very fine lines of definition distinction with terms such as competence, competency and competencies. The New Oxford Short Dictionary defines "competence": as the "power, ability, capacity to do for a task", whereas Merriam Webster defines it as "a sufficiency of means for the necessities and conveniences of life". Oxford states that competence and competency are synonymous. If these two great dictionaries differ with respect to defining competencies then common parlance cannot be far behind.

Dabs (1993) a leading expert in the applied competency field, defines competence as "the employee's capacity to meet (or exceed) a job's requirements by producing the job outputs at an expected level of quality within the constraints of the organizations' internal and external environments." He goes on to adopt Boyatzis' (1982) definition of competency and states that a job competency is an underlying characteristic of an employee -- ie. motive, trait, skill, aspects of one's self-image, social role, or a body of knowledge -- which results in effective and/or superior performance in a job.

Zemke (1982) interviewed several experts in the field to determine "precisely what makes a competency" and he captured his findings in the following:

"Competency, competencies, competency models, and competency-based training are all Humpty Dumpty words meaning only what the definer wants them to mean. The problem comes not from malice, stupidity or marketing, but instead from some basic procedural and philosophical differences among those racing to define the concept and to set the model for the way the rest of us will use competencies."

Furnham (1990) states that "the term competency is new and fashionable, but the concept is old. Psychologists interested in personality and individual differences, organizational behavior and psychometrics have long debated these questions of personality traits, intelligence and other abilities."

Therefore, a competency is essentially knowledge and skills that affect the major part of an individual's job that generally relates to his or her areas of responsibility. The knowledge or skills can be improved through training and personal professional development activities.

The basic underlying principles of competency-based models in organizations are mentioned by Dubois (1998). Foremost among them are the following:

- Everyone can learn if they choose to learn.
- Focus on the individual learner's needs.
- Focus on learner's future potential rather than their past history.
- Give learners responsibility for their own learning.
- Focus on giving learners choices.
- Focus on learners behavior or performance, in addition to thinking or knowledge.
- Give control of progress to the learners.
- Give accountability for the learning environment to the learning manager or supervisor.

These principles reflect the fundamental underpinnings "choice theory"; and these

same principles are the concepts reflected by Edward Deming work on quality improvement conducted years ago.

Based on a study from Holland College (1969, pp. 284)), the competency-based system is characterized by 12 principles:

- 1) Credit is given for previously acquired skills.
- 2) Learning is stressed rather than teaching.
- 3) Skills required in an occupational field are identified by persons working in it.
- 4) Learners are responsible for their own progress.
- 5) Instructors are responsible for student's progress.
- 6) Programs are individualized to the full extent that resources permit.
- 7) The instructors role is to assess, diagnose, prescribe, tutor and confirm information, not solely to survey it.
- 8) Facilities, materials, and staff are scheduled rather than students.
- 9) Ratings on learning are based only on performance.
- 10) Students evaluate their own performance prior to confirmation by an instructor.
- 11) Students are able to enter or exit a program at any time.
- 12) Students are able to continue their learning in a systematic way after leaving the institution.

A sample competency model was used at Motorola University which focused on first line learners (Rummler, 1998). Please note the figure that follows:

Figure 2: A Sample Competency Model - "First Line Learners"

Output/Accomplishment:

Tasks (prioritized)	Measures	Standards	K/S/A	Resources
1. Data from previous collection	1. Necessary to write performance objectives and to know how the project affects the bottom line and performance management	1. Necessary to write performance objectives, and for evaluation and performance management	1. Prioritized knowledge skills, attributes, etc.	1. Know documents or training materials or programs currently in use, generated by the job, or important in some way to the outputs and tasks
2.				
3.				
4.				

When these models are complete, detailed analysis enables designers to:

- . write performance objectives
- . match objective to existing programs
- . set up program evaluation
- . nail down the gaps
- . create specific job aids
- . engineer current performance based on current best practices and uses scenario/future planning to determine change required

This model was generic, with hopes of being used after validation in many organizations.

Another model shows a competency model for a new entry-level technician category.

Figure 3: A Sample Competency Model - "Entry Level Technician"

Competency	Key Measures	Standards	Knowledge/Skill
1.0 Set up/operate automatic equipment			
1.1 Adjust computer-controlled systems	1.1 . Quality - Accuracy of adjustments - Accuracy of approach; follow correct method . Timeliness	1.1 . Meet process specs . Follow manufacturer's recommend method	1.1 . Analytical skills . Understand basic computer operating system . Understand specifications . Use design skills per vendor/manufacturer/department . Use data entry skills . Interpret adjustment data
1.2 Make mechanical adjustments to production equipment	1.2 . Quality - Accuracy of adjustments - Accuracy of approach - Maintain yield and process control	1.2 . Meet process spec/ tolerances . Follow manufacturer's recommended method . No negative effect on yield . Meet SPC parameters	1.2 . Understand SPC concepts . Use SPC tools . Understand vendor's equipment . Use basic hand tools . Understand basic electricity . Understand and use basic mechanics
1.3 Verify calibration and/or adjust production equipment	1.3 . Quality - Accuracy of verification - Accuracy of method/sequence	1.3 . Meet tolerances . Meet specs . Meet SPC parameters . Meet manufacturer's specs	1.3 . Use SPC tools . Understand calibration Equipment . Understand basic electronics . Use design skills per vendor

Knowledge

Dubois (1998, pp. 231) describes three levels of knowledge in competency development:

- **Basic Knowledge** understands the fundamental components of this area
- **Competent Knowledge** demonstrates a working knowledge of this area
- **Mastery Knowledge** indicates the individual has a sophisticated understanding of the area and is able to expand on the fundamentals by integrating other knowledge areas

Loomis (1960, p. 11) stated that knowledge "furnishes the cognitive basis for social action", and application of that knowledge is related to the formation and revision of an individual's perception.

The cognitive domain, which includes acquiring and being able to recall, is referred to by Bloom as "Probably the most common educational objective in American education" (1965, p.28). Knowledge involves remembering, relating and judging, and may require the learner to be able to organize information, based on clues received from the environment. Knowledge is considered an important learning outcome. The learner's sphere of reality is enlarged and provides a base for higher learning outcomes, such as problem solving.

When knowledge is viewed in the context of adoption of an innovation, the

cornerstone of the innovation - decision process, which Rogers, (1983, p. 167) referred to as "essentially an information - seeking and information - processing activity in which the individual is motivated to reduce uncertainty about the advantage and the disadvantages of the innovation".

Rogers (1983) and Havelock (1975) concurred that favorable knowledge of a particular innovation may convince an individual to adopt the innovation, while unfavorable knowledge or misinformation about the innovation may lead to its rejection.

The three categories of knowledge described by (Rogers, 1983) includes awareness - knowledge (the what, how, and why related to the innovation); "how to" knowledge, or information about correct application, without which the innovation may be abandoned or rejected; and principles knowledge which underlies how the innovation works. Rogers (1983, p. 168) stated that "it is usually possible to adopt an innovation without principle knowledge, but the danger of misusing the new idea is greater and discontinuance may result."

When one begins to think about how hearing information that is already known might be useful, you will come up with other possibilities. However, the most frequently indicated gains are often surprising. For example, a video program aimed at "top" farmers badly underestimated its audience. Only 17 of 75 gained new knowledge, but 44 said they were challenged to think about other aspects of the feeding program, Steele (1995).

Giving people the opportunity to identify knowledge gains is important to participants and educators. In addition, a greater understanding of how your clientele are being assisted, would be more helpful.

Attitudes

The conception of what constitutes an attitude, has been extensively debated in the literature, with research findings that support varying positions. Allport's definition of attitude (1935, p. 810) is " . . . a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" appears to include elements of the cognitive domain (organizing), the affective domain (influencing) and the psychomotor domain (practicing). "Attitudes, in this contest, appear to predispose, incline, motivate or result in the manifestation of certain actions; they can also be considered a learned internal state which can be organized into learning outcomes" Dunham and Smith (1979).

Research relating to the attitude-action relationship has indicated varying degrees of success with interventions that attempt to change practice by changing attitude. Allport (1935) stated that an individual's conduct or actions are the product of "the total 'regnant' system of mind . . ." which is extraordinarily complex and not easily analyzed.

The researcher who hopes to understand, account for or explain a relationship of attitude and action must first contend the polymorphic nature of attitudes, which

may be formed by learned experiences, feelings, perceptions, social interactions and other factors, (Gagne, 1997; Krathwohl ex al., 1964). The underlying assumption in most research which attempts to predict actions from attitudes, according to (Fishbein, 1977), is that a person's actions will be consistent with (or in the same direction as) his or her attitudes. They suggested, however, that there are some actions for which there are no favorable or unfavorable implications and that the research often predicts a relationship between attitude and action on the basis of intuitive factors. What is needed, instead, is to measure attitudes at the same level of specificity, rather than trying to compare general attitudes regarding a given topic.

Because work is an important part of people's lives, they quite naturally have strong, complex and diverse attitudes. However, attitudes to work may be shaped by strongly held social values and beliefs. Most people interested in social attitudes attempt to predict and change behavior. There is a naive assumption that attitudes predict behavior. But, in most cases attitudes are fairly poor predictors of subsequent behavior. There are three reasons for this assumption. Consider first the level of specificity at which we usually measure attitudes and behavior. Often, attitudes are measured at a very general abstract level and behavior at a highly specific level. The more the two are in alignment, the better the one predicts the other. Secondly, consider the problem of single versus multiple act measurement. If people are interested in attitudes of women, or men, for example, it is better to look at a series of possible behaviors associated with them. Attitudes are much better predictors when a whole series of "multiple acts"

are taken into account. "One shot" measures of behavior are often unreliable and do not give us much valid information. Thirdly, situational factors may strongly influence attitudes. Where situational pressures are strong, such as an accident scene or in a religious building, people of widely different attitudes may act in a similar way. Thus, external factors may constrain behavior and reduce or even change the relationship between attitudes and behavior Furnham (1997). Ajzen & Fishbein, (1997) have concluded that a person's attitude has a consistently strong relation with his or her behavior when it is directed at the same target and when it involves the same action. Work attitudes can predict work behavior when both are appropriately measured and relevant confounding factors are taken into consideration.

Perceptions

Allport (1955) considered perception as involving an understanding, awareness and a meaning or recognition of objects, including the environmental situation. Rogers (1962) defined perception as the key to understanding the diffusion of ideas and the way a person responds to any impression that he or she detects. December (1979) cited Theodorson and Theodorson's definition of perception as a function of the total configuration of the stimuli, including social and cultural conditioning, so that individuals reach their own judgments through the perception process from within themselves and from the environment. Rock (1984) viewed perception as the result of a sequence of processing activities that occur between receiving a visual stimulus and formulating a precept.

According to the related literature, several factors influence perception. Sherif and Sherif, (1956) believed that both internal and external factors were related to perception. They listed external factors as stimulating situations outside the individual - objectives, events, other persons, groups, cultural products and the like. The internal factors were motives, emotions, attitudes, the general status of the individual and effects of experience. Perceptions also are influenced by values, needs, times and memory (Bartley, 1958). These factors, as they related to perception, were important in this study.

Oakley (1978) summarized perception as follows: Each individual formulates perceptions from his or her own mental framework though using input to give individual meaning and interpretation to objects. These personal perceptions are a molding of the individual's thoughts, feelings, and experiences. Perception is ever-changing within the individual and differs between individual, (i.e. top community college administrators and governing officials.) In essence, perception is an active, on-going process in which individuals formulate images that reflect their own thoughts and knowledge about a particular object.

Because each person forms his or her own perceptions, a basic perception in this study was how the level of knowledge about perception of its importance, and involvement in community-based programming efforts were alike; or differed between and among the study respondents.

In most work settings, people at work are often required to evaluate others. In the process of selection, appraisal, teamwork and meetings, opinions are formulated about their peers, subordinates and supervisors. "Person perception"

is concerned with the manner in which people perceive the personal characteristics of others. For example, the "halo effect" occurs when people perceive others in terms of the concepts of good and bad, all good qualities are possessed by the former and all bad qualities by the latter. The "halo effects" occur essentially when information is not appropriately weighted McKenna, (1994).

