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The relative importance of selected educational process professional competencies to extension educators in the North Central Region of USA

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**The relative importance of selected educational process professional competencies to
extension educators in the North Central Region of USA**

by

Nav Raj Ghimire

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Agricultural Education (Agricultural Extension Education)

Program of Study Committee:
Robert A. Martin, Major Professor
Jerry DeWitt
Wade Miller
Charles Morris
Michael Retallick

Iowa State University
Ames, Iowa
2010

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DEDICATION

I was born in a small village in the hills of Nepal. I grew up in a farmer's family following the Hindu culture, religion and philosophies. According to Hindu holy book "VEDA", for a student the respect for a teacher, a "GURU" should be after "GOD" but before parents. I have the same respect for my major professor, Dr. Robert A. Martin.

If Dr. Martin had not have accepted to supervise me in the PhD program and had not provided an assistantship for my study, I would have never had the opportunity to earn a doctoral degree from USA. I truly mean it because no one knows my life better than me on this earth. Therefore,

This dissertation is dedicated to my major professor

Dr. Robert Allen Martin

I am deeply indebted for his continuous support, guidance and help throughout my study at Iowa State University

TABLE OF CONTENTS

LIST OF FIGURES	v
LIST OF TABLES	vi
ACKNOWLEDGEMENTS	viii
ABSTRACT	ix
CHAPTER 1: INTRODUCTION	1
Statement of the Problem	5
Purpose of the Study	5
Need for the Study	6
Significance of the Study	8
Definition of Terms	9
CHAPTER 2: REVIEW OF LITERATURE	12
Theoretical Framework	13
Adult Education	18
Professional Development	26
Professional Development in the Cooperative Extension Service	28
Competency Studies in Extension	33
CHAPTER 3: METHODS AND PROCEDURES	45
Research Design and Instrumentation	45
Data Source	48
Data Collection	49
Data Analysis	53
Limitation of the Study	55
CHAPTER 4: FINDINGS	56
Demographic Characteristics	57
Importance of the Professional Development Competencies	64
Perceptions regarding the professional development competencies related to needs assessment/analysis and program development	64
Perceptions regarding the professional development competencies related to learning systems	66
Perceptions regarding the professional development competencies related to delivery systems	67
Perceptions regarding the professional development competencies related to evaluation systems	69

Differences in Perceptions of the Extension Educators Based on their Demographic Characteristics	73
Additional Professional Development Competencies	78
Comments of the Respondents about this Research Study	80
CHAPTER 5: DISCUSSION	83
Demographic Characteristics	84
Perceptions Regarding the Educational Process Competencies	89
Perceptions Regarding the Best Time to Learn the Educational Process Competencies	100
Difference in Perceptions Based on the Demographic Characteristics	104
Additional Competencies Suggested by the Respondents	106
Educational Process Professional Competency Development Model	114
CHAPTER 6: SUMMARY, CONCLUSIONS, RECOMMENDATIONS	124
Summary	124
Conclusions	129
Recommendation	131
Recommendation for Further Studies	132
Implications and Educational Significance of the Study	133
APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL LETTER AND FORM	136
APPENDIX B: APPROVED SURVEY QUESTIONNAIRE	149
APPENDIX C: COVER LETTER TO QUESTIONNAIRE	154
APPENDIX D: FOLLOWUP REMINDER EMAIL	156
APPENDIX E: ADDITIONAL COMPETENCIES SUGGESTED BY THE RESPONDENTS	158
APPENDIX F: COMMENTS PROVIDED BY THE RESPONDENTS	163
REFERENCES	170

LIST OF FIGURES

Figure 1: Educational process professional competency development model	117
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LIST OF TABLES

Table 3.01: Independent samples t-test indicating difference in means to responses from early and late respondents	53
Table 4.01: Participants of the study by gender	58
Table 4.02: Distribution of the age of extension educators	58
Table 4.03: Distribution of extension educators' years of experience served as an extension professional	59
Table 4.04: Distribution of extension educators' level of education	59
Table 4.05: Distribution of position of the respondents in this study	60
Table 4.06: Frequency and percentage distribution of extension educators' major area of study for their highest educational degree	61
Table 4.07: Mean perceptions of the extension educators on professional competency statements related to needs assessment and analysis and program development and the best time to learn them	65
Table 4.08: Mean perceptions of the extension educators on professional competency statements related to learning systems and the best time to learn them	66
Table 4.09: Mean perceptions of the extension educators on professional competency statements related to delivery systems and the best time to learn them	68
Table 4.10: Mean perceptions of the extension educators on professional competency statements related to evaluations systems and the best time to learn them	69
Table 4.11: Means and standard deviations regarding the perceived importance of four professional development competency areas to extension educators in the North Central Region	71
Table 4.12: Perceived mean importance ratings of four professional development competency areas by extension educators by states in the North Central Region	72
Table 4.13: Independent samples t-test for the perceived mean importance of the professional development competency areas by gender	74

Table 4.14: One-way analysis of variance for the perceived mean importance of the professional development competency areas by the level of education	75
Table 4.15: One-way analysis of variance for the perceived mean importance of the professional development competency areas by the years of experience	76
Table 4.16: One-way analysis of variance for the perceived mean importance of the professional development competency areas by the age range	77
Table 4.17: One-way analysis of variance for the perceived mean importance of the professional development competency areas by the professional position	78
Table 4.18: Themes derived from the concepts for additional competencies provided by respondents	79

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ABSTRACT

The Cooperative Extension Service has been assisting American communities in solving problems and improving lives through various educational processes. The problems faced by rural and urban communities today are complex and specialized in nature. Therefore, extension educators should develop selected educational process professional competencies to conduct professional activities in extension and to meet the varied needs of their clientele.

This study determined the relative importance of 42 selected educational process professional development competencies as perceived by extension educators in the North Central Region of the United States and identified the time when these competencies should be learned. These competencies were categorized under the four educational processes needed to conduct professional activities in extension: needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems.

This descriptive study employed a simple random survey design to explore the perceptions of extension educators. The target population for the study consisted of all extension educators in the North Central Region from which a random sample of 811 extension educators was selected. A closed-form questionnaire that was used as the instrument to collect data was electronically mailed to respondents using Survey-Monkey. The findings of the study were derived from the responses of 441 respondents. Descriptive statistics were used to analyze the data based on demographic characteristics, perceptions of extension educators, and the time when each competency should be learned. Independent samples t-test, analysis of variance and correlations were used to determine differences in perceptions based on the demographic characteristics.

This study revealed that the extension educators perceived the majority of the educational process professional competencies (81%) as highly important for their professional development. They preferred to learn many competencies on-the-job through practice and experience. Beyond the educational process competencies, some extension educators also suggested their need to learn other competencies such as, people skills and organizational management.

Significant differences in the perceptions between females and males and between age groups 24 - 29 years and ≥ 60 years was observed for some of the professional competencies included in this study. However, the partial correlation coefficients revealed that the contribution of the respondents' demographic characteristics for the perceived importance of educational process professional competencies was only about 4%, which was too low to be considered for practical importance.

The findings indicated that the majority of the extension educators in the North Central Region were well experienced middle-aged females with master's degrees. And some respondents in this study came to join the Cooperative Extension Service to become extension educators after their careers in other professions.

It was recommended that the professional competencies indicated to be best learned in a graduate program should be included in designing educational process courses in the land-grant universities and colleges of the North Central Region.

The perceived high importance for the professional competencies included in this study confirms the potential and need for designing professional development programs for extension educators focused on the educational processes. Based on the findings, a

professional development model was proposed to contribute to the professional growth and development of the extension educators in the North Central Region.

CHAPTER 1

INTRODUCTION

For more than 100 years, the Cooperative Extension Service has been assisting producers and rural communities in solving problems and improving lives through various educational processes. Extension assists people to learn to understand and address their conditions, problems and opportunities, and develop local programs to meet individual and community needs (Smith, 1934; Peters, 1999). The problems faced by rural and urban communities today are complex and specialized in nature. Therefore, extension educators must develop selected professional competencies to meet varied needs of their clientele (Gibson & Hillison, 1994; Gonzalez, 1982).

Morse, Brown and Warning (2006) stated that the role of extension educators has changed over the years with the changing social, economic, and environmental conditions of the community. The Cooperative Extension Service is sharpening its focus on how to succeed in today's changing environment and on how to communicate those successes to the public (Stone & Bieber, 1997). According to Cooper and Graham (2001) and Gonzalez (1982), success of the Cooperative Extension Service is largely determined by the professional skills and competencies of the extension educators. Therefore, continuous professional competency development of the extension educators is important to help them be effective in their jobs and to be successful change agents.

Stone and Bieber (1997) stated that competency development focuses on areas in which an individual or a work group can demonstrate excellent performance and it links them to the strategic direction of the Extension organization. They indicated a need for a competency development model in Extension and claimed that such a model could redefine

the role of the Cooperative Extension Service so that educational work could be continued in the future. According to Stone and Bieber (1997) and Stone (1997), competency development is a participatory process and it provides extension professionals an opportunity to identify the knowledge, skills and behaviors they need to get the best results as well as to identify the skills and functions that are no longer effective.

Competencies are the personnel development needs of an organization. The process of personnel development includes both informal and formal approaches to professional development (Baker and Villalobos, 1997). Competencies of extension professionals are developed through graduate programs, in-service training and other means such as, on-the-job identification of the training needs required by extension educators to perform various assignments (Merriam, Caffarella, & Baumgartner, 2007; Seevers et al., 1997; Gonzalez, 1982).

In the Cooperative Extension Service, the professional competencies development program is a continuous process and is related to institutional change (Baker & Villalobos, 1997). Therefore, the professional development needs of extension educators should be continuously assessed (1) to provide meaningful staff development programs (Casterter, 1981; Radhakrishna, 2001), and (2) to identify the competencies needed by extension professionals. This would meet the needs of people and ensure the success of the Cooperative Extension Service in the 21st century (Cooper & Graham, 2001).

Studies conducted by various authors (Beeman et al., 1979; Gonzalez, 1982; Ritsos & Miller, 1985; Waters & Haskell, 1988; Reynolds, 1993; Gibson & Hillison, 1994; Baker & Villalobos, 1997; Cooper & Graham, 2001; Radhakrishna, 2001; Conklin et al., 2002; Singletary et al. 2004; Boyd, 2004; Ferrell, 2005; Dromgoole, 2007 and others) have

identified as many as 158 competencies needed by extension professionals to be successful extension agents. A few of these competencies include group skills, program planning, educational delivery and learning processes, leadership, program evaluation, risk management, and public issues education. However, these studies were limited to a county or a state.

In 1991, the North Central Region -158 Committee on Adult Education in Agriculture developed a framework for research in adult education for all states in the North-Central Region of the United States. This committee identified four major professional competency areas that are related to the educational processes in extension and emphasized the need of research in these competency areas. These competency areas are: (1) needs assessment/analysis and program development, (2) learning systems, (3) delivery systems, and (4) evaluation systems (Martin, 1991). In 2005, the National Research Agenda for Agricultural Education and Communication (2007-2010) also identified these four educational process professional competency areas as important national research priorities in agricultural education and communication (Osborne, 2005). In 2006, the Excellence in Extension Task Force and Work Group of the Extension Committee on Organization and Policy (ECOP) developed important criteria to measure the quality of extension programs. In these criteria, the committee confirmed the need of these four educational process professional competencies in extension to determine the quality of extension programs in the Cooperative Extension System of the United States.

It appears from the literature that no studies have been found to have been conducted to identify the importance of these four educational process professional competency areas needed by extension educators in the North-Central Region. The North Central Region -158

Committee on Adult Education in Agriculture also suggested that extension educators in all disciplines must learn these competencies in order to perform their jobs effectively. This study explored the perceptions of extension educators (1) to determine the relative importance of the selected educational process professional competencies needed to conduct professional activities in extension, and (2) to gain an understanding as to when these competencies should be learned. This study is linked to the NCR-158 Committee Report (1991) and a study by Gonzalez (1982).

In 1982, Gonzalez conducted a doctoral research study (1) to identify the professional competencies needed by extension agents and the importance of these competencies in the Pennsylvania Cooperative Extension Service, and (2) to identify when the competencies should be learned by the extension agent. In his study, Gonzalez included a total of 144 competency statements grouped under nine competency areas: administration, program planning, program execution, teaching, communication, human behavior, professionalism, evaluation and 4-H Youth. The educational process competency areas were specified in the Gonzalez study as program planning, program execution, teaching, and evaluation.

This study is different from the Gonzalez (1982) study in that it was focused on the four educational process professional competency areas identified as most important by the NCR-158 Committee Report (Martin, 1991) for successful extension programming in the North Central Region and recommended to be learned by extension educators in all disciplines (e.g., needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems). A total of 42 competency statements were grouped under the four educational process competency areas included in this study.

Statement of the problem

Several studies have confirmed the need for continuous assessment of the professional competencies needed by extension educators in the United States. Most of these studies were conducted to identify the competencies needed by extension educators and were focused on skills to serve the needs of extension educators to perform their jobs. According to the literature, there is lack of a comprehensive assessment of the educational process professional competencies required by extension educators to efficiently utilize their technical proficiency with the larger community of extension audiences in the North Central Region of the United States. Extension educators need to conform to a set of required professional educational process competencies in order to effectively implement educational programs and adequately meet the needs of their clientele. Therefore, this study seeks to determine the relative importance of professional educational process competencies to extension educators in the North Central Region.

Purpose of the Study

The purpose of this study was to determine the relative importance of selected educational process professional development competencies as perceived by extension educators in the North Central Region and to identify when these competencies should be learned. A model professional development educational process framework was established based on the results of this study.

The specific objectives of the study were to determine:

1. The relative importance of professional competencies related to needs assessment /analysis and program development as perceived by extension educators.

2. The relative importance of professional competencies related to learning systems as perceived by extension educators.
3. The relative importance of professional competencies related to educational delivery systems as perceived by extension educators.
4. The relative importance of professional competencies related to evaluation systems as perceived by extension educators.
5. Demographic information of extension educators including their level of education and experience.
6. The differences in perceptions of extension educators based on their demographic characteristics.
7. When these competencies should be learned by extension educators.

Need for the Study

Professional competency development is gaining popularity in business and agencies worldwide (Stone, 1997). National and international business companies and agencies are finding professional competency development helps to (1) hire the most qualified employees and (2) improve employees' performance in the work place (Ayers and Stone, 1999).