Professional Development

Professional development is a process which includes both informal and formal approaches to individual effectiveness. Development involves all activities aimed at improvement and growth in a person's ability to perform assignments effectively. Professional development is an on-going process for all extension professionals and is closely related to institutional changes (Baker and Villalobos, 1997).

As extension professionals develop competencies, the process of developing and growing includes both formal and informal approaches for improvement. Development involves all activities aimed at improvement and growth in an individual's ability to perform assignments effectively. The need for professional development activity is a continuous process for all personnel and is closely related to institutional changes.

Faculty must have a clear perception of what is expected of them in Extension. As a result, needs must be continuously assessed in order to provide meaningful staff development programs (Florida Cooperative Extension Service, 1997).

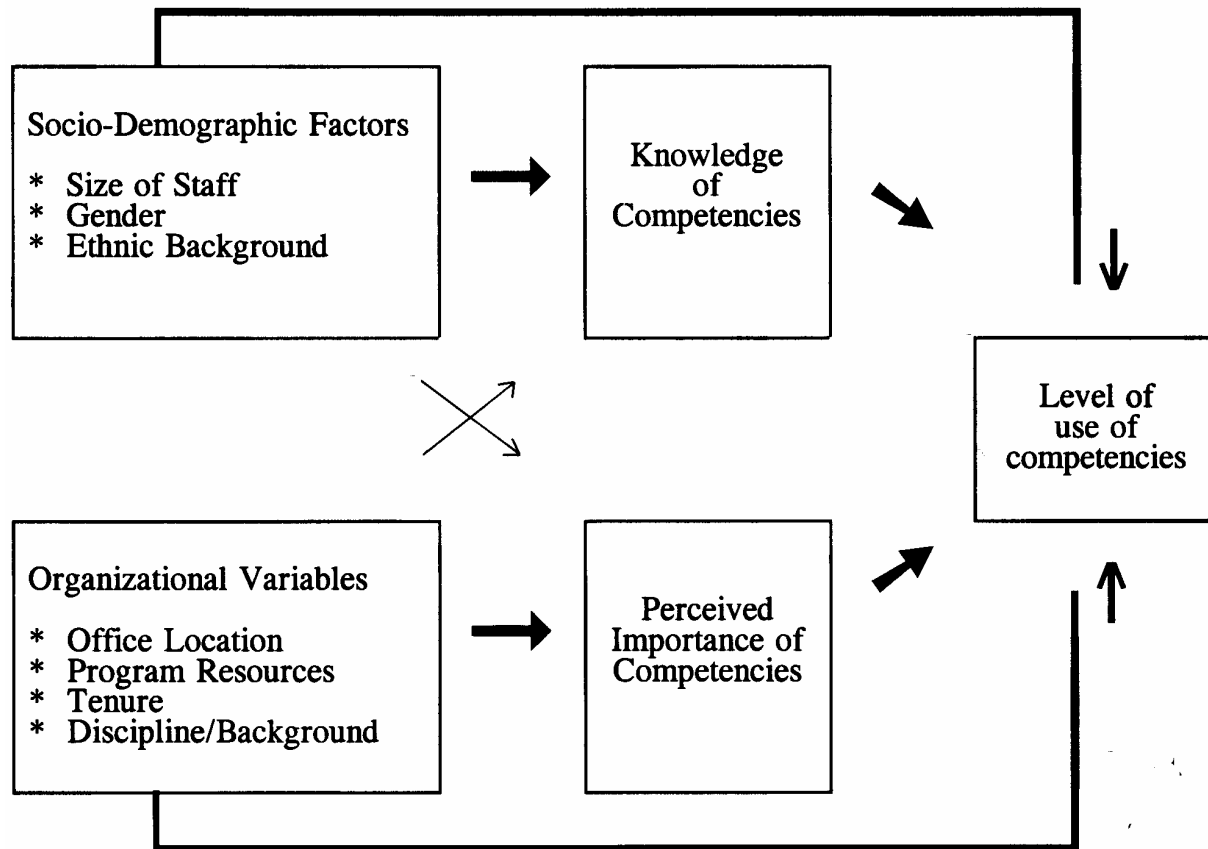
Conceptual Schema

The underlying concepts of the inquiry include knowledge base, experience, skills, job requirements, areas of responsibility and tenure as each relate to competency models.

Factors that are related to competency development are the primary concern of this study. A review of the literature provided the concepts that are central to this study. The concepts, along with the variables gleaned from the literature, comprise the conceptual framework and schema.

Figure 4: Conceptual Schema for Knowledge, Perception and Use of Competencies

Independent Variables



The dependent variable in this inquiry is the level of use of identical competencies. Independent variables include socio-demographic factors and organizational factors. An individual's knowledge of competencies and perceived importance of competencies are introduced as intervening factors which are thought to modify the importance of the independent variables on the dependent variables.

Socio demographic factors of age, the educational level of extension agents,

their gender and ethnic background provide a profile of selected characteristics of respondents.

In reference to age, generally younger subjects are more inclined to initiate and accept change than older ones. They tend to be less risk-averse and are more willing to try new things. More importantly, new and low ranking in the organization, young people have little to lose from change. For their part, the older members of organizations tend to be more set in their ways, have much stake in the status quo, and therefore tend to be more wary about change. To the extent that older more conservative people occupy leadership roles in organizations and to the extent that organizational members potentially despise them, change may be slow in coming. A company's age profile may give some indication as to its attitude to change, and more particularly the age profile of its decision-makers Furnham, (1997).

Well trained and better educated people base their judgments more on facts, rather than on personal values and sentiments, and usually have more confidence in their ability to learn new skills Furnham, (1997).

Organizational variables of tenure, discipline, and size of staff are also characteristics to be reviewed. The organization's size and age are also factors associated with the inquiry. (Furnham, 1997) states that small organizations tend to be less formal and less differentiated and therefore more flexible. Moreover, small organizations typically have fewer resources committed to specific activities

or processes and therefore incur relatively few sunk costs of change compared to large organizations.

The older the organization, typically the greater the degree of formalization and standardization of procedures, and therefore older organizations tend to be less flexible. They have more formal and established commitments to their external environments (in the form of contracts or working arrangements with trade unions, suppliers, competitors, regularly interact), thereby limiting their opportunities for change somewhat. But having seen the need for change previously, and having done so, they may have accumulated the experience necessary to cope with change more effectively. Indeed, it may be that being in an old organization, one has to be change oriented Furnham, (1997).

Office location and program resources are factors which relate to resources of consideration under the inquiry. These, along with certain aspects of change in competency development, affect the likelihood of its being proposed and the chances of its successful implementation. Program resources, such as financial resources, is a major consideration associated with a behavior change proposal. The greater the resource requirement, the less likely that it will be put into effect (Furnham, 1997; Barow, '94).

Tenure and background tend to determine the outlook and the effectiveness of strategies for change. The more tenured individual is usually more cautious in adopting change, for fear of losing their power and rewards. Yet, the successful

implementation of change within individuals and organizations require the active involvement and support of the individuals with tenure. For good or bad, these individuals play a key role in educational organizations (Furnham, 1997).

Krech et al. (1962) confirmed that among other factors, gender affects an individual's view of the world. Also, theories showed that gender may not be associated with level of knowledge about a concept, but could be relevant to perception of the importance of competencies, of the Extension professional.

Sherif and Sherif (1956) reported that most attitude studies specify certain background characteristics of the sample studied. Among those characteristics, they listed ethnicity. Although no findings reported in the literature pertained directly to the dependent variable of the study differing according to ethnicity, the research determined that ethnicity may be associated with the study.

One of the intervening variables is the knowledge of competencies. As stated in the executive summary of the Personal and Organizational Development System (PODS, 1999), one of the guiding principles states that PODS is a competency-based tool and includes technical, conceptual and interpersonal knowledge skills and observable behaviors.

The second intervening variable, is the perceived importance of competencies. Burger (1985) notes that the perceived control personality variable or dimension relates to beliefs about internal versus external control of reinforcement. An assumption may be made that individuals develop a general expectancy

regarding their ability to control their lives.

The researcher contends that knowledge and perception of the importance of competencies tend to have some association between the independent variables and the level of use. Thus, the socio-demographic factors and the organizational variables do influence the desired outcome.

Review of Related Literature

An in-depth review of related literature revealed limited studies of competencies. Some studies from Schoonover, 1999; Coker, 1999; Boyatzis, 1994 and others did include information on competency models.

Competency is not necessarily a new term for the professional educator. Competencies are applications of knowledge, technical skills and personal characteristics leading to outstanding performance. Competency models are designed around the skills individuals and groups need to be effective in the future and are used for making human resource decisions. As we face an environment of increased accountability, every organization is sharpening its focus on how to succeed in today's changing environment and how we can better communicate those successes to the public Stone, (1997).

One study was conducted by Schoonover (1999) which looked at competency models focusing on Career Level Specific Leadership, Functional, Global and Topic Related. The Career Level Specific Leadership study surveyed Team Leaders, Middle Managers, General Managers and Executives. More than 2400,

1.5-2.0 hours in-depth interviews or behavioral events were conducted. The functional model focused on human resources, finance, customer service, sales and product management. The global model study used control groups accounting for approximately 250 interviewees. Each competency in the data base stems from an actual study and has undergone extensive revision and testing. The results showed that competency models can be organized as flexible tools that can be used for: employee orientation, employee development, performance management and coaching, career strategies, candidate interviews, team assessment and succession planning.

Cooper, Lawrence et al (1998) reviewed competencies in an attempt to shed some views on the area. The study looked at competency-based human resource management, which is prevalent in Canadian federal government departments and agencies. Canadian organizations have used the idea of competencies for over 50 years in the private sector, and it is now being used in the public arena. The competency movement has resulted in a proliferation of definitions, tools, models and applications. The findings suggest that competency-based management is most effective when they are closely linked to proven strategic planning processes and measurable organizational performance standards. Dubois (1996, pp. 102) suggests minimum standards needed to be established and maintained when competency modeling research and development methods are adopted and practiced:

- 1) Competency models that result from the research and development processes must be aligned with the organization's strategic goals and business objectives.
- 2) Research and development methods used should produce valid and reliable competency models.
- 3) Organization leaders must have a consistency driven approach as a key ingredient to the organization's strategic success.
- 4) Competency models must be sufficiently comprehensive to identify the competencies that distinguish exemplary employee performance.
- 5) Outputs from the competency model must be technically reliable and valid and acceptable to the client.

Cooper et al (1998, pp. 168) studied competencies in the public sector. The advantages of competency based Human Resource Management models found in that study were that these models can:

- directly link individual competencies to organizational strategies and goals,
- develop competencies profiles or specific positions or roles, matching the correct individuals to task set and responsibilities,
- enable continual monitoring and refinement of competency profiles,
- facilitate employee selection, evaluation, training and development,
- assist employees in hiring individuals rare or unique competencies that are difficult and costly to develop, and

- assist organizations in ranking competencies for compensation and performance management.

However, less valid and reliable competency based models can result in negative outcomes, as found in the same study. They can:

- develop less meaningful competencies in organizations without clear visions of their goals or strategies,
- be quite expensive and time consuming to administer,
- reduce core organizational competencies understanding as a result of poor employee buy-in,
- preserve the organizational status quo and inadequately address soft, integrative and/or innovative competencies such as intercultural or cross-cultural competency, and
- add nothing in organizations that have difficulty in differentiating between successful and unsuccessful performance and when the competencies are too "generic".

The American Compensation Association (1996) conducted a major survey of 217 mid-to-large size organizations to determine their use and experience with competencies. The survey pointed to wide use of competencies, but to varying degrees of rigor and application. This survey found organizations using competencies for:

- communicating valued behaviors and organizational culture (75% agreed

competencies have a positive effect);

- emphasizing people (rather than job) capabilities as a way to gain competitive advantage (42% agreed); and
- encouraging cross functional and team behavior (34% agreed).

The report showed that competency-based Human Resource applications are evolutionary rather than revolutionary. "They are clearly not throwing away their existing system, they are using competencies as a way to clarify what performance matters." American Compensation Association, (1996)

North American Life (NAL) a private organization, developed a short list of 10 competencies related to job performance. They were:

analytical thinking,

conceptual thinking,

customer focus,

developing people,

flexibility,

information seeking,

listening,

understanding and responding,

performance excellence,

team leadership, and

team work, Orr (1995).

Bryson, (1995) describes several methods by which public sector and non-profit organizations can identify their organizational core competencies as a significant output of the strategic planning process. In some cases even in public sector settings, it may be important to ensure that an organization's competency model be explicitly future oriented, rather than implicitly historic, and that it identifies levels of superior strategic performance rather than levels of threshold, or minimum operational performance Jacobs (1989).

For example, entry level recruitment to government based on the assessment of potential could include future oriented expectations in the priority assigned to different competencies, and in the design of competency assessment instruments.

Using a top-down approach, (Dore, 1997) generic strategic analysis of the alternative roles of senior civil services links the core capacities of the organization with the attributes of its individual members. These are equivalent to organizational core competencies and employee core competencies respectively.

A 1986 survey of leading county agents indicated that:

- ◆ The discipline of 4-H Youth Development is a combination of adult education skills and child adolescent development used to empower volunteers in the experiential process.
- ◆ A fairly superficial level of knowledge is required by the agent in project subject matters. Most knowledge can be and is acquired on the job. More projects exist than can be mastered and agents rely on local experts,

volunteers or other university departments as ready references.

- ◆ An emphasis away from subject-matter content occurs in youth of junior high age.
- ◆ Teens want opportunities to lead and help in meaningful ways and are most interested in self and peer awareness information.
- ◆ What do we currently know about where extension agents acquire their personal working knowledge base? Are there common events in agents' experiences that could help us better predict candidates' knowledge? Gerhad (1986) confirmed that the readily accessible knowledge base was investigated and not individual skill levels.

Competency profiling is a different approach to determining performance variations in a position. A competency profile is generally composed of five to ten competencies but can include as many or as few as those required to accurately reflect performance variations in the position. For example, a competency model for a public servant might include initiative, cooperation, analytical thinking and a desire to help the client. Competency-based models are used to recruit, select, train and develop employees.

Unfortunately, the lack of rigor in terminology can lead to loosely defined and improperly implemented competency models (North, 1993).

Intangible variables of tenure and areas of responsibility (discipline) could present some consequences in shaping competency development. A study

conducted by Nestor and Leary (2000) reviewed tenure and job performance. This study showed that a positive relationship must exist among and between the Extension faculty of the unit. This positive relationship can be achieved when Extension faculties display a high level of job satisfaction. Therefore, the more an individual enjoys their work, the longer the tenure, which leads to a greater competency development. As for the relationship between years of experience of Extension faculty and job satisfaction, it was determined that no statistically significant - relationship existed between these variables. The relationship between years of experience and intrinsic job satisfaction was not statistically significant.

Lado and Wilson (1994) reviewed a resource-based economic analysis of theoretical underpinning of competency programming. The study showed that imitation of another organization's successful program is no guarantee of sustained competitive advantage, unless the competencies are unique, ambiguous and synergistic.

Safrit and King (1998, pp. 60) conducted a study of 100 extension agents in Ohio. The study reviewed competencies related to volunteer management and professional development opportunities over a 24-month period. The competencies were:

- identification of volunteer opportunities,
- selecting and recruiting,

- orienting,
- training,
- utilizing,
- recognizing, and
- evaluating.

The findings were that all of the above mentioned competencies were found to be somewhat important or very important. The three most important competencies were - utilizing, supervising and recognizing volunteers. Those competencies identified as somewhat important were volunteer opportunities, recruiting, selecting, orienting, training and evaluating volunteers. Some of the issues that the researchers found to have affected these competencies were that:

- 1) Local communities evaluate the success or failure of an agent by the accomplishments of clientele, the success of a livestock event, and so on.
- 2) Some state specialist or county chairs may not fully recognize an agent's innovative and effective volunteer management system.
- 3) State extension faculty may not recognize volunteer management as a critical component of new and on-going programming efforts.

The direction of volunteerism in the next decade will be affected by the ability to effectively utilize these competencies (Mausner, 1988).

Davis (2000) has developed a list of ten competencies with articulated rationales.

Competency	Significance/Rationale
• Technical Skills	Subject and Technical
• Program Management	Ability To Evaluate
• Flexibility	Accept & Willing To Serve As Change Agent
• Collaboration	Work with and Seek New Partners
• Systems Development	Identify Local Needs and Interests
• Resource Development	Seek & Secure Resources for Program Development
• Motivation of Staff	Paid and Volunteer Staff
• Human Relations	Excellent Communicator
• Management	Understand Administrative Management
• Human Resource Dev.	Recruit and Utilize People Effectively

These competencies are necessary for the survival of the extension agent. These skills will equip the extension professional with working knowledge of a cooperative extension agent (Davis, 2000).

Interrelationship of Variables

Socio-Demographic Factors

Age

Some evidence was found in the literature to indicate that the dependent variable differed according to age. Masten et al, (1995) conducted a longitudinal investigation of the structure and coherence of competence for adolescents ages 17-23. The study tested a conceptual model concerning the multi-dimensionality

of competence, the stability of specific dimensions, and the cross domain influences of competence in one dimension for other dimensions overtime. The results suggested that competence has different dimensions as age increases, with job competence surfacing after age 20.

Furnham (1997) looked at personal characteristics of members within an organization and concluded that normally, the younger the employee, the more inclined they are to initiate and accept change than older ones are. Age in terms of chronological age, may impact the knowledge base of the extension agent. Newly appointed agents are less likely to have those necessary competencies of the high-performing extension agent.

Education

Education would also likely influence an extension agents' technical skills, knowledge, abilities and other traits which Stone (1997) characterizes as a performance factor in a specific job or task. Ali (1991) conducted a study on "An Identification and Validation of Job Performance Competencies Needed by Agricultural Extension Field Assistants in Pakistan". Several independent variables were reviewed, including education. A questionnaire was mailed to 135 extension agents at Southern Illinois University. Nineteen educational topics were included in the study. The items were rated on a scale of 1 (low importance) to 4 (high importance). It was concluded by agricultural agents that personal visits were the most important educational teaching tool. 4-H and youth agents placed

a greater emphasis on training in radio programs and the media. It was also concluded that younger agricultural extension staff preferred education and training in Technical Agriculture and Program Plannings & Evaluation.

Gender

Gender differences may or may not impact the application of knowledge. Yet, gender is a "personal characteristic" as outlined in the concepts, and may require further study. A study was conducted by Stone et.al (1995) and was mailed to 1720 extension faculty. There was a 66% response rate. The study used a Likert Scale. The instrument offered 50 pairs of statements describing seven competencies of organizational effectiveness: Achieving Balance, Strategic Planning, Professional Development and Employee Involvement. With the gender variable, the equal number of males and females showed that there was a higher level of dissatisfaction with achieving balance and that there was a need to address this issue with a strategic plan. No strong association between gender and knowledge of competencies was discovered by the researcher.

Ethnic Background

How does ethnic background effect competency development? Ethnicity could affect the agent's ability to collaborate both inside and outside of the organization.

Ethnic background may also influence the extension professional in its role, as system's developers; when determining local needs, local interests, resource development, etc. Ancis et al (2000) conducted an analysis of counseling

students' attitudes toward counseling women of color and implications for cultural competency training. Participants were 56 undergraduate human services counseling majors. The results revealed that the major themes involved in counseling women related to causes and consequences of sex discrimination, feminism, and interest in societal and individual change. They also revealed that the major themes involved in counseling women of color related to cross-cultural dyads, social and economic differences between women, intersections of race and gender and women's diverse experiences. The themes identified revealed implications for competency training in the above mentioned areas.

Also Coleman (1998) examined whether perceptions of general and multi-cultural counseling competence were distinct constructs. Participants were 189 graduate students in counseling and ethnic minority undergraduates in social psychology who rated their perceptions of the general and multi-cultural counseling of a counselor in two cross-cultural counseling vignettes. It was found that participants consistently rated the condition in which the counselor was culturally sensitive higher than the condition in which he was culturally neutral in both general counseling competency and multi-cultural counseling competency. However, the level of training among participants significantly affected their perceptions of the counselor's multi-cultural and general counseling -- the general counseling competence of the culturally neutral counselor was rated much higher by participants with some training in counseling than by those with no training in

counseling. These findings suggest that attempts to be culturally neutral are perceived as representing a low level of counselor competence, especially by ethnic minorities who do not have training.

Program Resources

Strebler and Bevan (1996) examined what competence-based management training is, how organizations are using it and why, and what impact it has had. It drew on evidence from a survey and case studies conducted among large employers in Britain. General findings from 377 respondents indicated that the use of competencies was increasing; half of the respondents used them. The background of (CBMT) competency-based management training users except they had seen an increased demand for their products over the last 2 years and operated in a more unionized environment. CBMT approaches were predominantly introduced with the aim of improving the link between skills supply and business needs. CBMT users found competencies assisted them in identifying training needs and designing training programs. Three models emerged: top down, functional and modular. Most competency users still relied on traditional assessment methods. More recent developments such as use of personal development plans placed responsibility on the individual for development. The perceived usefulness of competencies in management training appeared high. CBMT users reported use of competencies to be more cost effective and to contribute to the culture of the organization, customer satisfaction

and business profitability.

The researcher reported two other competency-based resources (Logan, 1997) presented a technical report on Competency-Based Adult Education. This was a curriculum model that was field tested at 14 Kentucky sites and 3 West Virginia sites.

Secondly, Miller (1982) developed a fact sheet pertaining to functional competency models for adults which focused on needs of high school teachers competencies in a New York High School. No studies were done of the 2 items, but were each effective in presenting secondary educational tools.

Tenure

Boltes et. al (1995) conducted a survey of 1720 extension faculty at Texas A&M University. In response to the tenure groups, the largest portion of respondents had 1-5 years of experience. The remaining respondents were evenly distributed among the remaining tenure groups: less than one year, 6-10 years, 11-15 years, 16-20 years and over 20 years. The study looked into employee satisfaction and 50 statements describing organization effectiveness and competency development. Specialists with less than 5 years of experience showed the highest dissatisfaction gap.

An extensive study was done in Nigeria to study the adequacy of professional training of senior and junior agricultural extension staff. Uwakah (1980) used junior staff members who were: 1) Assistant Agricultural Superintendents, 2)

Agricultural Assistants and 3) Agricultural Demonstrators. These individuals were educated only up to a secondary school education level. They received professional training in agriculture for only one year or less. The participants were interviewed according to an interview schedule developed by the researcher.

Information about personal characteristics or training needs were asked from the respondents. It was concluded that junior agricultural extension staff members needed training in the following areas:

1) Technical Agriculture; 2) Program Planning; 3) Program Evaluation; 4) Communication Skills; 5) Working in Groups and 6) Determining Needs.

Discipline/Background

Little evidence was found in the literature to indicate that the level of competency use differed according to disciplinary background. Despite the paucity of support, this variable is theorized to show some effect on level of use of competencies.