According to Strother (1977), the demonstration of a high level of professional competence is the primary public justification for the Cooperative Extension Service in USA. Garst et al. (2007) stated that in the Cooperative Extension Service, a highly competent and well trained staff is the most important resource to ensure the success of the organization. Huber (1967) stated that professional competence is a valuable asset of an organization because it builds capacity of a staff to solve the unprogrammed problems of the organization. Huber's statement implies that we need professionally competent extension educators in the

Cooperative Extension Service not only to solve the problems that we are facing today, but also to solve those problems that do not appear today but may emerge in the future without our knowledge. This means, there is need for continuous professional competency development programs for extension educators.

The need for continuous professional competency development of extension educators in the Cooperative Extension Service was reported by the studies conducted as early as 1920 by Crosby and as recent as 2007 by Droomgoole. National Policy Guidelines for Staff Development developed by the Extension Committee on Organization and Policy (ECOP) in 1977 stated that “extension professionals must be well informed in relevant areas of technology and process skills and have access to the knowledge base necessary to maintain their competencies” (p. 5). This concept implies that (1) technical knowledge of the subject matter is not enough for extension educators to be successful. They also need process skills to effectively apply their technical knowledge while serving the clients, and (2) the Cooperative Extension Service should provide opportunities for extension educators to develop such skills through continuous professional development programs. These skills include, but are not limited to, needs assessment /analysis and program development, learning systems, delivery systems and evaluation systems.

Bennet (1979) argued that although formal degree programs provide excellent subject matter training to extension agents, such degree programs often lack the opportunities for agents to obtain skills and competencies needed to perform their assignments effectively. This means, that formal degree programs seldom provide adequate skills required by extension agents to meet the needs of their clientele. Therefore,

competencies of extension educators deemed to be successful must be identified and categorized for organizational success.

The importance of the current study is to identify the learning needs of extension educators and to determine training priorities of the Cooperative Extension Service in the North Central Region for the professional competency development of extension educators. Professionally competent extension professionals with the capacity to utilize their technical proficiency, to grow and mature in the profession, and to adjust to changing needs of the clientele are extremely important in order to gain and sustain the public trust of the Cooperative Extension Service.

Therefore, the need for this study is based on two main factors. First, no studies have yet been found to have been conducted in professional development competencies needed by extension educators related specifically to the educational processes in extension. Second, there is a need to identify the relative importance of these competencies in order to prioritize the training needs of extension educators in the North Central Region.

Significance of the Study

It is intended that the results of this study will serve several purposes. For policy makers, this study will provide information regarding the areas in which extension educators need to develop their professional educational process competencies and how extension educators perceive the relative importance of these competencies. This information will have application in design of new policies for employee selection, training, professional development, performance appraisal and succession planning.

The results should be useful to land-grant universities and colleges in designing courses for the students pursuing the development of their professional career in the

Cooperative Extension Service. In addition, the time these competencies should be learned through pre-service, in-service and/or on-the job training as indicated by the extension educators of this study will be helpful to organization leaders to design staff development programs of a varying nature.

The findings of this study will provide a guideline to identify the organizational training priorities for the professional competency development programs in public and private extension agencies required for continued professional improvement of their extension professionals.

Definition of Terms

Competency: The application of knowledge, technical skills and personal characteristics leading to outstanding performance (Stone & Bieber, 1997).

Need assessments and analysis: A set of methods or procedures used to gather options and ideas from a variety of sources on performance problems or new systems and technology (Rossett, 1987).

Educational delivery systems: A set of instructional methods or procedures used to transfer knowledge of a program, product, technology or service to the public (Business Dictionary, 2008; Martin, 1991).

Learning systems: A set of methods or procedures that increase the capacity of individuals or groups to acquire and productively apply new knowledge and skills, and to adapt successfully to changes and challenges (Business Dictionary, 2008; PacifiCorp Foundation, 2004; Martin, 1991).

Evaluation systems: Systematic application of a set of scientific methods or procedures to assess the design, implementation, improvement or outcomes of an educational program (Business Dictionary, 2008; Rossi & Freeman, 1993).

Perception: A process that involves the senses and enables individuals to arrive at true beliefs about their environment (Coats, 1998). For this study a perception is operationally defined as the mean score on a set of statements on a Likert-type scale to determine beliefs of extension educators regarding the required professional development competencies.

Graduate program: A formal educational program in college and universities that requires students successfully complete certain course credit(s).

In-service program: A formal educational training program organized by the employees' organization for their professional development through workshops or other delivery methods but the participants does not require completing any course credit(s).

On-the-job: An experiential learning process that provides opportunities for employees to learn professional skills and knowledge through practice while carrying out the given job responsibilities.

Educational process competency areas: Program planning, learning, teaching and evaluating are the major educational process competency areas. They represent the actions that must be conducted to achieve effective transfer of technology and skills in extension and related educational programs. The word educational process professional development competency, educational process competency and professional competency development area are used as synonyms in this study.

Extension educators: Extension educators are the persons employed as county, multi-county, regional or state extension agents by the Cooperation Extension Service in the states in the

North Central Region of the United States. In this study, the extension agents with on-campus faculty responsibilities were also included in the target population.

Survey-Monkey: It is a method to conduct an electronic online survey.

CHAPTER 2

REVIEW OF LITERATURE

Over the past few years competency and competency based programs have received greater attention and emphasis among public and private institutions of the world including the Cooperative Extension Service. The objective of such a program is to upgrade the skills and knowledge of the employees and assist them to stay current with the changing world. In the Cooperative Extension Service, extension educators are the front line workers and are directly involved in serving clients. The purpose of this study was to determine the relative importance of selected educational process professional development competencies as perceived by extension educators in the North Central Region and to identify when these competencies should be learned.

No one other than extension educators can best describe (1) the kind of professional competency development education and training they think is important to better serve their clients, (2) the philosophy of learning applies best to them based on their level of education, knowledge, and experience, (3) how they want to be approached to be a part of professional competency development program, and (4) the time they believe is appropriate to learn these competencies. This chapter highlights these statements by reviewing the literature on perception and behavior change, adult learning philosophy and professional development.

The chapter is divided into three major sections. Theoretical framework for the study is described in section one which is based on the theory of perception. Section two describes adult education as the conceptual framework for the professional competency development of the extension educators in the North Central region. The professional development program specifically in the Cooperative Extension Service is presented in section three. This

section also provides reviews of the studies conducted by various authors regarding the professional development competencies required by the extension educators.

Theoretical Framework

The theoretical foundation of this study is embedded in the theory of perception. The theory of perception was postulated by the Gestalt school of psychology in 1890. The Gestalt view of perception (*pattern recognition*) is that objects or events are viewed as organized wholes and the basic organization involves a figure against a background (Koffka, 1922; Kohler, 1947). According to Leeper (1935), it is the inborn human capacity to view things as wholes. However, the capacity to view things as wholes does not form the actual mechanism of perception for action because people's perceptions are shaped by their experiences and training. The Gestalt framework was therefore limited to visionary perception and is no longer viable in the current conception of perception, learning and behavior change (Shunk, 2008).

The cognitive approach of psychology in late 20th century changed psychologists' perspectives on perception emphasizing that "perception provides us with an understanding of the world" (Dijksterhuis & Bargh, 2001 p. 5). While describing the reasons for our actions, experimental psychologists today widely hypothesize that our behavior is unknowingly and unintentionally influenced by our perceptions. It has been traditionally assumed that the automatic influence of knowledge in memory due to perception is limited to people's interpretation of the world, and do not influence humans in shaping their actual behavior (Ferguson & Bargh, 2004).

Ferguson & Bargh (2004) further stated that researchers in experimental social psychology have begun to challenge this assumption by documenting how people's behaviors

can be unknowingly influenced by knowledge that is incidentally activated in memory during social perception. The theoretical framework for this study is based on the theory ‘how social perception can automatically influence human behavior’ coming from research by Ferguson and Bargh (2004).

According to Ferguson and Bargh (2004), social knowledge that is automatically activated in memory during the natural course of perception shapes and guides people’s impressions, judgments, feelings, intentions and behaviors without people being aware that such influence is occurring. This view of perception constitutes the theoretical framework for this study and is described in the following paragraphs with the support of related research studies conducted by various authors regarding the effects of perception on human behavior.

The use and importance of perceptions in determining professional competency needs of extension educators is not new and has been reflected in the studies conducted by various authors in the United States. In this theoretical framework, the views of perception have been used with reference to the knowledge and skills of extension educators and their implications to professional competency development.

Clark (1994) stated that perception constitutes complex psychological processes which are affiliated with awareness and yield judgment. Coats (1998) described perception as a process, which involves the senses and enables individuals to arrive at true beliefs about their environment. Van den Ban & Hawkins (1996) stated perception as “a process by which, we receive information or stimuli from our environment and transform it into physiological awareness” (p. 282).

According to Rollins and Yoder (1993) and Hentschel, Smith and Draguns (1986), our everyday perceptions are shaped by motivational objectives, goals, cognitive development

and academic preparation, employment background, experience, skill level and initiative. This concept implies that perceptions reflect the individual's world-view and perceptual difference between two people can be attributed to their differences in experience, training and motivational objectives. This means, perceptions of extension educators regarding professional development competencies may differ based on the nature of their work, interactions with clients, educational background, and their professional development goals. Based on this assumption, it is possible to explore the extension educators' world-view, experience and motivation about professional competency development and the implications to their extension positions.

Bem (1972) postulated the Self-Perception theory and stated that individuals come to know their own attitudes, emotions, and preferences by inferring them from observations of their own behavior and the external circumstances in which this behavior occurs. This means, extension educators are aware of their knowledge, skills and abilities they use to respond to the needs of their clientele.

While describing meaningful perception and insight, Shunk (2008) stated that "when confronted with a problem, individuals figure out what is known and what needs to be determined, and then think about the possible solutions" (p.143). According to the Theory of Expert Competence (Shanteau, 1992), although the knowledge of domain is essential, it is not sufficient for expertise. Shanteau (1992) further stated that studies conducted by authors in various fields have reported that experts often lack skills and traits required to perform their tasks effectively. This concept was supported by Bennet (1979) who stated that although extension agents have exceptional subject matter training, they often lack skills needed to be effective professionals. Morse, Brown and Warning (2006) stated that extension

educators' needs change according to changing needs of their clientele. The needs of extension clientele change with changing social, economic and environmental conditions of the community. The assumption of Morse et al., Shanteau, and Bennet's statements is the possibility that there can be gaps between extension educators' current knowledge and the level of knowledge they need to solve clients' problems.

This assumption is closely linked to the theory of Objective Self Awareness (Duval & Wicklund, 1972). According to Duval and Wicklund, a person compares his/her self knowledge against a 'standard'. Duval and Wickland defined 'standard' as the level of skills, knowledge and attitude required by a person to perform the task correctly. According to the Gestalt consistency principle (Heider, 1960), if a person perceives discrepancies between his/her self knowledge and the standard, he/she develops an attitude to take actions to meet the standard. The attitude developed by a person to take action is the behavioral representation which is automatically activated in the memory due to perceived discrepancy of knowledge (Ferguson and Bargh, 2004).

In other words, if an extension educator perceives the lack of required skills and knowledge to effectively solve a client's problem, behavioral representation is activated in his/her memory to acquire the required level of professional competency to solve the problems of the client. Ferguson and Bargh (2004) stated that this behavioral representation once activated in the memory during recall of perception can guide actual behavior. This assumption is also supported by Ajzen (1985), James (1890) and Carpenter (1875). James stated that an occurrence of thought about actions leads to the performance of those actions unless the person consciously intervenes to prevent it. Ajzen stated that if people are given a sufficient degree of freedom for their choices, they are expected to carry out their behavioral

representation into actual action when the opportunity arises (such as, in-service training and graduate education for extension educators). Carpenter stated that simply thinking about an action is sufficient to lead to the performance of that action.

The world is perceived by an individual person in terms of whatever meaning each person applies to it and that a person is free to choose a different meaning of the world he/she reacts with (Kelly, 1955). It implies that people may have a different meaning to the same object (stimuli). It means, it is possible to explore the views of an individual extension educator on how he/she interprets the meaning of selected professional competencies and on how he/she perceives its importance in his/her work.

Hentschel, Smith and Draguns (1986) and Smith and Westerlundh (1980) stated that social context plays an important role for interpreting differences in individual perception. In organizations, organizational beliefs, values and cultures define the work role, perceptions and behavior of employees (Bolman & Deal, 2003; Schaubert, 2002). This notion can be used to infer that extension educators' perceptions toward professional competencies may differ in different social and organizational contexts they are currently involved in.

Prinz (1986) stated that perceptions always involve recognition of information and the respondents compare the information provided by the external stimuli against the information stored in a person's memory. It is obvious with this view that the process of perception does not only rely on an external stimulus factor, but also on the factors related to the perceiver's learning history. It can be inferred from this concept that there might be a relationship between extension educators' perceptions and their demographic characteristics such as education, experience, and the amount of training on selected professional development competencies.

As Self-Perception theory (Bem, 1972) predicts, people who are induced to act as if they feel something, report actually feeling it, even when they are unaware of how they are acting, or the way in which their feelings arise. Feelings are the perceptions of our actions and the contexts in which they are performed (Laird & Bresler, 1992). It implies that extension educators are willing to report their true feelings about what they think of their current level of knowledge, competencies and work situations. By this assumption, it is possible to explore the relevant views of extension educators regarding their competencies and their need for further training to better serve their clients.

Adult Education

The principles and practices of adult education have been widely used in North American academia for the professional development of the teachers of adults (Lawler & King, 2003; Terehoff, 2002; Lawler & King, 2000; Licklider, Schnelker & Fluton, 1997-1998; Smylie, 1995). In their model, an ‘integrated approach to professional development’ for the teachers of adults, Lawler and King (2003) listed adult education as the primary component of professional development. The nature of professional development for extension educators in the Cooperative Extension Service is not very different from that of teachers of adults in academia because Rasmusen (1989) stated that extension educators assist producers and rural families to solve problems and improve lives through various educational processes. This indicates that educating clients (majority of which are adults) using mainly appropriate teaching learning processes is the principal role of extension educators.

According to Lawler and King (2003), professional development programs with educators of adults should be grounded in the principles and practices of adult learning and

adult education. Lawler and King's premise reflects the importance of adult education in professional competency development of extension educators in the Cooperative Extension Service.

Adult education as a professional field of practice was founded in 1920. Since then, it has been a challenge for scholars and practitioners to understand how adults learn best (Merriam, 2001). In professional development, adult learning ranges from on-the-job training to formal graduate coursework (Merriam & Caffarella, 1991) and the purpose of adult learning is to acquire knowledge and skills to compete in the market place or for self improvement (Burks & Tilson, 2000). To meet the purpose of adult learning it is important to understand the theories of adult education.

Various theories and models of adult education have been developed to describe the context and process of adult learning but one of the most commonly applied frameworks for adult learning is andragogy proposed by Malcom Knowles in 1968 (Ross-Gordon, 2003). Knowles introduced the European concept of andragogy to North American educators and defined andragogy as "the art and science of helping adults to learn" (Knowles, 1980, p.43).

Andragogy is a scientific discipline grounded on the humanistic philosophy and studies everything related to learning and teaching "which would bring adults to their full degree of humaneness" (Henschke, 1998, p.8). Humanistic philosophy focuses learning from the perspective of human growth and self actualization (McNeil, 2006) and embodies the idea that education should facilitate the development of the entire person through a focus on life experiences, affective needs, personal growth and personal development (Rogers, 1983).

The humanistic philosophy of education is close to the American ideal of individualism that emphasizes helping students to discover and understand who they are

rather than just shaping them into a form which is designed in advance (McNeil, 2006). The foregoing statement implies that professional development programs that focus on self-directed learning, personal involvement, and self-initiative by the learners can encourage adults to participate in such programs (Knowles, Holton & Swanson, 1998). When viewing professional development of adults, Knowles et al. (1998) listed the following six assumptions about the adult learners.

1. The need to know; adult learners have a stronger need to know the reason for learning something before undertaking to learn it.
2. The learner's self-concept; adult learners have independent self-concepts and are assumed to prefer self-direction in determining the goals and outcomes of their learning.
3. The role of the learner's experience; adult learners bring a vast reservoir of life experiences to the learning situation that should be capitalized on.
4. Readiness to learn; adults are ready to learn when they experience a need to know in order to perform the task more effectively in family or work life.
5. Orientation to learning; adult learners bring a task-or problem-centered orientation to learning and are interested in immediate application of knowledge. This is in contrast to a subject-centered approach associated with traditional approaches to education.
6. Regarding motivation to learn; adult learners are motivated to learn by internal rather than external factors (such as, job promotion).

It is increasingly important that the Cooperative Extension Service needs to consider these assumptions about adult learners while developing professional competency enhancement

programs for extension educators. These assumptions are important to facilitate learning and meet the learning goals of extension educators.

The assumptions about adult learners developed by Knowles et al. (1998) have been widely accepted by educators of adults but there are also some conflicting views about adult learners among the scholars and practitioners of the adult education in North America (Long, 2004). Long (2004) stated that some adult educators perceive that adult learners are less capable of learning than young learners. However, such perceptions about adult learners are not necessarily true. If we look at the research conducted by various authors, there is evidence which supports that adult learners are as capable as young learners in memory and learning tasks.

Thorndike et al. (1928) tested people between fourteen and fifty years of age on various memory tasks and concluded that adults of age twenty-five to forty-five can learn nearly at the same rate and nearly in the same manner (pp.178-179). Lorge (1944, 1947) focused on adults' ability to learn rather than on the speed or rate of learning and found that adults up to age seventy can do as well as younger adults. It indicates that extension educators of various ages have nearly equal ability to learn knowledge and skills required for their professional competency development. Raven and Jimmerson (1992) conducted a study to assess the learning characteristics of the non-traditional adult students and traditional adult students in a classroom setting and found that that non-traditional adult students are more goal oriented, responsible and self-directed – similar to the characteristics suggested by Knowles et al. (1998) about adult learners – but also perceived them as much more competitive than traditional students. The non-traditional adult students are those students

who left the formal learning environment for many years (Ross–Gordon & Brown-Hayward, 2000).

Cranton (2006) described adult learners as socially responsible mature individuals who participate in formal or informal activities that lead to learning new knowledge and skills or revise or elaborate their existing skills, knowledge and experiences. Knowles et al. (2005) stated that adult learners accept responsibility for their own learning and participate in learning activities to meet their personal, professional or practical needs.

Adult learners participate in various settings, forms and modes of andragogy to acquire skills and knowledge required for their professional development (Knowles et al., 2005; Etllng, 1993; Boyd & Apps, 1980). In formal settings, adults participate in university-level graduate coursework and in nonformal settings, they participate in on-the-job training and in-service training (Merriam et al., 2007). To a large extent, informal learning into adulthood occurs in a social context through a variety of interactions with social members or through experiences in day to day life which are not planned or organized (incidental learning) (Merriam et al., 2007; Kleis et al., 1973). This means, extension educators' interactions with clientele, peers, and university faculties are the informal sources to widen their knowledge and skills.

According to Boyd and Apps (1980) weekend and evening classes, community action groups, workshops and seminars are the different forms of andragogy. Boyd and Apps further identified two different transactional modes in andragogy such as, individual and group transactional modes. In individual transactional modes, an adult learns through independent study courses or through interaction with other social members. When groups of adult learners meet together with a common purpose and share their concerns with one

another, it is an example of a group transactional mode. This implies that monthly official meetings, workshops, seminars, field days and meetings with community groups are the group transactional modes of andragogy in the Cooperative Extension Service which may provide opportunities for extension educators for their professional competency development.

In an educational activity for the professional development of adults, selection of appropriate instructional methods and techniques of andragogy is important to achieve expected learning outcomes (Kidd, 1973). Verner (1959) stated that instructional methods organize learners in an educational activity and establish a relationship between the learner and the instructor. Instructional techniques are the variety of processes used to promote learning. The use of visual aids and computers support the instructional techniques and facilitate learning (Verner, 1959).

According to Knowles et al. (2005) and Brookfield (1986), educators of adults should recognize that the richest resources for learning reside in adult learners themselves. Therefore, emphasis in adult education should focus on experiential techniques that tap into the experience of learners, such as group discussion, problem-solving, case methods, simulation exercises, games, and role-play, instead of primarily using transmittal techniques such as lecture. The studies conducted by various authors have identified different instructional techniques to accomplish the learning goals of adults.

Morris and Ballard (2003) studied 264 adults to find older adults' preferences for instructional strategies and techniques in family life education programs in Tennessee. The results indicated that midlife adults (50 - 64 years) rated group teaching techniques (e.g. discussion and lectures) as more helpful in acquiring the knowledge and skills related to

family life. Migletti and Strange (1998) studied 185 adult college students in development education classes to determine adult students' preferred teaching-learning style and found that learner-centered instruction was associated with greater sense of satisfaction and accomplishment among the students older than twenty-five years. According to Migletti and Strange, learner-centered instruction puts an emphasis on learner-centered activities, personalized instruction, relating the course to student experiences, assessing students' needs, and maintaining flexibility for personal development.

Ross-Gordon (1991) investigated 181 adult college students' perceptions of effective teaching. The results of the study indicated that students primarily emphasized comfortable environment and helpfulness, concern and respect for students and their experiences by the educator, encouraging discussion, and flexibility. This implies that instructional methods and techniques alone are not enough for effective learning. Donaldson, Flarency and Ross-Gordon (1993) studied adult college graduates and undergraduates to identify the characteristics associated with effective teaching and learning processes. Donaldson et al. found greater emphasis by the students in other areas apart from the use of variety of instructional techniques. The areas emphasized by the students were creation of comfortable atmosphere, ability of the instructor to motivate students, relevance of materials, knowledge of the instructor and encouragement of participation in learning activities. Focusing on the teaching-learning situation with adults, Houle (1996) wrote that "educators should involve learners in as many aspects of education as possible and in the creation of environment in which adults can most fruitfully learn" (p. 30).

Creswell and Martin (1993) stated that there is no one technique which can be considered as superior in teaching adults because selection of instructional techniques

depends on program content, expected outcomes, learning environment, available resources, and the academic background and experiences of adult learners. Galbraith (2004) stated that adult learners have a wide range of cognitive, personality, experiential and role characteristics, which may influence their learning preferences. Conti and Kolody (2004) argued that one of the difficult tasks in an educational activity for adults is to select appropriate instructional methods and techniques of andragogy to meet their learning goals.

The educators of adults need to consider using comprehensive approaches for selecting instructional methods and techniques to meet the learning goals and professional development of adults (Daley, 2003; Knowles, 1980). One of the ways to meet the learning goals of adults is to involve them in planning their learning processes (Galbraith, 2004; Cervero & Wilson, 2001). This statement implies that involving extension educators in planning their learning process is increasingly important in the Cooperative Extension Service because the level of professional competence of extension educators depends on how effectively they learn the knowledge and skills they need to serve their clients. Ferrell (2005) stated that extension educators rely on professional development and adult education activities to prepare them to serve as an educator for their clientele. This means, professional competency development of extension educators is directly linked to the success of extension clientele. The professional competency development of extension educators and its implications to the Cooperative Extension Service are highlighted in the next section reviewing various professional development studies conducted in the United States and other countries by the professional development practitioners.

Professional Development

Globalization, technology development, economic trends, changes in cultural and community mandates and the changing nature of work in corporate and public agencies have widespread implications for the professional development of staff, and their capabilities (Meyer & Marsick, 2003). According to Bryan and Schwartz (1998), professional development is a plan to provide opportunities for staff to grow professionally and personally. Woodard and Komives (1990) saw professional development as allowing for continuous learning in order to ensure staff competence. Merkle and Artman (1983) defined professional development as “a planned experience designed to change behavior and result in professional and/or personal growth and improved organizational effectiveness” (p.55).

In the literature, the terms ‘professional development’, ‘staff development’, ‘in-service education’ and ‘staff training’ are frequently used interchangeably and with little concern for overlap among them (Bryan & Schwartz, 1998). Truitt (1969) defined in-service development as “all activities used to engage a worker to improve the skills, techniques, and knowledge that will enable him/her to become an effective agent of education”. The vehicles for in-service development include “workshops, formal courses, weekly or semiweekly staff meetings, seminars and attendance at national and state professional conferences” (Truitt, 1969, p. 2).

Beeler (1977) stated that the term staff development “generally refers to in-service continuing education, or staff training, designed to enhance the competencies, skills and knowledge of individuals and to enable them to provide better service to their clientele” (p. 38).

Staff development programs should provide the opportunity for “general professional growth, refinement of existing knowledge, and acquisition of new skills to meet changing needs” (Canon, 1981, p.447). These programs provide an active learning mode as they “increase knowledge, add to and enhance management skills and leadership techniques, broaden perspectives and stimulate creativity” (McDade, 1987, p.iii). They can increase professional “knowledge, management and leadership skills, competency, creativity, credibility, job satisfaction, motivation, commitment and job performance” (Bryan & Mullendore, 1990, p. 127).

Preston (1993) observed that policy statements of many institutions emphasize the value of staff development programs but in practice, there is a lack of systematic implementation of such programs in these institutions. Bryan and Schwartz (1998) suggested that educational programs for staff development or personal and professional development should be at the heart of the organizations committed to the quality of service or outputs. Since 1990, the shift in management styles, greater diversity among clients and increased emphasis on learning and knowledge management in organizations, have broadened the scope and changed the perspective of professional development programs (Meyer & Marsick, 2003).

One of the challenges in the field of professional development today is assessment. King and Lawler (2003) examined the trends and issues in the professional development of educators of adults and stated that little has been done to discuss and develop professional development assessment that goes beyond setting behavioral objectives, employee performance assessments, and monitoring “seat time”. There is need for a comprehensive assessment plan that can recognize various aspects of professional development and

determine the success or failure of a professional development program (King & Lawler, 2003).

Professional Development in the Cooperative Extension Service

In 1968, the Extension Committee on Organization and Policy (ECOP) of the American Association of State Universities and Land-Grant colleges adopted the national policy statement of staff development and training (Gonzalez, 1982). This policy statement was widely acknowledged by the states and became a basis for personnel training and staff development programs in the Cooperative Extension Service (Gonzalez, 1982). In 1977, ECOP developed the *national policy guidelines for staff development* and stated that professional development of extension educators is critically important to solve the problems of extension clientele,

Today's challenge for extension is an expanded educational effort to effectively relate the total expertise and resources of institutions of higher education to the solution of complex problems of individuals and the society in general. This challenge creates a continuous need for staff development for extension professionals (ECOP, 1977).

The implication of the ECOP (1977) statement is that in an organization like the Cooperative Extension Service, where knowledge and education are the basis for serving its clientele, needs to have a system in place to continually build professional competence of the extension educators (Van Buren, 2001).

The term "professional development" is used in the Cooperative Extension Service to refer to the broad array of learning experiences that builds an extension educator's capacity as a professional, enhances his/her ability to respond to local needs, or assists in meeting long term career goals (University of Kentucky, 2008). Mincemoyer and Kelsey (1999) defined professional development as education delivered to professional extension educators in a

structured setting that enables them to become professionally competent. Sims (1998) suggested that the Cooperative Extension Service, as well as extension educators, must view professional development as a continual learning process designed to stay current and to anticipate future organizational and clientele needs. This concept was emphasized by McKenzie (1991) in his article 'Designing staff development for the information age'. McKenzie stated that professional development can make a significant difference in the performance of both extension educators and clientele.

Lessly (2005) stated two expectations and responsibilities for the professional development of extension personnel in the Cooperative Extension Service. The first expectation is that it is the responsibility of the individual to recognize the need for the improvement of personal and professional capacity and be willing to invest time and resources required for such capacity building. In other words, the initiative for professional development is expected to come primarily from the individual. The individual employees must assume the primary responsibility in determining their training needs by comparing their current knowledge and skills against the level of skills and knowledge they need to effectively perform their assignments (Lessly, 2005). This expectation is similar to the self-perception theory (Bem, 1972) and objective self-awareness theory (Duval & Wicklund, 1972) (see Section 1 of this chapter). This expectation is also close to the purpose of this study. This study explored the views of individual extension educators regarding their training needs in the educational processes in extension.

The second expectation is that the organization will support its staff for professional development by offering guidance, growth opportunities, time and financial resources. By supporting staff members in professional growth opportunities, the organization helps

improve job performance of the staff as well as increases professional satisfaction (Lessly, 2005).

The organizational support for the professional development of the staff and its impact on employee attitude, job performance and organizational effectiveness has been studied by various authors. Kuvass (2008) studied linkages between an organization's support for human resource development and employee outcomes in Norway. Kuvass found that organizational support for professional development is positively related to the staff work performance. Kuvass further stated that opportunity and resources offered by organizations for professional growth improves the motivation, skills, attitude and behavior of their employees.

Edger and Geare (2005) studied the effect of human resource development practices on employee attitude and found that professional development opportunities fulfills employee needs and therefore generates favorable attitudes and behaviors that result in improved performance by the staff. Lee and Bruvold (2003) stated that an organization's investment in professional growth and development is believed to facilitate greater loyalty by employees towards the organization and therefore increases motivation to work hard to support organizational effectiveness. Jones and Wright (1992) reported that organizational effort for professional improvement through in-service training and other means increases employees' motivation, reduces shirking and enhances retention of quality employees while encouraging non-performers to leave the organization.