To summarize the literature review the researcher visited the University of Minnesota to review ongoing work in Job Performance Competencies of Agricultural Extension Field Assistants in Pakistan. Ali (1991), identified, validated and ranked the job performance competencies needed by agricultural extension field assistant (known as extension agents in North Carolina). Of the 167 field assistants, eighty were selected randomly. In order to validate their responses all 20 agricultural officers, and 80 randomly stratified farmers, matched with field

assistants were included in the sample. The data were collected through personal interviews on a research instrument having two sections: 1) biographical data, and 2) 45 competency statements. A 1-5 point response scale was used to assess the levels of competencies possessed by field assistants and the levels of importance of the competencies for their job performance. The findings indicate that field assistants possessed from a low level to an average level of competence in most of the competencies, whereas all of the competencies were perceived as highly important for their job performance. Significant differences were found between the perceptions of field assistants and those of agricultural officers for 24 of 45 competencies on the possessed levels and for 5 of 45 competencies on the importance levels. There were only 17 competencies which were responded by all of the contact farmers. Significant differences were also found between the perceptions of field assistants and those of contact farmers for 13 of 17 competencies on the possessed levels. All of the 45 competencies were ranked as training needs of field assistants based on the combined perceptions of field assistants and agricultural officers, as well as discrepancy calculations between the importance and the possessed levels of competencies. The competency with the top most rank order was "the ability to conduct group discussion among farmers".

Memon et al (1989, pp. 142) conducted a research project entitled "An Analysis of Professional Competencies Needed by Agricultural Extension Agents

in Sindh Province of Pakistan". The study comprised Extension Directors, Agricultural Officers, Field Assistants, Agricultural Educators, researchers and progressive farmers of the Sindh province. A five point Likert scale was used to assess the importance of different competencies. The degree of importance was 1 - no importance to 5 very high importance. The 10 most important professional competencies as perceived by field assistants were:

- 1) develop and utilize calendar of activities for short and long run,
- 2) oral communication to groups,
- 3) possess knowledge of history, philosophy and objectives of extension service,
- 4) determine goals and objectives of extension,
- 5) time management,
- 6) design agricultural exhibits, fairs and shows,
- 7) conduct staff meetings,
- 8) delegate responsibility and authority,
- 9) developing leadership potential of staff, and
- 10) determine needs of clientele for extension programs.

Agricultural Officers perceived the following ten professional competencies to be important for success in their jobs (Memon, 1989, pp. 145):

- 1) use of experimental approach whenever necessary,
- 2) plan, organized and conduct tours,

- 3) present information through lectures,
- 4) prepare radio and T.V. programs,
- 5) design educational exhibits,
- 6) analyze power structure within the community,
- 7) possess knowledge of history, philosophy and objectives of Extension Service,
- 8) conduct panel discussions and other group dynamics techniques,
- 9) conduct surveys, analyze and results of surveys, and
- 10) determine needs of clientele for extension programs.

Gonzalez, Howel and Lindley (1984) conducted a research study to determine professional competencies needed by extension agents in the Pennsylvania Cooperative Extension Service. They identified 144 professional competencies. The respondents indicated that of the 144 competencies, 26 should be learned before entering the job, six during graduate studies and the remaining 112 through in-service and on the job. Both groups placed (county, multi-county agents and the state staff members). The findings were that researchers recommended:

- 1) A curriculum established to prepare extension agents, at the pre-service level and/or to provide graduate and in-service programs, should focus on these competencies identified in this study.
- 2) In designing pre-service programs, competencies included in the teaching, communication and understanding human behavior categories should form a key

component of the courses or programs.

In reference to competencies, the overall situation points to communications, programming, teaching organizational skills and understanding human behavior. Also, it seems that there are similarities in competencies of field faculty and state faculty in developing countries and the United States. Rokeach (1960) found that dogmatism or close minded individuals are less likely to accept change and more likely to resist change than are open minded individuals. He also found that the more closed and individual's belief system, the more he or she will resist forming new belief systems.

Methodology

The focus of this study was to identify and describe the competencies of 4-H professionals in the North Carolina Cooperative Extension Service. The methods and procedures used as presented in this chapter were: 1) research design, 2) population, 3) instrumentation, 4) data collection, 5) validity and reliability, and 6) statistical procedures used in analyzing the data.

Research Design

The research design was that of survey research. A survey design was used to seek information related to the purposes and objectives of the study. According to Babbie (1983, p. 209) "it is perhaps the most frequently utilized method for measuring attitudes." Babbie's definition of descriptive research was useful in classifying this study. "Description is the precise measurement and reporting of the characteristic of some population or phenomenon under study." Survey research is probably best suited in obtaining personal and social facts, beliefs and attitudes (Kerlinger, 1986).

Questionnaires were mailed to all 4-H Extension Agents in the North Carolina Cooperative Extension Service to ascertain the importance and the use of competencies in the 4-H Agent's job.

Population

The total population for this research study included all 4-H Agents of the North Carolina Cooperative Extension Service. The sample included new and tenured 4-H

Agents. The population sample consisted of the 4-H Agent in each of the 100 North Carolina counties and the Cherokee Reservation. Sixty-nine surveys were returned, resulting in a response rate of 82.1 percent.

Instrumentation

The research instrument used for this study is a likert type scale adopted from a version of surveys from various competency job profiles and Stone (2001). The instrument was designed to 1) gather information about competencies, in terms of how they are measured, and 2) to ascertain how important the competencies are and the frequency of their use. The literature search did not reveal any appropriate data collection instrument from the North Carolina Cooperative Extension Service.

The likert-type scale used as the survey instrument, consisted of ratings ranging from 1-5. The respondents will be asked to rate each statement based on 1) their knowledge of the competency, 2) the importance of the competency, and 3) the frequency of use. The terminology was operationalized as follows:

Importance: Importance of this skill to your job function.

Knowledge: Your knowledge of this topic (your ability to accurately recall or summarize the subject matter).

Frequency: How often is this competency used.

The survey had the following form with one being low and five being high:

Topic	Importance	Knowledge	Frequency
1.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Basic dimensions included in this study were: age, education, gender, ethnic background (socio-demographic factors); and office location, program resources, tenure, discipline/background, and staff size (organizational variables). An expert panel of survey reviewers consisted of tenured North Carolina Cooperative Extension 4-H Agents, 4-H Specialists and State 4-H Extension Staff.

Section one contained the competency rating scale where respondents were asked to rate each competency. The competencies were defined by a study which was conducted by 4-H District Liaisons and a 4-H and Youth Development Work Group. A panel of experts were selected, predominantly from the 4-H Agents Professional Association, 4-H Specialists and State Extension Staff to review the competencies. They reviewed and validated the competencies that were important and the frequency of use of each competency. A pilot test was administered to 4-H Agents and based on the findings, the "Likert Type" rating scale was developed. Based on the results, the final questionnaire was expanded and reviewed by an expert panel.

Section two of the instrument included the socio-demographic factors. These items were determined as noted below:

Age: respondents were asked to provide their date of birth,

Education: respondents were asked the highest level of education achieved and to provide the specified level of education,

Gender: respondents were asked to provide their gender on the questionnaire, and

Ethnic Background: subjects stated their ethnic background on the questionnaire.

Section three included organizational variables. These items were determined as noted below:

Program Resources: respondents were asked to respond to a series of questions related to the available resources for their program operations,

Tenure: respondents were asked to state their years of service as 4-H Agents,

Discipline/Background: respondents were asked to state the percentage of time spent as 4-H Agent, if they had other areas of responsibility and their educational background, and

Size of Staff: respondents were asked to provide the number of extension agents, and paraprofessionals on staff.

Data Collection

After approval by the investigator's advisory committee and the North Carolina Cooperative Extension Service, questionnaires were mailed to 89 4-H and Youth Development professionals. The letter of transmittal was attached to each survey instrument to convey the purposes and confidentiality of the study, as well as to give directions on how to complete the instrument. In addition, the investigator included a statement assuring that responses of the respondents would be kept confidential. A postcard was sent to each respondent, as needed, in order to achieve the highest possible return rate by the due date.

Validity and Reliability

According to the Standards for Educational Psychological Testing, validity may be broadly defined as "the appropriateness, meaningfulness and usefulness of the specific inferences made from these scores." To meet reasonable validity requirements, practitioners should follow several logical principles when developing and implementing a competency-based program (Klein, 1995).

Content, validity of the survey instrument was established through validity checks by both panel of experts and pretesting the instrument. These methods provided a venue for determining the competency statements and the framework for the survey instrument.

Cronbach's alpha formula was used to establish the reliability of the instrument for the knowledge, importance and use scales. A reliability coefficient of .7 (Cronbach's alpha) was computed on the responses, which confirmed reliability. Any coefficient greater than .7 indicates that the items are interrelated and can be summed to form a scale (Mustian, 2002).

The alphas on knowledge, importance and use each met the criterion of the .7 alpha coefficient. All scales for professionalism, communication, human relations and subject matter expertise, had a range of .81 to .94.

Data Analysis

Basic descriptive statistical procedures were used in developing frequency tables for determining means, modes, medians, variances, ranges and standard deviations

from the analysis. Throughout the study, a .05 level of significance was used.

The basic analytical technique was the student t-test distribution that was used to test for differences in the dependent by various independent variables. The independent variables were dichotomized and t-tests were conducted.

Results

One of the primary purposes of this research was to identify and describe the major competencies of the 4-H professional. With a set of competencies then, the task was to ascertain the 4-H professional's level of knowledge, the perceived degree of importance, and the level of use of each competency item.

The structured questionnaires were distributed to 87 4-H Extension professionals who worked for the North Carolina Cooperative Extension Service as of April, 2002. Sixty-nine instruments were returned for a response rate of 79 percent. Presented in this chapter are a profile of the respondents and the major findings as related to the seven hypotheses of this study.

Profile of the Respondents

Included in this section are the socio-demographic characteristics of the respondents such as age, gender, level of attained education, and ethnic background. Organizational factors included: years of experience in Cooperative Extension, total size of the county Extension staff, and the primary responsibility of the 4-H professional. The major competency groups for this study were: subject matter expertise; communications; professionalism; and human relations.

Respondents were asked their perception of their level of knowledge, the importance, and the use of each of the four competency dimensions.

Socio-demographic Characteristics

Respondents ranged in age from 23 to 59 years with the mean of 42.7 years. Eleven respondents were less than thirty years of age (16.7 %). Sixteen respondents were between the ages of 30 to 39 years (24.2 percent). Twenty-nine respondents were in the age range between 40 and 49 years of age (43.9 percent). There were ten respondents age 50 and over (15.2 percent, Table 1).

With respect to gender, the majority were females (78.3 percent) with males comprising 21.7 percent of the sample. All of the respondents had attained bachelors' degrees. The majority of the sample had master degrees (61.8 percent). The remainder of the sample had doctoral degrees or were working on doctorates (2.9 percent).

Respondents identified themselves with respect to ethnic background. The majority of respondents were white (89.7 percent). Of the remaining respondents 8.8 percent identified themselves as African-American and 1.5 percent designated themselves as native Americans.

Organizational Factors

Years of experience in Cooperative Extension were tabulated in five groups. The largest groups with respect to tenure were those individuals who had worked less than six years (29.0 percent). Respondents with 6 to 10 years of tenure comprised 17.4 percent. About one-fifth (20.3 percent) had worked eleven to twenty years.

Finally, the group who had worked more than twenty years made up 33.3 percent of the respondents. Respondents were asked on the questionnaire to report the total size of the Extension staff in their county. Half of the county staffs contained 5 to 9 members, while counties with one to four member staffs made up 39.4 percent of the sample, the counties with the largest staffs (10 and over) made up the remaining individuals (10.6 percent).

Primary responsibility for the respondents were labeled as agent or administrator.

Agents made up 88.2 percent of the group with 11.8 percent serving as county directors.