Huselid (1995) studied the impact of human resources development practices on turnover, productivity and corporate financial performance in the United States. The results based on a national sample of nearly one thousand publicly-held firms, indicated that the

firm's investment in professional development practices have an economically and statistically significant impact on employee outcomes (turnover and productivity) and corporate financial performance. This result implies that the investment of the Cooperative Extension Service in professional development is not only important to improve the productivity of extension educators but also important to save both time and financial resources to accomplish extension educational program goals. The issues of time and financial resources have been important aspects of evaluating educational programs in the Cooperative Extension Service. According to O'Neill (1998) and Boyle (1997), program funders are increasingly evaluating extension programs by linking budget allocations to program accomplishments and determining a 'return on investment'. Lessly (2005) stated that investment in the professional development of extension educators must contribute greatly to the educational programs deemed significant by the clientele who use Extension services.

Buford, Bedeian, and Lindner (1995) reported that extension administrators nationwide emphasize the importance of professional development but the Cooperative Extension Service in many states provides inadequate professional development opportunities to extension educators. Buford et al. further stated that in order to maximize extension educators' career potential and organizational effectiveness, extension administrators must determine training needs of the individual extension educators as well as identify appropriate training methods and techniques that will match their learning goals and professional development needs. This concept was further emphasized by Lessly (2005) who stated that there can be many different paths to meet the same professional development targets because no two individuals will travel the same path the same way at the same time.

According to Lessly, extension educators need a variety of professional development opportunities that maintain and strengthen their professional competencies.

In 2005, Lessly listed and summarized a variety of professional development opportunities that are described in the National Policy Guidelines for Staff Development of the Extension Committee on Organization and Policy (ECOP, 1977). The professional development opportunities that were summarized by Lessly (2005) are mentioned in the following paragraphs and can be included in the professional development plan of the Cooperative Extension Service in the North Central Region.

Orientation

Regardless of previous training, education, and experience, staff need an appropriate introduction to the job. Learning experiences for new personnel, generally referred to as orientation, begin the first day on the job and continue through the first few years of employment. The objectives of an orientation program are to enable beginning extension employees to accept their responsibilities with confidence, to understand what is expected of them, and to feel secure in their work environment. The exact content and nature of the experiences must be individualized to the background of these staff members and the requirements of the particular position assignment. Just as important as orientation for new personnel is orientation of experienced employees who have been promoted or reassigned to new job responsibilities (Lessly, 2005 p. 2).

In-service education

Changing situations and opportunities necessitate new programs, new methods, and increased abilities of staff members. An ever expanding knowledge base, new technology and increasingly diverse clientele groups demand continuous adjustment in extension personnel. A comprehensive staff development program should provide sufficient opportunities for staff to maintain and enhance technical knowledge and process skills to assure a continuous high level of competence and to uphold the Agricultural Extension Service's reputation as a highly respected and trusted educational institution. In-service education includes those learning experiences sponsored by the Cooperative Extension Service designed to enhance performance of its employees. Extension educators enroll in in-service sessions that meet their needs and are generally taught by a specialist or other resource person (Lessly, 2005 p. 3).

Graduate education

As an integral part of a university system and to serve extension clientele more effectively, staff must attain academic excellence. The technical knowledge and process skills derived from graduate study add to staff capacity to meet clientele needs and increase their stature among professional colleagues and clientele. Therefore, a comprehensive staff development program should provide opportunities for staff to engage in continuing education through graduate study programs and their formal professional development activities (Lessly, 2005 p. 4).

Professional development

A comprehensive staff development program includes support for short-term individual professional experiences which are not as extensive as the graduate education programs or in-service education programs sponsored by the organization. Educational programs tailored to meet individual needs have far greater flexibility in content and scheduling than group in-service education can provide. There is an exceptional opportunity for staff to take advantage of professional development experiences to pursue individual career development goals, for example, engaging in independent study or working on special projects (Lessly, 2005 p. 5).

Other opportunities

Other opportunities for professional improvement include experiences beyond those sponsored by the Cooperative Extension Service such as, becoming involved in appropriate professional associations and reading professional journals, books and periodicals.

Extension educators are encouraged to become involved with professional associations and develop leadership skills by assuming leadership roles at the state level and beyond in these organizations.

Competency Studies in Extension

A review of the literature reveals that studies were conducted as early as 1920 to determine training needs of extension agents in the Cooperative Extension Service. Crosby (1920) conducted a study to identify the need for special training for extension workers and

presented his findings at the National Extension Conference. The findings of the study indicated that extension workers needed technical training in agronomy, dairy and animal science, and professional training in education.

In 1923, Grace Erysinger of the United States Department of Agriculture, wrote an article on home economics extension of the future, which was published in the *Journal of Home Economics*. In this article Erysinger stated that extension agents deal with people of a wide range of age and social, economic and educational status. During their extension work, extension agents may be involved in any phase of social or economical development of the community, therefore they need adequate training in the areas of humanities, psychology, sociology, extension policies and plans, and methods of extension teaching (Erysinger, 1923).

Mathews (1951) conducted a doctoral study at the University of Chicago to determine the training needs of county extension agents in Illinois. Mathews reported that a broad general training in technical agriculture is necessary for extension agents. In 1959, the National Task Force on Cooperative Extension Inservice Training (Federal Extension Service, 1959) identified 49 competencies that were grouped into nine major competency categories including educational processes as one of the major competencies among them. It was considered that nine competencies are important for all extension workers to perform their job effectively. These nine competencies were: the cooperative extension service, human development, program development, educational processes, social systems, communication, philosophy and values, technology, research and evaluation. Although the literature indicates that training needs and competency studies were conducted as early as

1920, the major efforts to determine competencies needed by extension personnel through various studies appeared increasingly in journals, periodicals and reports during the 1960s.

A study to identify the important competencies needed by county agricultural extension agents in Arkansas was conducted by Price in 1960. Price surveyed 233 county agricultural extension agents with a 113-item questionnaire containing competency statements in nine major competency categories. The data collected for the study were analyzed according to agent's tenure groupings, classifications of job responsibilities, and evaluation records. In this study, competencies considered important by more than 80% of the respondents were: analyze the county situation, develop leadership abilities, identify leadership in the county, organize effective program planning committees, involve lay people in program development, develop a long-term extension program, identify problems and their priorities, conduct effective farm and home visits, use teaching methods effectively, and an understanding of the duties and responsibilities of the extension agent at the county level.

Moore and Quinn (1967) conducted a study to determine the level of task difficulties encountered by 4-H agents in North Carolina in the areas of program planning, implementation and evaluation. A questionnaire, which consisted of 37 tasks (eleven tasks in the area of program planning, sixteen tasks in program implementation and ten tasks in program evaluation), was sent to the 4-H agents. The results showed the greatest diversity for the level of difficulty involving program evaluation tasks. The majority of the 4-H agents also reported some difficulty in the tasks related to program planning, implementation and evaluation. Moore and Quinn collected additional data in this study and compared the results with various demographic characteristics and perceptions of the 4-H agents. Differences were found in the perceptions of

4-H agents relative to their age, length of tenure and percent of time spent on 4-H work.

Clifton (1969) conducted a study on methods of determining in-service training needs of beginning county extension agents in Texas. This study employed three specific objectives: to test alternative methods of determining training needs, to identify training needs that may be different than those used previously by the Texas Agricultural Extension Service and to develop recommendations for procedures that may be more useful in determining training needs of newly employed extension personnel.

One method surveyed all Texas extension agents hired during 1966-67 and still in the service in January 1969. In another method, their pre-service college course transcript and job performance ratings were analyzed. Through each method, training needs were determined for broad areas of competence, but no significant correlation was found between any two methods for each area of competence. Each method was measuring something different.

Training needs in specific competencies considered necessary for new agents were assessed through the agent survey method and further examination led the investigator to conclude that the agent survey was the most effective of all the methods studied to determine the training needs of extension agents.

Beeman et al. (1979) conducted a study to identify the importance of professional competencies needed by extension agents in Florida. Closed form opinionnaires were used to explore the perceptions of 254 extension agents and fifteen state staff members concerning 158 competencies. Among the findings, state staff members rated all competency categories higher than did the extension agents. State staff perceived 97 percent of the competencies as moderate to very high in importance and extension agents perceived 79 percent of the

competencies least, moderate to very high in importance. The study recommended that most important competencies be included in the undergraduate and graduate curricula. The results were also made available to the state Cooperative Extension Service.

In his doctoral research study, Gonzalez (1982) surveyed 116 extension agents and state staff members in Pennsylvania to identify their perceptions about (1) the importance of 144 professional competencies needed by extension agents and (2) the time when these competencies should be learned. These 144 professional competencies were grouped into nine major competency categories. Extension agents in agriculture and natural resources, family living, 4-H youth development and community development were randomly selected for the study. A five –point Likert-type scale was used to measure the respondents' perceptions and descriptive statistics and regression analysis were used to analyze the data.

The findings were presented in terms of the relationship the competencies had to demographic variables (age, sex, title, educational level, major area of responsibility, years of 4-H membership, length of time served as extension worker). The findings indicated that there were no significant differences in the perceptions of the extension agents and state staff members regarding the importance of nine competency categories. All 144 competencies were considered moderate to high in importance by the respondents.

In identifying when these competencies should be learned, the combined responses for the extension agents and state staff members indicated that 26 competencies should be learned before entering the job, 6 competencies during graduate program and the remaining 113 competencies can be learned on-the-job or through in-service training programs. Gonzalez recommended that the Cooperative Extension Service needed to consider the results of the study in designing future staff development programs.

A study was conducted by Ritsos and Miller (1985) to determine what competencies extension employees working in urban areas of Ohio perceived as most necessary. Information on the demographic characteristics was also gathered. Data were collected using questionnaires mailed to the 46 extension employees working in the urban areas of the state. The study found that extension employees perceived the competency in organizational skills as the highest priority, with competency in communication skills as the second priority and competency in research and evaluation received the lowest priority rating. The study recommended that curriculum in agricultural education at Ohio State University should take into consideration the career plans of future extension employees who may work in an urban environment and the organization planning and urban development competencies should be taught in classes.

The purpose of the study conducted by Reynolds (1993) was to identify the professional competencies needed by the Cooperative Extension agents in Louisiana as perceived by the extension agents. An additional purpose of the study was to identify when the respondents believed the identified competencies should be acquired. The 144 professional competency items grouped into nine competency categories were included in the questionnaire. A five-point Likert-type scale was used to identify the perceptions of the respondents. The four possible responses were included in the questionnaires related to the perceived time acquisition of each of the competencies such as, before entering the job; during further formal education, in-service training, and on the job. Demographic data collected included: age, educational level, undergraduate major, years of 4-H experience, major area of responsibility and years of employment in Cooperative Extension.

The findings showed that respondents perceived 12.8 percent of the competencies as of high importance, 9.9 percent as moderately important and 77.3 percent as important. The primary choice of time of acquisition of the competencies was on-the-job as perceived by 77.9 percent of the respondents.

Radhakrishna (2001) conducted a study to determine the perceptions of the state extension specialists about their professional development needs in 15 professional competencies grouped into three competency categories: program development and evaluation, research generation and synthesis, and communication and presentation. The 78 extension specialists employed by the Clemson Cooperative Extension Service with their major responsibilities in agronomy, horticulture, 4-H youth development, forestry/natural resources, dairy and animal science, community development and leadership were selected for the study. The questionnaire containing a five-point Likert-type scale, professional competency statements and demographic variables was used to collect data.

The respondents perceived a critical need for professional development in the research generation and synthesis area regarding the ability to communicate client problems to researchers and the ability to view problems from different perspectives. In addition, a low level need was also identified regarding the ability to collaborate with county staff in conducting demonstration programs.

Farrell (2005) assessed the professional development needs of the Oklahoma Cooperative Extension County staff. In this study, Farrell conducted focus groups and in-depth interviews with the extension educators working in agriculture, 4-H youth development and family and consumer science. The findings indicated that extension educators wanted a professional development system that could meet their needs to enable them to meet the

needs of their clientele. The extension educators stated that their professional development experiences were not consistent with their years of experience. Extension educators also felt that most of the professional development activities in which they participated underestimated their formal training and field experiences. The extension educators wanted the Oklahoma Cooperative Extension Service to implement a flexible professional development system that could meet educators' broad range of needs.

Dromgoole (2007) conducted a pre-experimental research study at the Texas A&M University using the one-group pre-test-post-test method. This study involved the administration of a pre-test to research participants followed by the professional development intervention and then followed by a post-test. The purpose of the study was to determine if extension educators' knowledge in program development increased as a result of their participation in the professional development activities offered by South Region Excellence in Programming Academy.

The study showed that an extension educator's knowledge of the program process increased, and their perception of the elements of the program development increased from their participation in the academy. The research recommended improving the future professional development interventions focusing on program planning, implementation and evaluation.

There have been many studies over the years, which support the need for professional competency development for extension professionals. This section reviewed the relevant literature related to professional competency and training needs of extension educators in the United States. It was found that no studies have been conducted in the North Central Region to identify the importance of professional competencies needed by extension educators

related to the educational processes in extension such as, needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems.

Summary

This chapter highlighted (1) the theoretical framework of the study, (2) principles and practices of adult education and their application in professional competency development of extension educators, (3) professional development practices and their need and importance in the Cooperative Extension Service, and (4) a review of the competency studies conducted in the Cooperative Extension Service to determine the professional development training needs of extension educators.

The theoretical framework for this study was built on the work of Ferguson and Bargh (2004) which posits that social knowledge activated in memory during the natural course of perception shapes and guides people's judgments, feelings, intentions and behaviors. This is an assumption that if an extension educator perceives the lack of skills and knowledge required to effectively solve a client's problem, behavioral representation is activated in his/her memory to acquire the required level of professional competency to deal with such a problem.

This behavioral representation guides extension educators to take action to further develop their professional competency when opportunity arises through a professional competency development program such as in-service training and graduate education. This assumption is also supported by Ajzen (1985), James (1890) and Carpenter (1875). The theory of Self-Perception (Bem, 1972), the theory of Objective Self-Awareness (Duval & Wickland, 1972) and the theory of Expert Competence (Shanteue, 1992) are also discussed in the chapter as a basis to provide support for the theoretical framework.

The professional development programs with educators of adults, e.g., extension educators, should be grounded in the principles and practices of adult learning and adult education. Adult education as a professional field of practice was founded in 1920. Since then, various theories and models of adult education have been developed to describe the context and process of adult learning. One of the most commonly applied frameworks for adult learning is andragogy proposed by Malcom Knowles in 1968.

Andragogy assumes that adult learners are autonomous and self directed, have a tremendous amount of life experiences, are goal oriented and know for what purpose they are learning new information. This means the professional development programs that focus on self-directed learning, personal involvement, and self-initiative by the learners can encourage adults to participate in such programs. The Cooperative Extension Service needs to consider these assumptions about adult learners in developing professional competency enhancement programs for extension educators. These assumptions are important to facilitate learning and meet the learning goals of extension educators.

Professional development or staff development refers to all activities used to engage an adult educator to improve the skills, techniques, and knowledge that will enable him/her to become an effective agent of education. It is designed to enhance the competencies, skills and knowledge of individuals and to enable them to provide better service to their clientele. The Cooperative Extension Service acknowledged the need for professional competency development of the extension educators in 1968 with an objective to build their capacity as a professional, enhance their ability to respond local needs or assist them in meeting their long-term career goals.

Both the Cooperative Extension Service and extension educators must view professional development as a continual learning process designed to help extension educators to stay current and to anticipate future organizational and clientele needs. The investment of the Cooperative Extension Service in professional competency development is important to improve the productivity of extension educators and to save both time and financial resources to accomplish extension educational program goals.

In the Cooperative Extension Service, competency studies were conducted as early as 1920 to determine the professional training needs of the extension educators. Competency studies conducted at various points of time from 1920 until recently 2007 have identified as many as 158 competencies needed by the extension educators. Some of the important competencies identified by these studies include: program development, program implementation and evaluation, leadership abilities, methods of extension teaching, organizational skills and communication skills. A few of these studies also recommended the time these competencies should be learned by the extension educators such as undergraduate or graduate education program and on-the-job or in-service training.

Most of these studies used a questionnaire to gather data. Likert-type scales were considered appropriate in these questionnaires to identify the importance of stated competencies to the extension educators. One of the studies also concluded that the survey method was the most effective method to determine the training needs of the extension agents. The findings from these studies were used to provide a rationale for conducting the present study using similar methods.

It was found that no studies have been conducted in the North Central Region to identify the importance of professional competencies needed by extension educators related

specifically to the educational processes in extension using the following categories of skills: needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems.

CHAPTER 3

METHODS AND PROCEDURES

Research Design and Instrumentation

The purpose of this descriptive survey research study was to determine the perceptions of extension educators regarding the relative importance of selected educational process professional development competencies and to identify when these competencies should be learned. Measurement error could be a threat to internal validity in this study which was minimized by adopting a valid and reliable questionnaire to collect the data. The use of a random sampling method to select the potential respondents established the external validity of the study.

The data collection instrument for this study was a closed-form questionnaire. The questionnaire approach to data collection was considered appropriate for this study because similar procedures had been used by various researchers (Radhakrishna, 2001; Cooper & Graham, 2001; Baker & Villalobes, 1997; Gonzalez, 1982; Clifton, 1969) to conduct similar studies. After reviewing the relevant literature and conferring with the major professor, the instrument used by Gonzalez (1982) was adapted for use in this study. To fit the instrument to the objectives of this study, the competency statements that were included in the Gonzalez study related to educational processes in extension were reworded and the competency statements that were not related to this study were deleted.

The instrument was divided into three parts. Part one addressed statements that were related to professional competency in the areas of needs assessment/analysis and program development, learning systems, educational delivery systems, and evaluation systems. These

four professional competency areas were identified as important for the extension educators by the NCR-158 Committee on Adult Education in Agriculture (Martin, 1991).

Part one of the instrument was divided into four sections. Section one addressed the 11 statements related to professional competencies in the area of needs assessment/analysis and program development, section two addressed 11 statements in the area of learning systems, section three addressed 10 statements in the area of delivery systems and section four addressed 10 statements related to professional competencies in the area of evaluation systems. These competency statements were tested using two different categories. The first category was designed using a five-point Likert-type scale (1- Very low importance, 2- Low importance, 3- Moderate importance, 4- High importance, and 5- Very high importance) to measure the relative importance of stated professional competencies to extension educators. The second category of scale was designed using three items (1- Graduate program, 2- On-the-job, and 3- In-service program) related to the time the competency should be learned by the extension educators.

Part two of the instrument was divided into two sections. In section one, respondents were requested to suggest any relevant additional competencies they needed apart from the educational process professional competencies included in this study. In section two, respondents were asked to provide general comments they may had regarding the study. Part three of the instrument contained statements that were related to pertinent demographic information needed from the potential respondents such as gender, educational level, position title, and years of experience served as an extension professional. Respondents were asked to check the appropriate responses from multiple choice questions or fill in blank spaces with

appropriate answers. Clear instructions were provided in the questionnaire to help potential respondents better understand the scales and procedures for their responses.

A panel of experts, two professors from the Agricultural Education and Studies Department of Iowa State University and two professional extension staff, one from the Leopold Center for Sustainable Agriculture and one from the Iowa State University Cooperative Extension Service, were selected to review the survey instrument for face, content and construct validity. These experts were asked to evaluate the instruments based on (1) clarity of statements and relevance to the study, (2) suggestions for additional competency statements, (3) framing of the questions, and (4) length of the questionnaire. Comments that were made by the panel of experts were used to revise the questionnaire.

A pilot-study was conducted with 24 extension educators in Boone, Story and Polk counties in Iowa (selected purposively). These extension educators were excluded from participating in the actual study. The feedback received from extension educators after the pilot- study was incorporated into the survey instrument to improve its face and content validity. Reliability of the instrument (Cronbach's coefficient, α) was determined from the data obtained from the pilot-study using the Statistical Package for Social Science (SPSS 16.0).

The overall Cronbach's coefficient (α) for the entire four sections containing questions on a five-point Likert-type scale was .90. When analyzed by each section, Cronbach's coefficient (α) for the section containing professional competency statements in the areas of (1) needs assessment/analysis and program development was .81, (2) learning system was .83, (3) delivery system was .74 and (4) evaluation system was .71. It was planned that should the Cronbach's alpha be less than 0.7 (Nunnally, 1978), the researcher

would re-examine and correct the statements in the questionnaire in order to improve the alpha (α) value of the instrument. The final improved questionnaire was electronically mailed to the potential respondents of this study for data collection.

Data Source

The target population for this study consisted of all extension educators in the North Central Region of the USA including the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. It was determined to select 384 samples from the target population to conduct this study (determined by using ± 5 percent margin error, z value at 95% confidence level and hypothesized population proportion, $p = 0.50$) (Ary et al., 2006 p.419). According to Ary et al., at the probability value of $p = .50$, the sample size can be estimated using the formula,

$$n = \left[\frac{1}{\frac{E}{\sqrt{pq}}} \right]^2 \cdot (z)^2$$

Where n = sample size needed, E = desired margin of error, pq = variance of hypothesized proportion and, z = z score of confidence interval

Although it was determined to select 384 samples to conduct this study, a total sample of 811 extension educators was randomly selected from the target population. The decision to select 811 samples was based on the response rate of the pilot-study that was conducted to determine the validity of the questionnaire used in this research study. The response rate of the pilot-study was nearly 55%. In addition, in the pilot-study, 3% of the participants' email addresses were not valid and 2% of the respondents opted-out of

responding to the survey. Considering the experience of pilot-study, the sample size was doubled. On the top of that, a total of a 5% sample was added to compensate for (1) the possibility of invalid email addresses, and (2) the possibility that some respondents may opt-out of responding to the survey. This insured the chances of getting at least 50% of the responses (i.e., 384 responses) to confirm the results with 95% confidence level as mentioned above.

From each state in the North Central Region, a sample of extension educators was selected using proportionate random sampling. From the target population, a proportionate random sample of 773 extension educators (sample size doubled and decimals rounded) was selected for the study. After that, from each state a proportionate random sample of 5% was selected again from the given target population which included about 38 extension educators (a total of 811 samples).

The sampling frame was the most current extension educators' directories obtained from the website of the State Cooperative Extension Service office in each state of the North Central Region. To minimize the frame error and to purge duplication in the list, the researcher and one graduate student colleague checked the frame developed for this study. Frames included the names, physical addresses, email addresses and telephone numbers of all extension educators listed in the North Central Region State Cooperative Extension Service website.

Data Collection

To conduct the study, approval was sought from the Office of Research Assurance (ORA) at Iowa State University (Appendix A). Following approval for the study, a prior email notification about the survey was sent to the potential respondents. This notification

was a cover letter (Appendix C) that informed the respondents about their selection to participate in this study (which was voluntary and were told that they could withdraw at any time during the study), confidentiality of their participation, and about the purpose of the study and its potential usefulness. A week after the prior notification, the same cover letter and an electronic questionnaire developed in Survey-Monkey with detailed instructions (Appendix B) was emailed to the respondents. There was no identifying information on the questionnaire and the Survey-Monkey identified the respondents who returned their completed questionnaires. This approach provided (1) some degree of anonymity to the subjects, and (2) the researcher a method for installing follow-up procedures with non-respondents. It was assumed that the participants who responded the survey confirmed their informed consent.

According to Rosenbaum, and Lidz (2007), Survey-Monkey is an online survey site that simplifies the survey process considerably. It offers various formats for asking questions (multiple choice, true false, open-ended, etc). Survey-Monkey also has a diverse color palette for changing the appearance of the survey. As for implementation, Survey-Monkey has the ability to track respondents so that the researcher can recontact non-respondents and avoid pestering those who have already participated. Survey-Monkey can generate frequencies for each question and allows the researcher to export data into programs like SAS or SPSS for more complex analysis. The Survey-Monkey site makes it possible to send out the survey and subsequent reminders for the researcher if he/she furnish a list of e-mail addresses and will also provide a link to the survey which can then be posted on the website or included in an e-mail message to send the survey to the participants.

Survey-Monkey has two main limitations. First, most e-mail servers allow messages from Survey-Monkey, institutions that maintain high security and intense spam blockers may block email from Survey-Monkey. Second, only email sent by Survey-Monkey can track respondents. Participants who take the survey from any link other than the direct link to the Survey-Monkey site cannot be traced (Rosenbaum & Lidz, 2007).

The questionnaire was electronically mailed to 811 randomly selected extension educators using their email addresses. Out of 811 email addresses, 12 were not valid and 7 of the participants opted-out of responding to the survey. Of the 792 valid email addresses of the respondents willing to respond to the survey, 441 (55.70%) questionnaires returned with responses that could be used for the study.

One week after emailing the initial packet, a total of nine reminder emails were sent to the participants of this study. Of the nine reminders, the first six reminder emails were sent to non-respondents each in a week gap and remaining three reminder emails were sent consecutively, one reminder email each day. In each reminder email, a reminder letter and the website link for the questionnaire was sent.

The participants who responded within the deadline of six reminders were considered as early respondents. Those who responded the survey only after the dead-line of 6th reminder email were considered as late respondents. The late respondents were believed to be typical of non-respondents (Ary et al., 2006). Rather than to interview a sample of nonrespondents by phone, reminder emails were sent due to constraints of resources. A thank you note was emailed to each participants responded the survey.

The multiple contacts procedure used with respondents in this study was appropriate according to Cook, Heath and Thompson (2000). They stated that multiple contacts with web

and internet survey respondents is the most effective way to increase the response rate. Similarly, Dillman, Smyth, and Christian (2009) stated that the optimal timing sequence to contact the respondents in web or internet surveys depends on the nature of the survey and the population being surveyed. Dillman et al. therefore emphasized that there is no fixed rule for the time interval between two contacts or reminders. However, it is important for researchers to understand that quick reminders may irritate the respondents (p.279).

The total number of early respondents was 378 and the number of late respondents was 65. While comparing the differences between early and late respondents, a random sample of 65 responses was selected from the 378 early responses to make the size of the data equal to late responses. An independent samples t-test was used (level of significance, $\alpha = .05$) to determine whether there were statistically significant differences between the perceptions of early and late respondents (Ary et al., 2006).

It was found that out of the 42 educational process professional competency statements, the independent samples t-test revealed statistically significant differences in only one competency statement that was categorized under the educational process professional competency area of evaluation systems (Table 3.01). This difference could be by chance only or could be a false positive. Therefore, it was concluded that the late respondents were an unbiased representation of the population for this study and the findings from the study could be generalized to the entire population of extension educators in the North Central Region.

Table 3.01
Independent Samples t-test Indicating Difference in Means to Responses from Early and Late Respondents (n = 127)

Statement	df	t-test for equality of means (equal variance assumed)		
		Mean Difference	t	Sig (2-tailed)
Competency area: Evaluation systems				
Identify problems requiring additional research	125	.35	2.50	.014*

*P < 0.05

In general, the number of participants who responded the survey for this study was high in Wisconsin and low in Iowa. Based on the number of samples selected for the study from each state, response rate was highest in South Dakota (76.5%) and lowest in Iowa (37.70%). Various circumstances might have contributed for the lower response rate in some of the states including Iowa (such as, reorganization)

The response rate was calculated as a percentage of the total number of questionnaires mailed to valid email addresses of the participants (i.e., 792) in this study using the formula, $RR (\%) = TR/TNMQ \times 100$, where RR = response rate, TR = total number of responses and TNMQ = total number of mailed questionnaire to valid email addresses. The researcher kept a log book of events throughout the data collection process.

Data Analysis

Data from the questionnaire were coded and entered into the Statistical Package for Social Science (SPSS 17.0) for analysis. Once the data coding process was completed in SPSS, twenty responses were selected randomly and verified with the coded data to detect and correct potential errors.

Data pertaining to objectives one to four were analyzed by determining the mean score for each competency statement. Frequencies and percentages were used to describe the choice of time for learning the professional competencies (objective seven) and to describe the demographic characteristics (objective five) of the respondents.

A mean score ≤ 1.49 was considered as a professional competency with very low importance, between 1.5 to 2.49 as low importance, between 2.5 to 3.49 as moderate importance, between 3.5 to 4.49 as high importance and ≥ 4.5 as very high importance.

To compare if there were differences in perceptions held by the extension educators based on their demographic characteristics, t-test and analysis of variance (ANOVA) were used. To identify differences in perceived importance for professional competencies between male and female, Independent samples t-test was used. Similarly, to identify differences in perceived importance for professional competencies between education level, between age range and between years of experience working as an extension professional, one-way analysis of variance was computed. The statistical significance level (α) was set at 0.05.

Pearson's partial correlation coefficient of determination (r) was also computed to determine the relationship between demographic characteristics of the respondents and their perceptions using the General Linear Model - Multivariate Analysis. In this model, the categorical variables gender and education of the respondents was assigned as fixed factors and the continuous variables age and experience were assigned as covariates. Similarly, the variables: needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems were treated as dependent variable.

To compare the differences in perceptions based on their demographic characteristics, and to compute the partial correlation coefficients between variables, the responses of each

participant were summated for statements related to professional development competency in the areas of (1) needs assessment/analysis and program development, (2) learning systems, (3) delivery systems, and (4) evaluation systems, to determine the perceived mean importance score in each of these four competency areas.