Table 1. Distribution of Respondents By Independent Variables

Ethnic Background		
	No.	%
White	61	89.7
African American	6	8.8
Native American	1	1.5
Total	68	100.
Gender		
	No.	%
Male	15	21.7
Female	53	78.3
Total	68	100.0
Age		
	No.	%
Less than 30	11	16.7
30 – 39	16	24.2

40 – 49	29	43.9
50+	10	15.2
Total	66	100.0

Education		
	No.	%
4 yr. College	24	35.3
Graduate Degree	42	61.8
Other	2	2.9
Total	68	100.0

Years Experience		
	No	%
1 - 5	20	29.0
6 – 10	12	17.4

11- 20	14	20.3
21 – 25	10	14.5
26 – 34	13	18.8
Total	69	100.0
Primary Work Responsibility		
	No.	%
4-H	60	88.2
Administration	8	11.8
Total	68	100.0
# Professionals		
	No.	%
1 - 4	26	39.4
5 - 9	33	50.0
10+	7	10.6
Total	66	100.0
# Paraprofessionals		
	No.	%

1 - 2	20	33.9
3 - 4	16	27.1
5 - 9	15	25.4
10+	8	13.6
Total	59	100.0
Other Stuff		
	No.	%
1 - 2	11	28.2
3 - 5	21	53.9
6+	7	17.9
Total	39	100.0
Total Staff		
	No.	%
4 – 9	22	33.8
10 – 14	26	40.0
15+	17	26.2
Total	65	100.0

Description of Competency Items

Arithmetic Mean and Standard Deviation for Knowledge, Importance and Understanding of Competencies.

Arithmetic means and standard deviations were computed for 48 competency items in the questionnaire. Each of the questions ascertained the level of knowledge, the level of importance, the level of use for each of the four competencies; subject matter expertise, professionalism, communications and human relations. Those responses ranged from 1 (little importance) to 5 (excellent, most important or very frequently, Appendix D).

Subject Matter Expertise

The lowest mean score in the subject matter expertise competency was question #18 - "adult learning theories and their application to the learning environment". The mean score was 3.22. The highest mean score in the subject matter expertise competency was the "level of importance" of the statement "financial management and marketing in regards to ensuring appropriate funding levels." The mean score for question #11 was 4.54.

Professionalism

Respondents overall scored high in the professional competency. All means under this competency were higher than 3.94. Statement #27, "continual learning as it relates to grasping new information and understanding your strengths and weaknesses", received the lowest mean score of 3.94. Respondents scored lowest under the "level of use" of continual learning. The highest mean score was the "level

of importance" of "planning, coordinating, organizing and scheduling". This mean score of 4.65 was the highest score in the entire questionnaire. This item was #26 in the questionnaire.

Communications

The lowest mean score under the communications competency was question #33. The statement "impact of technological changes in 4-H and Youth Development" received a mean score of 3.93 for level of use. Respondents had the highest mean score of 4.52 for question 31's level of importance. The statement was "written communications in regard to clear, convincing and organized written ideas".

Human Relations

The lowest mean score under human relations was the "level of knowledge" of "youth development in a global economy". The mean score of 3.07 was the response to question #41. Additionally, this item was the lowest mean score of the entire survey. Yet, the highest mean score under this competency was question #34 with a score of 4.62; "the level of importance" of "interpersonal understanding and the treatment of others with respect".

Description of Dependent Variables

Scores for each of the competency dimensions (knowledge, importance and use) were categorized using the theoretical expectancy that equal numbers of respondents would fall into each of the three groupings.

Mean Scores of Competency Dimensions

Mean scores for each competency dimension were categorized for each competency area. The "importance" of all four competency areas had the highest adjusted mean scores consistently. The highest adjusted mean score (4.46) was the importance of professionalism.

Table 2: Mean Scores of Competency Dimensions

<u>Dimension</u>	<u>Mean</u>	<u>Mean Adjusted For # Items</u>
Subject Matter Knowledge	88.7	3.86
Subject Matter Importance	97.0	4.22
Subject Matter Use	83.9	3.65
Professionalism Knowledge	21.1	4.22
Professionalism Importance	22.3	4.46
Professionalism Use	20.8	4.16
Communications Knowledge	19.8	3.96
Communications Importance	21.3	4.26
Communications Use	19.6	3.92
Human Resource Knowledge	57.4	3.83
Human Resource Importance	63.3	4.22
Human Resource Use	57.1	3.81

In the case of knowledge of subject matter, approximately five-eighths (63.8

percent) of the respondents reported a high level of knowledge of subject matter. Approximately three-fourths of the respondents (73.9 percent) reported high levels of knowledge of professionalism and about sixty percent (59.4 percent) of the respondents reported high levels of knowledge of communications, and two-thirds (68.1 percent) of the respondents reported high levels of knowledge of human relations.

Table 3. Distribution of Competency Dimensions By Knowledge of Competencies

Subject Matter	N	%
23-54	2	2.9
55-85	23	33.3
95-115	44	63.8
Total	69	100.0
Professionalism		
5-12	3	4.3
13-19	15	21.8
20-25	51	73.9
Total	69	100.0

Communications

5-12	3	4.3
13-19	25	36.3
20-25	41	59.4
Total	69	100.0

Human Relations

15-34	1	1.4
35-54	21	30.5
55-75	47	68.1
Total	69	100.0

A large majority (88.4 percent) of the respondents felt that subject matter competencies were very important; 89.9 percent felt that professionalism competencies were highly important; and 82.6 percent of respondents felt that communications competencies were very important. Approximately two-thirds (66.7 percent) of the respondents felt that human relations competencies were important.

Table 4. Distribution of Competency Dimensions By Importance of Competencies

Subject Matter	N	%
23-54	2	2.9
55-85	6	8.7
86-115	61	88.4
Total	69	100.0

Professionalism

5-12	2	2.9
13-19	5	7.2
20-25	61	89.9
Total	69	100.0

Communications

5-12	2	2.9
13-19	10	14.5
20-25	57	82.6
Total	69	100.0

Human Relations

15-34	1	1.4
35-54	22	31.9
55-75	46	66.7
Total	69	100.0

With respect of use of competencies, respondents reported a high level of use of professionalism (73.9 percent) and high use of human relations competencies (79.7 percent). Slightly more than one-half of the respondents reported high use of subject matter competencies (59.4 percent) and communications competencies (55.1 percent). Approximately three-fourths of respondents reported high use of professionalism competencies (73.9 percent) and of human relations competencies (79.7 percent).

Table 5. Distribution of Competency Dimensions By Use of Competencies

Subject Matter	N	%
23-54	0	0.0
55-85	28	40.6
86-115	41	59.4
Total	69	100.0

Professionalism

5-12	2	2.9
13-19	16	23.2
20-25	51	73.9

Total	69	100.0
Communications		
5-12	2	2.9
13-19	29	42.0
20-25	38	55.1
Total	69	100.0
Human Relations		
15-34	1	1.4
35-54	13	18.9
55-75	55	79.7
Total	69	100.0

Interrelationships Among Competency Components

In examining the interrelationships between the dependent variables of competency knowledge, importance and use (Table 6) it is interesting to note that all bivariate relations are statistically significant. For example, the correlation coefficient for the relationship between human relations knowledge and use was .81. Squaring the coefficient, is a measure of strength of the relationship which in this case is .64.

Thus, 64 percent of the variation in human relation use can be accounted for by human relation knowledge. On the other hand, while statistically significant the correlation coefficient of the relationship between communications use and human relations importance was .35, thus accounting for approximately 12 percent of the variation.

On the other hand, the correlation coefficient between subject matter importance and human relations use was .51. The measure of strength in this case is .26. As

noted in the table, the strength of the relationship ranged from 12 percent to 64 percent, with a midpoint of about 26 percent of the variation. Correlation analysis revealed that all dimensions of competencies of knowledge, importance and use are related.

Table 6
Correlation Matrix of Competency Knowledge, Importance and Use Factors

	Sub K	Suki	Suku	Prof K	Prof I	Prof U	Comm K	Comm I	Comm U	Human K	Human I	Human U
Subject Knowledge	1.000	.631*	.735*	.800*	.525*	.723*	.763*	.481*	.595*	.752*	.553*	.652*
Importance		1.000	.627*	.603*	.755*	.606*	.554*	.759*	.556*	.473*	.700*	.515*
Use			1.000	.696*	.612*	.772*	.608*	.640*	.654*	.715*	.571*	.722*
Professionalism Knowledge				1.000	.710*	.833*	.717*	.585*	.573*	.731*	.664*	.629*
Importance					1.000	.717*	.471*	.828*	.525*	.548*	.744*	.529*
Use						1.000	.628*	.598*	.775*	.701*	.601*	.789*
Communications Knowledge							1.000	.494*	.726*	.704*	.428*	.595*
Importance								1.000	.536*	.520*	.632*	.394*
Use									1.000	.575*	.351*	.691*
Human Relations Knowledge										1.000	.686*	.810*
Importance											1.000	.602*
Use												1.000

* Sign at .05 level

Age and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies by age of respondents. While there were no significant differences, those younger respondents ages 23-35 scored higher than the 47-59 year olds. This finding was also true for the competencies subject matter, communications and professionalism. As for human relations, older respondents ages 49-59 scored higher in the level of knowledge, while concurrently scoring lower in both the level of importance and level of use. The highest scores were among the subject matter competency. With respect to the level of importance, younger respondents scored higher than older respondents. The lowest mean score appeared among the older respondents in the use of communications.

Table 7. Differences in Mean Competency Items By Age

Subject Matter Expertise	<i>x</i>	<i>t value</i>
Knowledge		
23-35 years	87.2	.6
47-59 years	84.7	
Importance		
23-35 years	99.2	1.4
47-59 years	94.2	
Use		
23-35 years	82.3	.4
47-59 years	81.0	
Communications		
Knowledge		
23-35 years	19.6	.9
47-59 years	18.7	
Importance		
23-35 years	21.5	.8
47-59 years	20.7	
Use		
23-35 years	20.2	1.8
47-59 years	18.4	
Professionalism		
Knowledge		
23-35 years	21.3	1.2
47-59 years	20.0	
Importance		
23-35 years	22.8	.8
47-59 years	22.1	
Use		
23-35 years	21.3	1.4
47-59 years	19.8	
Human Relations		
Knowledge		
23-35 years	54.7	- .4
47-59 years	56.0	
Importance		
23-35 years	63.9	- .9
47-59 years	61.8	
Use		
23-35 years	56.6	- .6
47-59 years	54.9	

Gender and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies by gender of respondents. While there were no significant differences, male respondents scored higher than females in both the level of knowledge of subject matter expertise and the level of knowledge of human relations.

Females, on the other hand, scored higher in the importance of subject matter expertise, the importance of communications, the importance of professionalism and the importance of human relations. Females also scored a fraction higher than male respondents in the use of professionalism.

The highest mean score of 97.7 was among the males in the knowledge of subject matter expertise. The lowest score (19.3) was among the males in the use of communications.

Table 8. Differences In Mean Competency Items By Gender

Subject Matter Expertise	<i>x</i>	<i>t value</i>
Knowledge		
Male	97.7	1.5
Female	88.0	
Importance		
Male	96.4	- .3
Female	97.5	
Use		
Male	84.5	.3
Female	83.9	
Communications		
Knowledge		
Male	19.9	.2
Female	19.8	
Importance		
Male	20.7	-1.5
Female	21.6	
Use		
Male	19.3	- .6
Female	19.7	
Professionalism		
Knowledge		
Male	21.5	.5
Female	21.1	
Importance		
Male	22.1	- .5
Female	22.5	
Use		
Male	20.6	- .4
Female	20.9	
Human Relations		
Knowledge		
Male	60.3	1.4
Female	56.9	
Importance		
Male	62.9	- .4
Female	63.7	
Use		
Male	57.9	.3

Level of Education and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies by level of education of respondents. While there were no significant differences, there were higher scores among respondents with graduate degrees in the subject matter expertise competency. This finding was also true for knowledge, importance and use of subject matter expertise.

Within the professionalism competency, only a fraction (two tenths) or less separated the respondents with graduate degrees from those with college degrees. This finding was true for knowledge, importance and use of professionalism. Yet respondents with graduate degrees were a fraction higher in each case.

The highest score in the level of education variable was in the importance of subject matter expertise (97.5). The lowest score was among graduate respondents in the use of communications with a score of 19.5.

Table 9. Differences In Mean Competency Items By Level of Education

Subject Matter Expertise	x	t value
Knowledge		
College Graduate	86.5	-1.2
Graduate	90.6	
Importance		
College Graduate	96.8	- .3
Graduate	97.5	
Use		
College Graduate	81.7	-1.3
Graduate	85.5	
Communications		
Knowledge		
College Graduate	20.2	.7
Graduate	19.6	
Importance		
College Graduate	21.1	- .5
Graduate	21.6	
Use		
College Graduate	19.8	.2
Graduate	19.5	
Professionalism		
Knowledge		
College Graduate	21.0	- .2
Graduate	21.2	
Importance		
College Graduate	22.3	- .1
Graduate	22.4	
Use		
College Graduate	20.8	- .4
Graduate	20.9	
Human Relations		
Knowledge		
College Graduate	56.8	- .5
Graduate	58.1	
Importance		
College Graduate	63.7	.2
Graduate	63.4	
Use		
College Graduate	57.6	.3
Graduate	56.9	

Ethnic Background and Dependent Variables: There were significant differences in the level of knowledge of competencies, the level of importance of competencies and the use of competencies by ethnic background. In fact, non-white respondents scored higher across the board in all four competencies and in knowledge, importance and use.

In subject matter expertise, non-whites score substantially higher ($x = 99.2$) than did white respondents ($x = 87.8$). Non-white respondents scored higher ($x = 99.2$) than whites ($x = 87.8$) in knowledge of subject matter expertise. The greatest margin in subject matter expertise was under "use", where non-whites scored 98.3 compared to 82.4 among white respondents.

The communications competency resulted in non-white respondents scoring higher in knowledge of communications ($x = 22.2/x = 19.6$) importance of communications ($x = 23.7/x = 21.1$) and the use of communications ($x = 22.2/x = 19.4$).

In professionalism, non-white respondents scored the highest in both the importance and use of professionalism ($x = 24.0$ for both). In human relations, non-whites scored higher in each variable; 68.2 for knowledge, 68.7 for importance and 68.3 for use of human relations.

The highest score in ethnic background was among non-white respondents in importance of subject matter expertise (105.0). The lowest score was among white respondents in use of communications with a score of 19.4.

Table 10. Differences In Mean Competency Items By Ethnic Background

Subject Matter Expertise	<i>x</i>	<i>t value</i>
Knowledge		
White	87.8	-2.2
Non-White	99.2	
Importance		
White	96.3	-3.0*
Non-White	105.0	
Use		
White	82.4	-4.8*
Non-White	98.3	
Communications		
Knowledge		
White	19.6	-3.1*
Non-White	22.2	
Importance		
White	21.1	-3.8*
Non-White	23.7	
Use		
White	19.4	-2.4
Non-White	22.2	
Professionalism		
Knowledge		
White	20.9	-1.3
Non-White	22.8	
Importance		
White	22.2	-2.7*
Non-White	24.0	
Use		
White	20.5	-5.0*
Non-White	24.0	
Human Relations		
Knowledge		
White	56.5	-6.0*
Non-White	68.2	
Importance		
White	62.8	-2.6*
Non-White	68.7	
Use		
White	56.0	-5.1*
Non-White	68.3	

Years of Experience and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies. However, there was a small difference in the use of subject matter. The mean for those with 7-20 years (87.9) was higher than the mean for those with 1-6 (80.1) of experience.

Interestingly, both age groups showed an equal knowledge of communications ($x = 19.9$) for both 1-6 years and 7-20 years of experience. Several variables had means which were separated by "tenths". For example, knowledge of professionalism for respondents with 7-20 years ($x = 21.5$) and 1-6 years of experience ($x = 21.2$); the importance of human relations for respondents with 1-6 years of experience ($x = 63.3$) and 21-34 years of experience ($x = 63.7$).

The highest score was those respondents with 7-20 years experience in the importance of subject matter expertise (99.2). The lowest score was among those with 21-34 years of experience (18.8) in the use of communications.

Table 11. Differences In Mean Competency Items By Years of Experience

Subject Matter Expertise	<i>x</i>	<i>t value</i>
Knowledge		
1-6 years	85.6	-1.0
7-20 years	89.6	
Importance		
1-6 years	94.8	-1.5
7-20 years	99.2	
Use		
1-6 years	80.1	-2.4*
7-20 years	87.9	
Communications		
Knowledge		
1-6 years	19.9	0
7-20 years	19.9	
Importance		
1-6 years	20.9	-1.5
7-20 years	22.3	
Use		
1-6 years	19.6	-1.0
7-20 years	20.5	
Professionalism		
Knowledge		
1-6 years	21.2	- .3
7-20 years	21.5	
Importance		
1-6 years	22.1	-1.1
7-20 years	23.0	
Use		
1-6 years	20.9	- .7
7-20 years	21.7	
Human Relations		
Knowledge		
1-6 years	55.5	- .8
7-20 years	58.2	
Importance		
1-6 years	63.3	.2
7-20 years	62.9	
Use		
1-6 years	56.3	- .9
7-20 years	59.1	

Table 11. (con't)
Experience

Differences In Mean Competency Items By Years of

	<i>x</i>	<i>t value</i>
Subject Matter Expertise		
Knowledge		
1-6 years	85.6	-1.4
21-34 years	91.3	
Importance		
1-6 years	94.8	- .6
21-34 years	97.3	
Use		
1-6 years	80.1	-1.2
21-34 years	84.5	
Communications		
Knowledge		
1-6 years	19.9	.4
21-34 years	19.5	
Importance		
1-6 years	20.9	0
21-34 years	20.9	
Use		
1-6 years	19.6	.7
21-34 years	18.8	
Professionalism		
Knowledge		
1-6 years	21.2	.4
21-34 years	20.7	
Importance		
1-6 years	22.1	.2
21-34 years	21.9	
Use		
1-6 years	20.9	.8
21-34 years	20.0	
Human Relations		
Knowledge		
1-6 years	55.5	-1.1
21-34 years	58.7	
Importance		
1-6 years	63.3	- .2
21-34 years	63.7	
Use		
1-6 years	56.3	.1
21-34 years	56.1	

**Table 11 (con't). Differences In Mean Competency Items
By Years of Experience**

	<i>x</i>	<i>t value</i>
Subject Matter Expertise		
Knowledge		
7-20 years	89.6	- .5
21-34 years	91.3	
Importance		
7-20 years	99.2	.5
21-34 years	97.3	
Use		
7-20 years	87.9	1.0
21-34 years	84.5	
Communications		
Knowledge		
7-20 years	19.9	.4
21-34 years	19.5	
Importance		
7-20 years	22.3	1.7
21-34 years	20.9	
Use		
7-20 years	20.5	1.7
21-34 years	18.8	
Professionalism		
Knowledge		
7-20 years	21.5	.7
21-34 years	20.7	
Importance		
7-20 years	23.0	1.4
21-34 years	21.9	
Use		
7-20 years	21.7	1.7
21-34 years	20.0	
Human Relations		
Knowledge		
7-20 years	58.2	- .2
21-34 years	58.7	
Importance		
7-20 years	62.9	- .4
21-34 years	63.7	
Use		
7-20 years	59.1	1.0
21-34 years	56.1	

Job Responsibilities and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies. Interestingly, there were differences in both subject matter expertise and human relations. Administrators scored higher (98.1) in knowledge of subject matter than did 4-H agents (88.5). Additionally, administrators scored higher in both importance of subject matter expertise and the use of subject matter expertise. Administrators also had a higher score in the knowledge of human relations (65.3) than did 4-H agents.

Finally, not a large difference was found in job responsibilities by administrator; but administrators scored higher in all of the variables in each competency area. Yet some variables were higher by a small margin (one tenth) but all were consistently higher.

Table 12. Differences In Mean Competency Items By Job Responsibilities

Subject Matter Expertise		<i>x</i>	<i>t value</i>
Knowledge	Agent	88.5	- 2.6*
	Administrator	98.1	
Importance	Agent	97.1	- 2.1
	Administrator	104.3	
Use	Agent	84.4	- .8
	Administrator	86.4	
Communications			
Knowledge	Agent	19.7	- 1.5
	Administrator	21.6	
Importance	Agent	21.6	- .1
	Administrator	21.7	
Use	Agent	19.8	- .4
	Administrator	20.1	
Professionalism			
Knowledge	Agent	21.2	- .9
	Administrator	22.1	
Importance	Agent	22.5	- 1.0
	Administrator	23.4	
Use	Agent	21.0	- .4
	Administrator	21.4	
Human Relations			
Knowledge	Agent	57.2	- 3.2*
	Administrator	65.3	
Importance	Agent	63.3	- 2.7*
	Administrator	69.0	
Use	Agent	56.8	- 2.5*
	Administrator	64.0	

Total Staff Size and Dependent Variables: There were no significant differences in the level of knowledge of competencies, the level of importance of competencies and the level of use of competencies by total size of staff of the respondents. The differences in scores ranged from 0 to 6.2.

The highest score was among respondents with large staffs (91.9) in the knowledge of subject matter expertise. However, between small and medium staffs, in importance of communications, both groups had the same score (21.3).

Table 13. Differences In Mean Competency Items By Total Staff Size

Subject Matter Expertise	x	t value
Knowledge		
Small (1-9 Persons)	85.7	- .8
Medium (10-13 Persons)	89.2	
Importance		
Small (1-9 Persons)	94.4	- .9
Medium (10-13 Persons)	97.6	
Use		
Small (1-9 Persons)	81.2	- .9
Medium (10-13 Persons)	84.4	
Communications		
Knowledge		
Small (1-9 Persons)	19.1	- 1.1
Medium (10-13 Persons)	20.2	
Importance		
Small (1-9 Persons)	21.3	0
Medium (10-13 Persons)	21.3	
Use		
Small (1-9 Persons)	19.4	- .4
Medium (10-13 Persons)	19.9	
Professionalism		
Knowledge		
Small (1-9 Persons)	20.7	- .4
Medium (10-13 Persons)	21.1	
Importance		
Small (1-9 Persons)	22.4	.5
Medium (10-13 Persons)	21.9	
Use		
Small (1-9 Persons)	20.4	- .4
Medium (10-13 Persons)	20.9	
Human Relations		
Knowledge		
Small (1-9 Persons)	55.3	- .5
Medium (10-13 Persons)	57.0	
Importance		
Small (1-9 Persons)	61.8	- .7
Medium (10-13 Persons)	63.3	
Use		
Small (1-9 Persons)	55.2	- .5
Medium (10-13 Persons)	56.9	

**Table 13 (con't). Differences In Mean Competency Items
By Total Staff Size**

	<i>x</i>	<i>t value</i>
Subject Matter Expertise		
Knowledge		
Small (1-9 Persons)	85.7	-1.5
Large (14-41 Persons)	91.9	
Importance		
Small (1-9 Persons)	94.4	-1.0
Large (14-41 Persons)	98.6	
Use		
Small (1-9 Persons)	81.2	-1.3
Large (14-41 Persons)	86.0	
Communications		
Knowledge		
Small (1-9 Persons)	19.1	-1.0
Large (14-41 Persons)	20.1	
Importance		
Small (1-9 Persons)	21.3	.1
Large (14-41 Persons)	21.2	
Use		
Small (1-9 Persons)	19.4	- .1
Large (14-41 Persons)	19.5	
Professionalism		
Knowledge		
Small (1-9 Persons)	20.7	- .5
Large (14-41 Persons)	21.3	
Importance		
Small (1-9 Persons)	22.4	- .3
Large (14-41 Persons)	22.7	
Use		
Small (1-9 Persons)	20.4	- .6
Large (14-41 Persons)	21.1	
Human Relations		
Knowledge		
Small (1-9 Persons)	55.3	- 1.6
Large (14-41 Persons)	60.1	
Importance		
Small (1-9 Persons)	61.8	- 1.2
Large (14-41 Persons)	64.7	
Use		
Small (1-9 Persons)	55.2	- 1.3
Large (14-41 Persons)	59.3	

Table 13 (con't). Differences In Mean Competency Items By Total Staff Size

		<i>x</i>	<i>t value</i>
Subject Matter Expertise			
Knowledge			
	Medium (10-13 Persons)	89.2	- .6
	Large (14-41 Persons)	91.9	
Importance			
	Medium (10-13 Persons)	97.6	- .3
	Large (14-41 Persons)	98.6	
Use			
	Medium (10-13 Persons)	84.4	- .4
	Large (14-41 Persons)	86.0	
Communications			
Knowledge			
	Medium (10-13 Persons)	20.2	.1
	Large (14-41 Persons)	20.1	
Importance			
	Medium (10-13 Persons)	21.3	.1
	Large (14-41 Persons)	21.2	
Use			
	Medium (10-13 Persons)	19.9	.3
	Large (14-41 Persons)	19.5	
Professionalism			
Knowledge			
	Medium (10-13 Persons)	21.1	- .2
	Large (14-41 Persons)	21.3	
Importance			
	Medium (10-13 Persons)	21.9	- .8
	Large (14-41 Persons)	22.7	
Use			
	Medium (10-13 Persons)	20.9	- .2
	Large (14-41 Persons)	21.1	
Human Relations			
Knowledge			
	Medium (10-13 Persons)	57.0	- 1.0
	Large (14-41 Persons)	60.1	
Importance			
	Medium (10-13 Persons)	63.3	- .5
	Large (14-41 Persons)	64.7	
Use			
	Medium (10-13 Persons)	56.9	- .7
	Large (14-41 Persons)	59.3	

Summary of Results

Seven null hypotheses were tested, using t-tests for differences between the study factors and competencies. Means and standard deviations were done for each competency.