Limitations of the Study

1. This study was limited to the extension educators in the North-Central region of USA, therefore the results may not be generalized to the entire U.S. Cooperative Extension Service. But the findings may have implications to the entire Cooperative Extension System.
2. The perceptions of the extension educators relative to the importance of selected educational process professional competencies was investigated in this study and not the competence of the respondents.
3. Extension educator's directories from the website of each state Cooperative Extension Service were used as a source for the sampling frame. The extension agents not listed in these websites may not have been represented in the sampling frame.
4. This study explored the perceptions of extension educators regarding the selected educational process professional development competencies, however, people's perceptions keep on changing, therefore the findings may only be relevant to the period when data were collected for the study.

CHAPTER 4

FINDINGS

The purpose of this study was to determine the relative importance of selected professional development competencies as perceived by extension educators in the North Central Region of the USA and to identify when these competencies should be learned. The study identified 42 educational process professional development competencies which were included in the questionnaire to collect the views of the respondents. These competencies were categorized into four areas: needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems. In addition, demographic data were collected from each respondent. These data were used to gain an in-depth understanding of the participant's views towards the professional development competencies. The following specific objectives were developed to provide a framework for conducting this research study:

1. To determine the relative importance of professional competencies related to needs assessment/analysis and program development as perceived by extension educators.
2. To determine the relative importance of professional competencies related to learning systems as perceived by extension educators.
3. To determine the relative importance of professional competencies related to educational delivery systems as perceived by extension educators.
4. To determine the relative importance of professional competencies related to evaluation systems as perceived by extension educators.
5. To determine demographic information of extension educators including their level of education and experience.

6. To determine the differences in perceptions of extension educators based on their demographic characteristics.
7. To determine when these competencies should be learned by extension educators.

This chapter provides an analysis of the perceptions held by the respondents in this study in relation to their professional development competencies. The information in this chapter was obtained from respondents' views collected from a questionnaire using SurveyMonkey and is arranged under headings based on the research objectives.

The remaining parts of this chapter describe the findings starting with the demographic characteristics of the participants followed by their perceptions toward the professional development competencies. The perceptions of the respondents were also compared against their demographic characteristics to determine whether respondents with varying backgrounds differed in their views about the professional development competencies and the time to learn these competencies. To report the findings, the term extension educators, respondents and participants in the study are used interchangeably.

Demographic Characteristics

This section describes the demographics of the extension educators who participated in this study. The demographic characteristics included in the study were: gender, age, years of experience served as an extension professional, level of education, position and major area of academic study.

The gender distribution of the respondents is presented in Table 4.01, which shows that 58.3% ($n = 246$) of the extension educators participating in the study were female.

Table 4.01
Participants of the Study by Gender (n = 422)

Gender	<i>f</i>	%
Female	246	58.3
Male	176	41.7

The mean age of the respondents was 47.85 years, ranging from a minimum age of 24 years to a maximum 68 years. About 27.0% of the respondents were 48 to 53 years old, nearly 11.0% were more than 60 years old and only 6.0% of the respondents had age between 24-29 years. This study found that 60.0% ($n = 247$) of the extension educators in the North Central Region belonged to the age group of 48 years and above. The findings related to the distribution of the respondents' age are categorized in Table 4.02 and corresponding frequencies and percentages are reported.

Table 4.02
Distribution of the Age of Extension Educators (n = 415)

Age Range	<i>f</i>	%	Cumulative %
24 - 29	25	6.0	6.0
30 - 35	37	8.9	14.9
36 - 41	44	10.6	25.5
42 - 47	62	14.9	40.5
48 - 53	110	26.5	67.0
54 - 59	92	22.2	89.2
≥ 60	45	10.8	100.0

M = 47.85 SD = 10.07

The years of experience working as an extension professional by the respondents varied from less than 1 year to a maximum of 42 years, with an average experience of 14.68 years (Table 4.03). The data revealed that nearly 60.0% ($n = 247$) of the extension educators had work experience in extension between 8 to 28 years and those who worked for 36 years and more were only 2.0% ($n = 8$). About 29.0% ($n = 119$) of the extension educators in this study had extension work experience between ≤ 1 to 7 years.

Table 4.03
Distribution of Extension Educators' Years of Experience Served as an Extension Professional

Years of Experience	<i>f</i>	%	Cumulative %
$\leq 1 - 7$	119	28.4	28.4
8 - 14	104	24.8	53.2
15 - 21	91	21.7	74.9
22 - 28	52	12.4	87.3
29 - 35	45	10.7	98.0
36 - 42	8	2.0	100.0

M = 14.68 SD = 9.98

The data related to the education level of the respondents summarized in Table 4.04 shows that the majority of the extension educators (77.2%) had a master's degree and holders of bachelor's degrees and doctoral degrees were 15.2% and 7.6%, respectively.

Table 4.04
Distribution of Extension Educators' Level of Education (n = 422)

Level of Education	<i>f</i>	%
Bachelors Degree	64	15.2

Table 4.04 (continued)

Level of Education	<i>f</i>	%
Masters Degree	326	77.2
Doctoral Degree	32	7.6

Seventy-five percent of participants in this study reported their position to be an extension agent, 13.0 % as County Extension Directors and 12.0% as field specialists. These findings are presented in Table 4.05.

Table 4.05

Distribution of Position of the Respondents in this Study (n = 413)

Position	<i>f</i>	%
County Extension Director	54	13.0
Extension Agents	310	75.0
Field Specialist	49	12.0

The frequencies for respondents' major area of study at their highest educational degree level are shown in Table 4.06. About half of the extension educators (52%) had their major area of study in one of these areas: education, agricultural education, animal science, family and consumer science, agronomy, adult education, extension education, administration and youth development. Those who had their major area of study in human and community resource development included 3.9%, nutrition 3.7%, vocational education 3.0 % and business 2.7%. Areas such as reproductive physiology, Spanish translation, textile and clothing, agricultural mechanics, architecture, mediation and conflict studies, and political science were indicated by only a few extension educators as their major area of

study. A total of 62 different major areas of study were reported by the respondents in their higher educational degrees (Table 4.06).

Table 4.06
Frequency and Percentage Distribution of Extension Educators' Major Area of Study for their Highest Educational Degree (n = 412)

Major Area of Study	<i>f</i>	%
Administration	15	3.4
Adult Education	20	5.0
Agricultural Business	2	.5
Agricultural Communication	2	.5
Agricultural Economics	10	2.5
Agricultural Education	37	9.0
Agricultural Industries	1	.2
Agricultural Mechanics	1	.2
Agricultural Systems Management	1	.2
Agronomy	22	5.4
Animal Science	31	7.6
Architecture	1	.2
Biological Science	7	1.7
Business	11	2.7
Child and Youth Development	4	1.0
Community Development	5	1.2
Curriculum and Instruction	5	1.2
Economics	4	1.0

Table 4.06 (continued)

Major Area of Study	<i>f</i>	%
Education	34	8.3
Engineering	2	.5
English	1	.2
Entomology	5	1.2
Environmental Science	7	1.7
Extension Education	17	4.2
Family and Consumer Science	28	6.8
Finance	1	.2
Food Science	1	.2
Forestry	3	.8
Guidance and Consulting	1	.2
Health Education	10	2.4
Historic Preservation	1	.2
Home Economics	9	2.1
Horticulture	9	2.1
Household Equipment	1	.2
Housing Development	1	.2
Human and Community Resource Development	16	3.9
Law	2	.5
Leadership Education and Development	6	1.4
Management Studies	1	.2

Table 4.06 (continued)

Major Area of Study	<i>f</i>	%
Mechanized Agriculture	1	.2
Mediation and Conflict Studies	1	.2
Natural Resource Management	3	.8
Nutrition	15	3.7
Organizational Behavior and Management	2	.5
Parks, Recreation and Tourism	2	.5
Physics	1	.2
Plant Science	4	1.0
Political Science	1	.2
Professional Communication	1	.2
Public Service	2	.5
Reproductive Physiology	1	.2
Resource Development	1	.2
School Counseling	1	.2
Social Science	6	1.4
Soil Science	5	1.2
Spanish Translation	1	.2
Teacher Education	1	.2
Textile and Clothing	1	.2
Urban and Regional Planning	5	1.2
Vocational Education	12	3.0

Table 4.06 (continued)

Major Area of Study	<i>f</i>	<i>%</i>
Water Resource Management	2	.5
Youth Development	8	1.9

Importance of the Professional Development Competencies

This section provides data on the perceptions of the extension educators about the relative importance of various professional development competencies related to needs assessment/ analysis and program development, learning systems, delivery systems and evaluation systems. The perceptions are represented by the mean ratings of importance for the professional competency statements as perceived by the respondents. Along with the importance of the professional development competencies, the time to learn these competencies as perceived by the extension educators are also presented in terms of percent response count. The competency statements are arranged in the tables in an ascending order of importance.

Perceptions regarding the professional development competencies related to needs assessment/analysis and program development

Table 4.07 shows extension educators' responses to perceived mean importance for the professional competency statements related to needs assessment/analysis and program development and the percent response count for the best time to learn these competencies. The three competencies rated as highly important on a five-point Likert-type scale were: 'determine program priorities' ($M = 4.42$), 'identify problems to be addressed' ($M = 4.41$) and 'determine program goals' ($M = 4.25$). The majority of the extension educators responded that all these competencies should be learned on-the-job. The competency

perceived as moderately important by the extension educators was ‘design a logic model’ ($M = 3.10$). The time to learn this competency as reported by a majority of the respondents was in an in-service program.

Table 4.07

Mean Perceptions of the Extension Educators on Professional Competency Statements Related to Needs Assessment/Analysis and Program Development and the Best Time to Learn Them

Need Assessment/Analysis and Program Development	Perceived Importance			When to Learn (% response count)		
	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Determine program priorities	428	4.42	.59	10.0	65.2	24.8
Identify problems to be addressed	424	4.41	.64	17.5	60.2	22.3
Determine program goals	428	4.25	.64	13.8	53.9	32.3
Identify expected outcomes for the program	425	3.94	.71	18.1	36.1	45.8
Identify potential long-term impact of program	426	3.88	.73	17.5	38.9	43.6
Identify gaps between what is and what could be	424	3.77	.73	14.7	60.7	24.6
Use advisory committee in planning	434	3.68	.84	11.0	49.8	39.2
Develop an annual plan of work	426	3.65	.82	5.8	54.7	39.5
Prepare a long range program of work	424	3.56	.80	10.6	42.8	46.6
Conduct situational analysis	424	3.42	.89	41.4	27.0	31.6
Design a logic model	427	3.10	.99	35.9	9.0	55.1

The competency statements were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

Perceptions regarding the professional development competencies related to learning systems

The perceived mean importance of the extension educators' responses to professional competency statements related to learning systems and percent response count to learn these competencies are presented in Table 4.08.

The extension educators rated as highly important, on a five-point Likert-type scale, competencies such as, 'match learning to practical application' ($M = 4.22$) and 'create a motivating learning environment' ($M = 4.02$). The majority of extension educators perceived that both of these competencies should be learned on -the-job.

The competency perceived as moderately important by the respondents was 'design web-based learning' ($M = 3.21$). The majority of the respondents indicated that this competency should be learned in an in-service program.

Table 4.08

Mean Perceptions of the Extension Educators on Professional Competency Statements Related to Learning Systems and the Best Time to Learn Them

Learning Systems Competency Statements	Perceived Importance			When to Learn (% response count)		
	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Match learning to practical application	418	4.22	.74	22.4	50.1	27.5
Create a motivating learning environment	421	4.02	.72	28.1	37.4	34.5
Recognize learning styles of clientele	422	3.83	.71	45.5	19.6	34.9
Identify factors that influence learning	422	3.74	.76	59.1	9.2	31.7

Table 4.08 (continued)

Competency Statements	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Use techniques to develop problem solving skills of clients	421	3.74	.76	27.6	26.8	45.6
Use a learner centered approach	415	3.67	.81	40.0	21.9	38.1
Match learning objectives to individual learning needs	422	3.65	.77	33.4	36.3	30.3
Use principles of learning	421	3.52	.79	56.9	18.3	24.8
Use group learning techniques	421	3.49	.80	38.4	21.0	40.6
Use techniques that facilitate self-discovery	420	3.41	.85	32.8	27.1	40.1
Design web-based learning	420	3.21	.92	28.0	8.8	63.2

The competency statements were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

Perceptions regarding the professional development competencies related to delivery systems

The extension educators' responses in terms of perceived mean importance of the professional competency statements related to delivery systems and percent response counts for the time to learn these competencies are presented in Table 4.09.

The competencies 'construct a well organized presentation' ($M = 4.43$), 'match situation to appropriate teaching strategies' ($M = 4.07$), 'use appropriate technologies to enhance oral presentations' ($M = 3.99$), and 'present a concept through demonstration' ($M = 3.98$) were rated as highly important on a five-point Likert-type scale. The majority of the extension educators perceived that these competencies should be learned on-the-job. The

competency rated as moderately important was ‘conduct field trips’ ($M= 3.01$) and the time to learn this competency as perceived by the majority of the extension educators was on-the-job.

Table 4.09
Mean Perceptions of the Extension Educators on Professional Competency Statements Related to Delivery Systems and the Best Time to Learn Them

Delivery Systems	Perceived Importance			When to Learn (% response count)		
	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Competency Statements						
Construct a well organized presentation	421	4.43	.63	53.8	18.6	27.6
Match situation to appropriate teaching strategies	416	4.07	.77	29.3	44.9	25.8
Use appropriate technologies to enhance oral presentations	418	3.99	.71	39.8	18.7	41.5
Present a concept through demonstration	421	3.98	.71	36.3	41.2	22.5
Conduct group discussions	417	3.76	.83	25.2	44.7	30.1
Use problem solving approach in teaching	414	3.63	.70	40.7	30.5	28.8
Use questioning techniques in teaching	416	3.63	.80	41.8	27.0	31.2
Use case studies in teaching	417	3.21	.83	40.0	34.3	25.7
Design educational exhibits	417	3.17	.84	27.2	40.1	32.7
Conduct field trips	416	3.01	.88	8.7	77.8	13.5

The competency statements were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

Perceptions regarding the professional development competencies related to evaluation systems

Table 4.10 presents extension educators' responses to perceived mean importance for the professional competency statements related to evaluation systems and percent response count for the time to learn these competencies.

The three highly important competencies rated on a five-point Likert-type scale were: 'assess impact of programs' ($M = 4.21$), 'evaluate results of extension program' ($M = 4.14$) and 'evaluate your performance as an educator' ($M = 4.09$). As perceived by the majority of extension educators, the first two of these competencies should be learned in an in-service program and the other one in an on-the-job experience.

The competency 'identify problems requiring additional research' ($M = 3.53$) was also perceived by the respondents as highly important and the best time to learn this competency was on-the-job. But the perceived mean score for this competency was relatively lower than the other competencies mentioned above. This competency is listed at the bottom of the Table 4.10.

Table 4.10
Mean Perceptions of the Extension Educators on Professional Competency Statements Related to Evaluation Systems and the Best Time to Learn Them

Evaluation Systems Competency Statements	Perceived Importance			When to Learn (% response count)		
	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Assess impact of programs	418	4.21	.66	20.0	32.0	48.0
Evaluate results of extension activities	418	4.14	.69	17.5	36.7	45.8

Table 4.10 (continued)

Competency Statements	<i>n</i>	<i>M</i>	<i>SD</i>	Graduate program	On-the-job	In-service program
Evaluate your performance as an educator	420	4.09	.65	14.7	43.7	41.6
Assess learning outcomes	417	3.93	.72	34.4	20.8	44.8
Assess client expectations	417	3.90	.69	11.1	65.2	23.7
Using impact data for planning	417	3.80	.74	18.3	40.1	41.6
Interpret results of surveys	418	3.80	.78	47.8	12.3	39.9
Use techniques to assess learner's reaction to leaning experience	416	3.74	.78	25.3	27.5	47.2
Develop survey instruments	418	3.72	.84	46.1	9.9	44.0
Identify problems requiring additional research	416	3.53	.84	27.5	48.9	23.6

The competency statements were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

Of the 42 total competency statements listed, 40.47% were perceived to be learned on-the-job, 33.33% in an in-service program and 26.20% in a graduate program. Similarly, 81.0% of these competencies were considered as highly important and remaining items as moderately important by the extension educators in this study.

The means and standard deviations of the responses provided by the participants of this study regarding the overall importance of four professional development competency areas are presented in Table 4.11. To determine the relative importance of these competency areas to extension educators, the responses of each participant were summated for statements

related to (1) needs assessment/analysis and program development, (2) learning systems, (3) delivery systems, and (4) evaluation systems to determine perceived mean importance score in each of these four competency areas. The extension educators in the North Central Region perceived that the professional development competency in the area of evaluation systems ($M = 3.88$) as relatively, but not significantly, more important than the other competency areas.

Table 4.11

Means and Standard Deviations Regarding the Perceived Importance of Four Professional Development Competency Areas to Extension Educators in the North Central Region

Professional Competency Development Areas	Perceived Importance		
	<i>n</i>	<i>M</i>	<i>SD</i>
Needs assessment/analysis and program development	410	3.82	.43
Learning systems	411	3.67	.53
Delivery systems	413	3.68	.45
Evaluation systems	412	3.88	.51

The professional competency statements in these four professional development competency areas were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

The difference in perceived mean importance regarding the professional development competency areas to the extension educators among the twelve states of the North Central Region is compared in Table 4.12.

The extension educators in all states perceived as moderate to high importance the professional competency development areas included in this study. It was found that extension educators in Illinois had highest perceived mean importance score ($M = 3.96$) and extension educators in Kansas had lowest score ($M = 3.60$) for the professional development competency area needs assessment/analysis and program development. The professional

development competency area learning systems received the highest score for perceived mean importance by extension educators in Wisconsin ($M = 3.87$) and lowest score in Kansas ($M = 3.50$). Extension educators in Illinois had the highest perceived mean importance score ($M = 3.83$) and extension educators in Indiana had the lowest score ($M = 3.52$) for the professional development competency area delivery systems.

Similarly, the professional development competency area evaluation systems received high perceived mean importance scores by extension educators in Illinois ($M = 4.16$) and Michigan ($M = 4.01$). This competency area received the lowest perceived mean importance score ($M = 3.42$) by extension educators in Kansas.

Table 4.12

Perceived Mean Importance Ratings of Four Professional Development Competency Areas by Extension Educators by States in the North Central Region

States	Professional Development Competency Areas							
	Needs Assessment /Analysis and Program Development		Learning Systems		Delivery Systems		Evaluation Systems	
Illinois	3.96	(30) †	3.70	(28)	3.83	(29)	4.16	(29)
Indiana	3.87	(41)	3.58	(40)	3.52	(40)	3.80	(40)
Iowa	3.90	(22)	3.66	(23)	3.65	(23)	3.87	(23)
Kansas	3.60	(26)	3.50	(25)	3.63	(26)	3.42	(25)
Michigan	3.87	(37)	3.64	(37)	3.66	(38)	4.01	(38)
Minnesota	3.86	(30)	3.54	(30)	3.54	(29)	3.80	(26)
Missouri	3.75	(41)	3.73	(42)	3.73	(42)	3.89	(42)
Nebraska	3.71	(27)	3.57	(29)	3.55	(27)	3.75	(29)

Table 4.12 (continued)

States	Needs Assessment /Analysis and Program Development		Learning Systems		Delivery Systems		Evaluation Systems	
North Dakota	3.61	(23)	3.60	(23)	3.67	(23)	3.96	(23)
Ohio	3.86	(50)	3.73	(52)	3.80	(52)	3.94	(52)
South Dakota	3.78	(26)	3.75	(26)	3.72	(26)	3.97	(26)
Wisconsin	3.91	(57)	3.87	(56)	3.74	(58)	3.91	(56)

The professional competency statements in these four professional development competency areas were rated on a Likert-type scale of 1 to 5, where 1 = Very low importance; 2 = Low importance; 3 = Moderate importance; 4 = High importance; 5 = Very high importance.

† The numbers in the parentheses represent number of respondents.

Differences in Perceptions of the Extension Educators Based on their Demographic Characteristics

To compare the differences in perceptions held by the extension educators based on their demographic characteristics, t-tests and analysis of variance (ANOVA) were used. To compare the differences in perceptions based on respondents' demographic characteristics, the responses of each participant were summated for statements related to professional development competency areas included in this study and perceived mean importance score in each of these four competency areas were determined.

The results of the t-test (equal variance assumed) are presented in Table 4.13. The results indicate that there were statistically significant differences between males and females for the perceived mean importance of professional competency in the areas of needs assessment/ analysis and program development ($t = - 3.73, p = .001$), learning systems ($t = - 5.683, p = .001$), and evaluation systems ($t = - 3.645, p = .001$). However, the differences in

perceived mean importance between males and females for the professional development competency in the area of delivery systems was not statistically significant.

The descriptive statistics indicated that, although both males and females rated these professional competency areas as highly important, the perceived mean importance scores for the entire competency inventory were relatively higher for female participants than the male participants.

The Pearson partial correlation coefficient (r) between gender and the perceptions about need assessment and analysis and program development was $-.21$ ($p = .01$), between gender and learning system was $-.19$ ($p = .01$), between gender and delivery systems was $-.07$ ($p = .12$), between gender and evaluation system was $-.019$ ($p = .01$).

The results of the partial correlation coefficients indicated a negligible to low negative association between gender and perception (Davis, 1971) and that being male and female had less than 4% contribution in the perceptions regarding professional development competencies included in this study. Since males were coded as 1 and females as 2 in the SPSS data set, a negative association indicated higher perception of females than males.

Table 4.13
Independent Samples t-test for the Perceived Mean Importance of the Professional Development Competency areas by Gender

Professional Development Competency Areas	df	t-test for equality of means (equal variance assumed)		
		Mean Difference	t	Sig (2-tailed)
Needs assessment and analysis and program development	398	-.15	- 3.73	.01
Learning systems	401	-.27	- 5.68	.01
Delivery systems	404	-.50	- 1.27	.20

Table 4.13 (continued)

Professional Development Competency Areas	<i>df</i>	<i>Mean Difference</i>	<i>t</i>	<i>Sig (2-tailed)</i>
Evaluation systems	403	- .18	- 3.65	.01

The results of a one-way analysis of variance presented in Table 4.14 indicate that there was no statistically significant differences between the level of education of the respondents and the perceived mean importance for the professional competency inventory.

The descriptive statistics indicated that participants from all educational levels perceived these four professional competency areas as highly important. Generally speaking, the trends in the descriptive data revealed that the participants with master's degrees had higher ratings for the perceived mean importance of three of the professional competency areas (learning systems, delivery systems and evaluation systems) than participants with the bachelor's and doctoral degrees. The score for perceived mean importance of the professional competency area needs assessments/analysis and program development was nearly equal for participants with doctoral ($M = 3.85$) and master's ($M = 3.84$) degree holders.

Table 4.14

One-way Analysis of Variance for the Perceived Mean Importance of the Professional Development Competency Areas by the Level of Education

Professional Development Competency Areas	<i>df (Total)</i>	<i>F</i>	<i>Sig.</i>
Needs assessment and analysis and program development	399	2.09	.12
Learning systems	403	.24	.78
Delivery systems	406	.43	.64

Table 4.14 (continued)

Professional Development Competency Areas	<i>df</i> (Total)	<i>F</i>	<i>Sig.</i>
Evaluation systems	405	1.81	.16

Level of education: Bachelor degree; Master degree; Doctoral degree

The results of one-way analysis of variance presented in Table 4.15 revealed no statistically significant differences in perceived mean importance for the professional competency development areas between participants with various years of experience as an extension professional (see Table 4.03 for experience categories).

The descriptive data indicated that the professional competency development area evaluation systems received higher perceived mean importance ratings ($M = 3.99$) from the participants working as an extension professional between ≤ 1 to 7 years, while the minimum score for the perceived mean importance for the same competency area among extensional professionals with various years of experience was 3.61.

Table 4.15

One-way Analysis of Variance for the Perceived Mean Importance of the Professional Development Competency Areas by the Years of Experience

Professional Development Competency Areas	<i>df</i> (Total)	<i>F</i>	<i>Sig.</i>
Needs assessment and analysis and program development	398	1.19	.30
Learning systems	402	1.313	.25
Delivery systems	406	.74	.59
Evaluation systems	405	2.05	.07

Years of experience categorized in this study: ≤ 1 -7; 8-14; 15-21; 22-28; 29-35; 36-42

Similarly, the results of the one-way analysis of variance presented in Table 4.16 revealed no statistically significant differences in perceived mean importance for the

professional competency development areas among extension educators within various age ranges (see Table 4.02 for age range) except for evaluation systems ($F = 2.63$, $P = .01$). The Bonferroni post hoc analysis computed to identify where the differences among the age groups existed showed that the difference in perceived mean ratings for evaluation systems between age category 24 - 29 years ($M = 4.12$) and ≥ 60 years ($M = 3.71$) was statistically significant ($p = .029$).

Since age and experience are associated, in the previous analysis it was found that participants with less experience as an extension professional [≤ 1 to 7 years] indicated higher importance for professional competency development in the area of evaluation systems than others.

A Pearson partial correlation coefficient (r) computed between age and the perceptions regarding the professional competency development in the area of evaluation systems shows that there was negligible negative association between these two entities ($r = -.03$, $p = .45$) (Davis, 1971) which was not statistically significant. And thus the contribution of age on perception accounted for only .14% of the variance.

Table 4.16

One-way Analysis of Variance for the Perceived Mean Importance of the Professional Development Competency Areas by the Age Range

Professional Development Competency Areas	<i>df</i> (Total)	<i>F</i>	<i>Sig.</i>
Needs assessment and analysis and program development	396	.98	.43
Learning systems	398	.43	.85
Delivery systems	402	.83	.54
Evaluation systems	401	2.63	.01

Age range (in years) categorized in this study: 24-29; 30-35; 36-41; 42-47; 48-53; 54-59; ≥ 60

The results of the one-way analysis of variance presented in Table 4.17 shows that there was no statistically significant differences in perceived mean importance for the professional competency development areas included in this study between participants with various professional positions. The descriptive statistics indicated that participants with all position levels perceived these four professional competency areas as highly important.

Table 4.17
One-way Analysis of Variance for the Perceived Mean Importance of the Professional Development Competency Areas by the Professional Position

Professional Development Competency Areas	<i>df</i> (Total)	<i>F</i>	<i>Sig.</i>
Needs assessment and analysis and program development	392	2.12	.12
Learning systems	396	.47	.62
Delivery systems	399	.17	.83
Evaluation systems	398	.91	.4

Position of the respondents: County Extension Director; Field specialist; Extension agent

Additional Professional Development Competencies

The participants in this study were asked to list competencies they perceived as important for their professional development apart from the educational process competency statements mentioned on the survey instrument. Of the 441 respondents, 135 listed additional competencies to be achieved which are presented in Appendix E.

From the list of concepts provided by the respondents for additional professional development, similar concepts were grouped together to develop themes. A total of 16 themes were developed that could be added to the list of professional development

competencies. The items and the number of respondents identifying these items are presented in Table 4.18.

Approximately 20% ($n = 26$) of the extension educators perceived their need for further professional competency development in the areas of social intelligence, people management, public relations and interpersonal skills. About 16% ($n = 21$) perceived their need for further professional development in the areas of organizational behavior and management, system thinking and partnership with agencies. Similarly, in each of the following two competency areas: (1) group dynamics, team work, and facilitation skills, and (2) active listening, effective communication, and presentation skills, the need for professional development were perceived as important by 9% ($n = 12$) of the respondents. One extension educator perceived the need for professional competency development in mentoring skills (Table 4.18).

Table 4.18
Themes Derived from the Concepts for Additional Competencies provided by Respondents (n = 135)

Description of Themes	<i>f</i>	%
Social intelligence, people skills, public relation and interpersonal skills	26	19.2
Organizational behavior, management, system thinking and partnership with agencies	21	15.5
Group dynamics, team work, and facilitation skills	12	9.0
Active listening, effective communication, and presentation skills	12	9.0
Use of modern technology in teaching learning process	9	6.7
Conflict management	9	6.7
Real world experience, subject matter competency, practical application through effective programming	9	6.7

Table 4.18 (continued)

Description of Themes	<i>f</i>	%
Writing skills for reporting, publications, and grants	9	6.7
Tailor educational materials and processes to level of participants understanding	6	4.4
Multi-cultural competency and extension programming for diverse communities	5	3.7
Extension and educational philosophies	4	2.9
Research methodology and statistics	4	2.9
Program marketing and publicity	3	2.2
Time management	3	2.2
Volunteer recruitment and management	2	1.5
Mentoring skills	1	.7

Several competencies identified by the respondents do not “fit” with the four educational process competency areas which were the focus of this study. Nonetheless, the additional competencies identified by the respondents represent areas of concern for professional development. They alone emphasize the point that continuous professional development is necessary in extension education.

Comments of the Respondents about this Research Study

The participants of this study were asked to provide their comments regarding this study. To provide comments, space was provided on the survey instrument. Although only 51 respondents provided their comments, the information was useful to the purpose of this research study.