Competency Components By Socio-Demographic Variables

Hypothesis 1: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by age.

There were no significant differences in knowledge, importance and use of subject matter, communications, professionalism and human relations by age. Therefore, Hypothesis 1 is not rejected, however a numeric difference was found in subject matter, communications and professionalism. Younger respondents scored higher in these competencies, than did older respondents.

Hypothesis 2: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by gender.

There were no significant differences between gender and the 4-H competencies. Therefore, Hypothesis 2 is not rejected.

Hypothesis 3: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by education.

There were no significant differences in competencies by level of education of respondents, therefore, Hypothesis 3 is not rejected.

Hypothesis 4: Among 4-H agents of N. C. Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by ethnic background.

There were significant differences in subject matter, communications, professionalism and human relations by ethnic background. The greatest differences were found in human relations. Based on these findings, Hypothesis 4 is rejected and there are differences in the 4-H competencies by ethnic background.

Competency Components By Organizational Variables

Hypothesis 5: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of do not differ by years of experience.

There were no significant differences in the competencies by years of experience, and, thus Hypothesis 5 is not rejected.

Hypothesis 6: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by job responsibilities.

There were no significant differences in competencies by job responsibility. Yet, administrators had a higher knowledge of subject matter than did 4-H agent. Therefore, Hypothesis 6 is not rejected.

Hypothesis 7: Among 4-H agents of North Carolina Cooperative Extension, the level of knowledge, importance and use of competencies do not differ by total staff size. There were no significant differences in competencies by total staff size. Therefore, Hypothesis 7 is not rejected.

Conclusion, Implications and Suggestions for Further Research

The primary purpose of this study was to identify and describe the major competencies of the 4-H professional. After which, the task, was to ascertain the 4-H professional's level of knowledge, the degree of importance and the level of use of each competency. The findings of this exploratory study were presented in Chapter 4. Presented in Chapter 5 are conclusions derived from the findings. Additionally, implications of the conclusions and recommendations for future research are presented in this chapter.

Conclusion 1: The competencies of subject matter expertise, professionalism, communications and human relations reflect the core competencies of 4-H professionals. The Blue Ribbon Commission on Staff Development concluded that subject matter expertise, professionalism, communications and human relations were core competencies that were necessary for excellence as a Cooperative Extension worker (1998). The BRC consulted with experts in corporate training and contemporary staff development systems to determine characteristics of state of the art staff development. Furthermore, this conclusion can be verified by competencies that were identified by the Northeast Extension Leadership Development program at Cornell University (2001). The two studies were consistent with the conclusions of this study. Competency mastery is essential in the role of the 4-H profession. As stated in the literature, the criticality of the competencies must be recognized in the 4-H profession if the organization is to be progressive. The ability to evaluate, serve

as a change agent, gain technical skills and seek new partners are examples of sub-competencies that have been validated in this study. Thus, these four competency areas should be used as a framework for training and program development for the 4-H agent.

Conclusion 2: Respondents have a moderate knowledge of competencies.

This conclusion can be confirmed by the agreement in the correlation matrix and mean competencies. This factor also could possibly be attributed to the 4-H professional's understanding of the competencies as to the degree of which their work meets and/or exceeds individual work standards. The work of Parry (1996) sees competencies as those characteristics which affects an individual's ability to do their job. Thus respondents understand that knowledge of these competencies is important. The Blue Ribbon Study Commission also concludes that knowledge of these competencies are important for individual and organizational growth in Cooperative Extension. Since knowledge is an important learning outcome, the 4-H professional must gain a better working knowledge of the core competencies. The literature confirms that cognitive domain and knowledge is probably the most common educational objective in American education. If the 4-H professional knows the competencies, he or she would realize the importance of them; thus leading to an increase in use of the competencies.

Conclusion 3: 4-H professionals believe that the competencies developed are important to their work.

4-H professionals continually work to meet the needs of clientele. Since they play a role in identifying and assessing various important skills, identifying those competencies that are important helps to build commitment and trust (Boltes, 1997). Thus agents, feel that the identified core competencies are important to the 4-H professional in their work. The 4-H professional must realize that the competencies are important. Through experience and practice the competencies would potentially be adopted by the 4-H agent. A sense of urgency should be presented which emphasizes on the importance of the competencies. Unless there is already an obvious crisis, most 4-H agents are unlikely to comprehend the importance of the competencies.

Conclusion 4: 4-H professionals not only know and believe the core competencies are important, but they use the competencies in their work.

If knowledge and importance of competencies are necessary, 4-H professionals must use them through application in their work. Parry (1996) states that competencies can be improved through usage and training. The author can conclude that since 4-H professionals know and believe the competencies are important, using them enables the 4-H professional to be more effective in their work. The 4-H organization must work to become a "learning organization". Fiol (1985) describes the learning organization as organizations that learn rapidly and use the knowledge to become more effective. Yet, all organizations learn things, but some do it better than others.

Resources must be invested in promoting learning at all levels, such as conceptual tools, mental models for understanding how to adapt to the environment and achieve the organizations goals and objectives.

Conclusion 5: Level of education influences all of the core competencies.

North Carolina Cooperative Extension considers continuing education a priority for the 4-H professional and all extension staff. Since over 61 percent of the respondents have advanced degrees, one may conclude that as the level of education increases, so does the knowledge and skills of core competencies. The same holds true as noted in the BRC's proficiency levels of sub-competencies (1998). Education plays a vital role in determining the values of innovation, experimentation, flexibility and initiative. If the 4-H professional will place an emphasis on continuing education, the level of pride and confidence in the capacity to learn will take place.

The capacity to learn is becoming even more important to an organization. The 4-H organization will be successful by providing opportunities for enhancing education levels. Education levels can be improved by increasing learning and innovation through experimentation, reflection and information sharing.

Conclusion 6: The ethnic background impacted the knowledge, importance and use of core competencies.

Non-whites being a minority may feel compelled to really focus on competencies in order to be successful. One may conclude that higher scores of non-whites

across all competency areas are due to various "road blocks" throughout their collegiate and professional years. "They feel driven to do the maximum possible to be successful in the 4-H profession" (2002, Turner). Even though African Americans may feel "driven" to be successful, that does not compensate for the fact that only 6 African American respondents completed the survey. Thus, one must not completely conclude that all non-whites have a higher knowledge, increased level of importance and a higher level of use of competencies. But for those who completed the survey, this conclusion did hold true.

Conclusion 7: Independent factors of staff size and gender do not impact core competencies.

Staff size and gender have no effect on core competencies. This conclusion is true as 4-H professionals must maintain and perform their roles, regardless of their gender or the number of members on their staff. Additionally, 4-H agents must be flexible and willing to adjust to those factors in performing their roles. However, organizations must work toward achieving balance, employee involvement, strategic planning and professional development.

Implications

The implications are directed toward the 4-H professionals in the North Carolina Cooperative Extension Service. The implications may also have utility with the 4-H profession nationally and the North Carolina Cooperative Extension Service Personal and Organization Development system, for validation of the competencies.

The following were considered to be the most significant implications.

1) 4-H professionals must look at subject matter expertise, communications, human relations and professionalism in their work. They are necessary in the 4-H profession and those competencies are all functions of the 4-H agent's role. Training could be offered in sub-competency areas which could be available for agents at all levels of experience. As confirmed by the study, younger agents and specialists must gain necessary skills in order to be successful. As the study indicated, if the 4-H professional feels that the competencies are important they will want to know about them and use them.

2) Knowledge of competencies must be viewed as an opportunity for continuing education since 4-H professionals have some "knowledge" of the competencies, one must

be willing to expand on that knowledge in order to ensure personal and organizational growth. Knowledge of competencies can first be improved by identifying individuals with relevant knowledge or expertise. These individuals may be peers and outsiders, as well as individuals within the organization. A determination of relative priority of competencies may be considered as ideas for possible competency development. Those ideas may enable agents to build on competency strengths and focus on weaknesses.

3) Since core competencies are important, 4-H professionals must consider them an integral part of personal development and strive to be proficient in the four

competency areas. In order for agents to become proficient, leaders of the 4-H organization must be willing to implement competency initiatives; regardless of economic conditions, governmental policies or technological changes. Even though external and internal constraints may exist, stake holders must be willing to dictate the conditions for performance standards in the four competency areas.

4) If 4-H agents are to be successful, they must practice competency use in their work. Cooperative Extension must take a system's approach to improving individual and organizational performance. The concept of "practicing" competency use may be achieved through personal growth programs. Personal growth programs are designed to improve self-awareness and overcome inner barriers for growth and development of competencies. Many people have lost touch with their inner feelings and values, thus re-connections with them is necessary to become proficient in competency mastery.

5) Cooperative Extension must continue to emphasize the value of continuing education. Since higher education does improve competency knowledge base, in-service training and formal training are essential for 4-H professionals. The amount of continuing education training on competencies depends in part on prevailing attitudes and values about competency development or the "organizational climate" for learning. More continuing education is likely to occur when individual learning is regarded as highly important for organizational effectiveness. When this occurs, more resources will be devoted to training and more effort will be made to explicitly

measure and reward such training.

6) In the future, the 4-H organization must strive for a more diverse staff which reflects the organization's culture. All 4-H professionals must feel that their contributions are important to the success of the organization. An example for achieving a diverse staff could be "cross-functional teams". These teams may improve coordination of activities using partners from within and outside the organization. Those teams could coordinate ideas for new information systems, improve 4-H program outreach and marketing or develop a new idea for clientele, for example. All 4-H professionals must feel that their contributions are important if this is to be successful.

7) As the organization experiences smaller staffs and down sizing, competency development will remain critical. Also, an emphasis should be placed on male:female ratios in future 4-H professional staffing models. During the changing process, the new strategy requires changes in the organization structure to make it consistent with the strategy. These changes must be implemented by involving extension professional from all levels of the Extension System. If involvement does not occur from all levels, the change is less likely to be adopted.

Recommendations For Future Studies

The results of this study stimulated ideas that should provide a basis for additional research. These recommendations are based on the findings of this study.

- 1) The study should be replicated to provide a strong case for competencies in other jobs within N C Cooperative Extension. The findings could then be compared with the findings of the present study.
- 2) The study be should replicated with other job groups with different roles, which could aid in staff development.
- 3) If the study is replicated, consideration should be given to additional socio-demographic factors and the research design.
- 4) Based on findings, it is suggested that a competency model be developed to use as a tool for new hires, based on specified functions of a potential job within the N C Cooperative Extension Service. Core competency training could be a part of new agent orientation and training. All, sub-competency training and development in competency areas would better prepare 4-H professionals for their roles in youth development.

Recommendations To N. C. 4-H and Youth Development

The results of this study also stimulated ideas which may have merit for N. C. 4-H and Youth Development.

- 1) Since younger 4-H agents are more willing to accept change, begin training on the 4-H competencies early in the 4-H agents career. More technical training could be offered for more tenured agents on sub-competency groups.
- 2) Emphasize training based on extension agent's experience and background. This could be considered for subject matter professionals, as well as 4-H

professionals.

3) The organization must embrace the fact that a large portion of 4-H professionals have less than 10 years of experience. If a high level of competency development is to be achieved, we must begin utilizing the core competencies as a training model.

4) Competency training and development must be implemented immediately.

Then, research underscores the criticality of this training to ensure 4-H and youth development as a premiere organization.

APPENDIX A.
COVER LETTER TO PARTICIPANTS



"4-H and Youth Development Survey"
A Competency Study For N. C. 4-H Professionals
Post Office Box 1608
Elizabeth City, NC 27906-1608
(252) 338-3954



April 26, 2002

Dear N. C. 4-H & Youth Development Colleagues:

During this time of organizational downsizing, shrinking budgets, competition for non-mandated monies, an unsettling economy and a rising unemployment rate have major consequences for organizational viability and tenure of organizational employees. To respond to these ever-changing conditions, organizations are considering the adoption of a "learning organization perspective" which focuses on continuous learning as a means of increasing knowledge such that organizations can better respond to change.

A key concept in a learning organization is that of competency, which is a participatory strategy. Thus, I am writing at this time to request your assistance as part of completing my doctoral requirements at N. C. State University. I would like to ascertain and develop the tools that North Carolina 4-H Professionals need to be more effective and efficient in their jobs. As 4-H and Youth Development professionals, we are responsible for what we learn and for continuous professional development. All tenured and new hires need to have an understanding and working knowledge of competencies that are necessary to be successful in one's job. The findings of the study will also be useful as a tool for 4-H professionals in North Carolina and across the nation.

In order to assist in determining those competencies, a short questionnaire has been devised in which we believe will aid in tailoring the 4-H professional's work to better meet individual needs of a highly, successful worker.

Be assured that your answers will be completely confidential and released only as summaries which no individual's answers can be identified. Please complete the questionnaire and place in the return envelope by no later than Friday, May 17, 2002. All questionnaires received early (by May 10) will be placed in a drawing. Three \$50 vouchers will be provided for 4-H professional development.

If you have any questions or comments regarding this study, I would be happy to talk with you. Please contact me (252) 338-3954 or e-mail me at travis_burke@ncsu.edu, if you have further questions.

Thank you very much for helping with this important study.

Sincerely,

Travis B. Burke

APPENDIX B.
INFORMATION SHEET

Information Sheet

Please complete the information below and include with the returned survey. The information provided will be strictly confidential and will only be used to complete the study. You will be assigned a code number which will be needed for data analysis.

Thank you for your assistance with this survey instrument.

Name:

Address:

Email Address:

Phone Number:

APPENDIX C.

RESEARCH INSTRUMENT

Section I

A number of competencies are listed below that have been identified for the Extension 4-H Agent. Each statement has three components: Level of Knowledge, Level of Importance, Level of Use

Please circle the number which reflects your feelings. The rating scales are:

Level of Knowledge	Level of Importance	Level of Use
1 - Little or none	1 - Little Importance	1 - Very Little
2 - Limited	2 - Slightly Important	2 - Some Use
3 - Moderate	3 - Some Importance	3 - Moderate Use
4 - Good	4 - Important	4 - Often Used
5 - Excellent	5 - Most Important	5 - Very Frequently

◆ Subject Matter Expertise

		Knowledge	Importance	Use
1.	Learning theory as it applies to learning experiences for positive youth development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
2.	Design, delivering and evaluation of learning experiences for positive youth development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
3.	Networking and building alliances.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
4.	Collaboration and utilizing contacts to build and strengthen internal support bases.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
5.	Growth and development process over the life span as it relates to youth development theory and practice.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

		application to the learning environment.		
		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
6.	Adult and youth development systems management.			
7.	Volunteer research and management practices to build and maintain volunteer management systems.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
8.	Mission, vision and values of 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
9.	The advisory system and program delivery strategies in fulfilling the mission of 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
10.	Facilities and resource management in fulfilling the mission of 4-H and Youth Development Programs.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
11.	Financial management and marketing in regards to ensuring appropriate funding levels.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
12.	Budgeting, cost benefit thinking and the understanding of expenditures.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
13.	Needs assessment and utilization of the Advisory Leadership System.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
14.	Program planning, designing, implementing and evaluation of educational programs.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
15.	Effective and innovative delivery methods.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
16.	Systematically collecting, analyzing and reporting information.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
17.	Communicating results of evaluations to others who are engaged and vested in your programs.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
18.	Adult learning theories and their	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

107.		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
19.	Planning appropriate and meaningful adult learning experiences.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
20.	Customer service as it relates to responding to pressing and changing client demands.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
21.	Exploring the needs of youth and adult audiences.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
22.	Marketing as it relates to timely programs that are responsive to current needs of 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
23.	Communicating to stakeholders how people benefit from 4-H and Youth Development Programs.			
◆	Professionalism	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
24.	Ethics, as it relates to instilling mutual trust and confidence in clients and peers involved in 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
25.	Utilization of fairness, ethics responsibility and commitment towards others.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
26.	Planning, coordinating, organizing and scheduling.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
27.	Continual learning as it relates to grasping new information and understanding your strengths and weaknesses.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
28.	Self development and opportunities to master new knowledge.			
◆	Communications	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
29.	Oral communications, making clear and convincing presentations.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
30.	Fostering an atmosphere for open communications.			

		Importance	Use
31.	Written communications in regard to clear, convincing and organized written ideas.	1 2 3 4 5	1 2 3 4 5
32.	The integration of technology management.	1 2 3 4 5	1 2 3 4 5
33.	Impact of technological changes in 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5
◆	Human Relations		
34.	Interpersonal understanding and the treatment of others with respect.	1 2 3 4 5	1 2 3 4 5
35.	Managing conflicts and preventing unpleasant confrontations.	1 2 3 4 5	1 2 3 4 5
36.	Staff involvement in program decisions and policy formulation in 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5
37.	Hiring, recruitment and staff development.	1 2 3 4 5	1 2 3 4 5
38.	Service motivation, organizational culture and public service.	1 2 3 4 5	1 2 3 4 5
39.	Your influence toward others in the spirit of service in 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5
40.	Organizational change in terms of the formulation of strategies from a local, regional and national level.	1 2 3 4 5	1 2 3 4 5
41.	Youth development in a global economy.	1 2 3 4 5	1 2 3 4 5
42.	Cultural competence in 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5
43.	Cultural change, cultural diversity and understanding differences in the work environment.	1 2 3 4 5	1 2 3 4 5

Knowledge

		Knowledge	Importance	Use
44.	Creativity and innovation in regards to new insights and solutions to improve 4-H and Youth Development.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
45.	Implementation of new and innovative ideas.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
46.	Motivation and the inspiration of others in accomplishing goals.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
47.	Fostering commitment, team spirit and trust in 4-H and Youth Development work.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
48.	Coaching, mentoring, rewarding and guiding others.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Section II

1. How many years of Cooperative Extension experience do you have?

2. What is your major job responsibilities? (please check your major assignment):

- _____ Ag & Natural Resources
- _____ Community & Rural Development
- _____ Family and Consumer Sciences
- _____ 4-H and Youth Development
- _____ Administration

3. What is the total size of the Extension staff at your office?

- _____ Professionals
- _____ Paraprofessionals
- _____ Other: _____ please _____ describe

4. What is your date of birth? _____

5. What is your highest level of educational/degree experience?

- ☐ High School Graduate
- ☐ Some College
- ☐ 2 Year College Graduate
- ☐ 4 Year College Graduate
- ☐ Graduate Degree
- ☐ Other (please specify)

6. What is your gender?

☐ male ☐ female

7. What is your ethnic background?

- ☐ Caucasian/White
- ☐ African American
- ☐ Native American
- ☐ Other (please specify): _____

APPENDIX D.

TABLE: DISTRIBUTION OF RESPONDENTS
BY EACH DIMENSION OF
KNOWLEDGE, IMPORTANCE AND USE OF
COMPETENCIES

Distribution of Respondents of Each Dimension of Knowledge, Importance and Use of Competencies

	<i>x</i>	<i>SD</i>
K1	3.71	.82
I1	4.11	.81
U1	3.68	.91
K2	3.91	.76
I2	4.46	.81
U2	3.93	.85
K3	4.14	.86
I3	4.41	.81
U3	4.14	.86
K4	3.93	.93
I4	4.20	.95
U4	3.93	.91
K5	3.61	.94
I5	3.91	.82
U5	3.45	.85
K6	3.70	.77
I6	4.03	.80
U6	3.65	.85
K7	3.59	.81
I7	4.20	.81
U7	3.67	.89
K8	4.49	.70
I8	4.51	.80

U8	4.28	.89
K9	3.88	.85
I9	4.06	.80
U9	3.71	.88
K10	3.83	.84
I10	4.22	.74
U10	3.93	.86
K11	3.83	1.03
I11	4.54	.65
U11	4.09	.95
K12	3.83	1.04
I12	4.30	.77
U12	3.83	1.11
K13	3.68	.90
I13	3.97	.87
U13	3.68	.98
K14	4.07	.88
I14	4.36	.84
U14	4.09	.89
K15	4.01	.80
I15	4.42	.74
U15	4.00	.82
K16	3.46	.88
I16	3.93	.81

U16	3.38	.93
K17	3.81	.84
I17	4.25	.81
U17	3.61	.96
K18	3.57	.98
I18	3.62	.79
U18	3.22	.91
K19	3.74	.78
I19	4.06	.81
U19	3.51	1.01
K20	3.97	.94
I20	4.41	.83
U20	3.99	.95
K21	3.86	.97
I21	4.10	.86
U21	3.70	.94
K22	4.01	.83
I22	4.39	.84
U22	4.03	.79
K23	4.09	1.01
I23	4.51	.80
U23	3.91	.95
K24	4.35	.95
I24	4.49	.88

U24	4.26	.92
K25	4.32	.92
I25	4.57	.78
U25	4.33	.80
K26	4.39	.75
I26	4.65	.72
U26	4.29	1.00
K27	3.99	.95
I27	4.33	.82
U27	3.94	.95
K28	4.06	.86
I28	4.28	.86
U28	4.00	.94
K29	4.22	.82
I29	4.46	.83
U29	4.29	.88
K30	4.17	.79
I30	4.39	.77
U30	4.13	.86
K31	4.23	.81
I31	4.52	.70
U31	4.10	.83
K32	3.59	.98
I32	4.04	.91
U32	3.59	1.00

K33	3.54	.98
I33	3.93	.96
U33	3.49	1.02
K34	4.41	.77
I34	4.62	.77
U34	4.45	.74
K35	4.00	.86
I35	4.42	.86
U35	3.93	1.00
K36	3.88	1.04
I36	4.20	.96
U36	3.86	1.04
K37	3.64	1.11
I37	4.26	.92
U37	3.55	1.31
K38	3.78	1.03
I38	3.96	.93
U38	3.70	1.03
K39	4.13	.91
I39	4.23	.88
U39	4.07	1.02
K40	3.54	1.02
I40	3.86	.93
U40	3.41	1.03
K41	3.07	.93

I41	3.61	.97
U41	3.13	1.10
K42	3.51	.95
I42	3.84	.98
U42	3.42	1.08
K43	3.74	.95
I43	4.07	.83
U43	3.61	1.05
K44	3.64	1.00
I44	4.20	.85
U44	3.72	1.04
K45	3.80	.95
I45	4.32	.88
U45	3.86	.99
K46	4.00	.86
I46	4.36	.75
U46	4.04	.86
K47	3.99	.83
I47	4.40	.60
U47	4.06	.91
K48	3.97	1.09
I48	4.50	.70
U48	4.12	.95

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