While writing comments, some participants repeated the responses they provided for the questions on the survey. For example, in their responses to the questionnaire, participants perceived that about 41% of the competencies should be learned on the job, 33 % in in-service and 26% in graduate programs. When the comments were analyzed, it was found that eleven participants (21%) restated that on-the-job is the best place to learn the competencies listed on the survey. Therefore, they showed their concern for required training and opportunity for on-the-job-experiences or for experiential learning in situ.

Nine participants (18%) said that one method of competency development training may not be effective therefore they expected that one or several competencies should be learned in combination through graduate programs, on-the-job experience and in-service training. Four participants (8%) commented that one person can't master all competency areas needed to perform the job effectively and suggested a need for team building in the extension organization so that required competencies for effective program implementation can be achieved through team work.

Six participants (11%) stated that graduate programs are critical in preparing extension professionals therefore the majority of the professional competencies should be learned in graduate programs. One of the arguments that respondents stated for emphasizing graduate programs to learn important competencies is that many people come to work in the Cooperative Extension Service from other professions at many different points in their careers and may not have opportunities to learn competencies needed for extension jobs.

Three respondents (6%) commented that they lacked experience in teaching an extension audience and desired to participate in competency development training related to teaching and learning processes. One of the respondents provided comments with the

perceived need for a separate professional competency to evaluate program impacts that involve youth and to evaluate programs that involve adults. Similarly, one respondent stated that it would be wise to delineate between needs of field-based extension educators and campus based-extension educators for professional development training programs.

The remaining participants repeated the perceived need for competencies which they already listed under the additional competencies section of the survey and these additional competencies are mentioned in the previous section (p.71) of this chapter.

CHAPTER 5

DISCUSSION

The purpose of this study was to determine the relative importance of selected professional development competencies as perceived by extension educators in the North Central Region and to identify when these competencies should be learned. This study aimed to seek the answer to two main questions. First, what is the relative importance of selected educational process competencies to extension educators in the North Central Region of the USA? The four educational process professional competency areas included in this study were: (1) needs assessment /analysis and program development, (2) learning systems, (3) delivery systems, and (4) evaluation systems. A total of 42 professional development competency statements were categorized under these four educational process professional competency areas: 11 statements were categorized under needs assessment /analysis and program development, 11 statements under learning systems, 10 statements under delivery systems, and 10 statements under evaluation systems.

The second question this study sought to answer was: What is the best time to learn these 42 professional competencies categorized under the four educational process competency areas?

The specific objectives of the study were:

1. To determine the relative importance of professional competencies related to needs assessment /analysis and program development as perceived by extension educators.
2. To determine the relative importance of professional competencies related to learning systems as perceived by extension educators.

3. To determine the relative importance of professional competencies related to educational delivery systems as perceived by extension educators.
4. To determine the relative importance of professional competencies related to evaluation systems as perceived by extension educators.
5. To determine demographic information of extension educators including their level of education and experience.
6. To determine the differences in perceptions of extension educators based on their demographic characteristics.
7. To determine when these competencies should be learned by extension educators.

In this chapter, the findings obtained from this research study are summarized and analyzed for the purpose of discussion. The discussion of the findings in this chapter is based on the content of chapter four. The discussion begins with the findings based on the demographic characteristics of the respondents followed by their perceptions of the professional development competencies. In this chapter, the information from various sources related to extension and professional development competencies are also used to compare the findings of this study to other related studies. In addition, the information provided by the respondents as their comments about this research study in part two of the survey instrument were found important to be included as a part of the discussion and therefore are not discussed under a separate heading.

Demographic Characteristics

The target population of the study included all extension educators in the 12 states of the North Central Region. From this target population a sample of 811 extension educators were selected to participate in the study. Of the 441 questionnaires returned with responses

that could be used for the study, 58.3% of the respondents were female. The finding about gender distribution of the respondents in this study does not appear to be consistent with the findings of Kwaw-Mensah (2008), Camara (2006), and Jayratne (2001).

In his study, Kwaw-Mensh (2008) found that 76.3 % of the extension educators in the North Central Region who responded to his study were male. In the similar studies, Camara (2006) found that 86.3% of the agricultural extension educators in the North Central Region were male and Jayaratna (2001) reported 89.5% agricultural extension educators were male. One of the reasons for the difference in gender distribution of the extension educators found in this study to that of the similar studies conducted by Kwaw-Mensah, Camara and Jayaratne may be the selection of the respondents for the study. The respondents selected in the study conducted by Kwaw-Mensah were from the target population of all extension educators working in the county extension offices of the North Central Region and the target population in Camara and Jayratne's studies were only the agricultural extension educators from the same region.

However, in this research study, the target population was all extension educators in the North Central Region including the extension educators with on-campus faculty responsibilities. This could have contributed to the difference in selection of the participants in each study and the gender distribution of the respondents. One of the arguments to counteract this reason can be that in each study mentioned above, the simple random sampling method was used to select the potential respondents. The simple random sampling method assures that all members in the population have an equal and independent chance of being selected (Ary et al., 2006). Spiegel (1961) stated that depending on the desired sample

size, with the use of the simple random sampling method the likelihood of most occurring characteristics in the population may have a higher frequency of being selected.

In the studies conducted by Kwaw-Mensah (2008) the size of the sample was 360, in the Camara (2006) study it was 300, and in the Jayaratne (2001) study it was 270, which were all less than half of the sample size of 811 in this study. The higher the sample size, the more likely that the findings of the study have a higher chance of being an accurate description of population parameters (Ary et. al., 2006; Agresti & Finlay, 2008). Therefore, the higher percentage of female respondents in this study would indicate that the percentage of the females found in the population of extension educators in the North Central Region in this study is more accurate. This also can be confirmed by the lower percentage of male extension educators in the North Central Region from Kwaw-Mensah's (2008) study (76.3%) as compared to what Jayratne (2001) found (89.5%). The findings from the use of a large sample size in this study and a lower number of male extension educators in the North Central Region Cooperative Extension Service from 2001 to 2008 may have something to do with the number of female extension educators growing in the public extension service. One of the possibilities for the higher number of female extension educators in the North Central Region is that, according to Seward (2002) and Francis (2007), in the past two decades women have outnumbered men in the percentage of bachelor's and master's degrees awarded.

One of the important points to note about gender distribution is that the occurrence of a higher number of females in the population of extension educators in the North Central Region does not guarantee a higher response rate from females. However, a higher response rate by the females in this study may indicate that female extension educators are more

concerned for their professional competency development than male extension educators. Although it is not known for sure that this is the case, Seward (2002) reported that a smaller percentage of men in proportion to women are gaining the professional skills they need to be successful in the workforce.

This study found that the average age of extension educators in the North Central Region was 47.8 years, the mean years of experience working as an extension professional was 14.68 years and sixty percent of the respondents had work experience from 8 to 21 years. These findings are nearly consistent with past studies (Kwaw-Mensah, 2008; Camara, 2006; Jayaratne, 2001). However, Jayaratne (2001) found the average age of the extension educators was 45 years. The shift in average age of the extension educators in the North Central Region from 45 years (Jayaratne, 2001) to about 48 years as found in this study and the mean years of experience working as an extension professional for about 15 years indicates that many people become extension educators later in life i.e., the early and mid-thirties.

The majority of the extension educators (77.25%) in this study had master's degrees, followed by bachelor's degrees (15.15%) and doctoral degrees (7.6%). Similarly, half of the extension educators had their highest degree in the areas of agriculture, community development, business, economics, food and nutrition, family and consumer science and youth development. The remaining half had degrees in the areas of administration, communication, leadership, conflict studies, political science, psychology, social science and others. The findings about the academic qualifications of the extension educators are similar to those of findings by Kwaw-Mensah, (2008), Camara, (2006), Jayratne (2001). Each of

these studies reported that in the North Central Region, the majority of the extension educators had master's degrees and had varied academic backgrounds.

In this study, a total of 62 different subject areas were identified as the respondents' major area of study in their higher education (see Table 4.06). Such a broad and diverse background for the respondents indicates that extension educators in this study represent a broad spectrum of academic background which is an advantage over their experience that help them solve client's problems in various areas.

It can be assumed that the Cooperative Extension Service in the North Central Region is dedicated to human resource development through increased academic qualifications of the extension educators. Such efforts for human resource development are important to shape the perceptions, attitudes and behaviors of the employees to support organizational effectiveness and to provide the best services to the clientele (Wright et al., 1994; Lee & Bruvold, 2003).

The higher educational degrees, varied academic backgrounds and the wide range of work experience from 8 to 21 years were the characteristics found in the extension educators participated in this study. Such characteristics are the essential qualities required to enhance the level of their educational process professional competencies through training and other means. For example, Kennedy et al. (2001) stated that peoples' ability to develop their professional competence rests on the level of their education, followed by knowledge and skills of the workplace and the level of their experience. Similarly, it equally depends on the motivation of individual professionals to learn and develop their level of competence. Therefore, findings about the perceptions of extension educators in the North Central Region toward the educational process professional competencies as obtained from this study are discussed under the following headings.

Perceptions Regarding the Educational Process Competencies

The extension educators in the North Central Region were asked to rate their perceived importance of the 42 professional development competency statements categorized under four educational process competency areas (listed at the beginning of this chapter) on a five-point Likert-type scale of 1 - being of very low importance and 5 - being of very high importance.

The findings of this study revealed that the extension educators reported 81% of these competencies as highly important and 19% as moderately important for their professional development. This means, that the majority of the extension educators had positive perceptions for the professional development competencies related to the educational processes in extension.

As stated by Knobloch and Martin (2000), positive perceptions promote positive attitudes and positive behaviors. In addition, favorable perceptions regarding the educational process competencies imply positive assertiveness and motivation of the extension educators in two ways: (1) their desire to effectively educate the communities with the improved level of professional competence than they possess now, and (2) their readiness to carry out their choices of the perceived importance of the educational process competencies to improve the level of their competence when opportunities come their way to do so such as, participating in various professional development programs (Knobloch & Martin, 2000; Ajzen, 1985) .

It is now important here to relate the findings regarding the perceptions of the extension educators toward the professional development competencies to the theoretical frame work of this study described in chapter two of this dissertation. Therefore, the questions that are important to discuss are how did extension educators arrive at their positive

perceptions about the educational process competencies included in this study and what are the implications.

Educational process competencies are the facilitation skills rather than the subject matter expertise (Peters, 2002). The extension philosophy emphasizes that to be effective extension professionals, extension educators should adopt the facilitator's role (Van den Ban & Hawkins, 1994). The fact remains, however, that the Cooperative Extension Service is dominated by individuals with subject-matter expertise but with little or no training in the educational processes relevant to Extension's mission and objectives (Bennet, 1979; West et al., 2009). As stated by Morse et al. (2006), with the changing socio-economic and cultural conditions of the community, the role of extension educators has changed over time.

Therefore, there is a possibility that extension educators might have come to realize the need for knowledge and skills in the educational processes rather than only being subject matter experts. One of the reasons for this is that, in the USA, extension audiences are more educated than before (Folger, 1975) and the uni-directional, supply-driven subject matter expertise approach does not often work with educated clients. In addition, the demographics of the American population are changing and extension educators have to work with people from various backgrounds to listen to and learn from each other. In these circumstances, one of the ways to understand problems faced by clientele from the point of view that they understand these problems and develop effective solutions is co-learning, which requires skills related to the educational processes as included in this study.

Peters (2002) called these educational processes as educational organizing in extension and stated that educational organizing is a way of developing leadership, building capacity and facilitating learning through bringing people and resources together to act on

important public issues and problems. Such work helps people to learn and act together in relation to specific, real world problems, and issues they care about. He further stated that such educational organizing in extension is not taught in formal education situations. It was found from the comments provided by the respondents in this study that many people come to work in the Cooperative Extension Service from other professions at many different points in their careers and may not have opportunities to learn competencies needed for extension jobs, such as, the educational process competencies or educational organizing, as Peters calls it.

Another possibility is that when clients are educated, their way of understanding problems becomes scientific and when extension educators are supposed to deal with such clientele they need even a higher level of competence than the level of competence the clients may have brought to the job. This means, social pressure to meet the levels of professional competence expected by the clients may be higher for the extension educators in the North Central Region. Under these perceived social pressures of their responsibility to assist clients, if extension educators lack knowledge and skills they need, it leads to a behavioral intention to further strengthen their professional competencies (e.g., Ajzen, 1985). Knolwes (1968) stated that the learning readiness of adults is closely related to the assumption of new social roles.

Therefore, if extension educators had social pressure to meet the level of competence in the areas of the educational processes in extension, their readiness to learn these competencies can be assumed from their expectation to serve the communities with the level of competence the community expects from them. Kennedy et al. (2001) stated that clients expect that the

professional they come into contact with will be up to the job. They simply expect that the professional has up-to-date knowledge and skills.

Therefore, extension educators may be lacking the level of educational process professional competence expected in the work place. The perceived discrepancies between their knowledge and the level of professional standards they are expected to meet at the work place might have developed their attitude to take action to fill the gaps between the existing level of professional competence and the standard expected by the clients (e.g., Heider, 1960). Therefore, they might have perceived these educational process competencies as highly important and are needed to be effective in the workplace. This perceived importance for the educational process competencies activated by their awareness can guide them to actually participate in the professional competency development programs offered by the Cooperative Extension Service (e.g., Ferguson & Bargh, 2004; Azjen, 1985).

There is another possibility that extension educators lacked competence in the educational processes in extension. Bem (1972) in his Self Perception theory stated that individuals come to know their own attitudes and preferences from observations of their own behavior and the external circumstances in which this behavior occurs. This means extension educators know they lack expertise and competence in the educational process competencies required for their jobs in extension. This might be the reason some respondents made comments about how they lacked experience in effectively teaching an extension audience and they had a strong desire to participate in competency development trainings related to the teaching and learning processes in extension. One of the participants stated that,

“...I had training as a teacher and instructor which gave me the competencies you asked in this survey, however most extension people have not taught and to expect them to

just step in and deliver a program is not going to happen. They need training in order to be effective.”

Regarding their competence of the teaching learning processes in extension, another respondent in this study stated that,

“...I believe strongly that too little attention is given to quality instructional method in Extension. So many of my peers believe that superior content of knowledge is sufficient to being a good educator, and I see time and time again that it is not true. These people satisfy their vanity by trying to impress their audience with their subject matter knowledge and ignore question of whether their audience can interpret information. “Telling” does not constitute teaching!”

Regarding the opportunities to learn the educational process competencies included in this study, one extension educator stated,

“...Each extension team needs the competencies identified in this survey for successful extension programming but I understand that most of us in this position did not have the opportunity to take such classes either during, before or after our graduate program”.

Adults like to know how well they are doing, and use feedback to evaluate their own progress (Vella, 1997). The statements of the extension educators mentioned above indicate their acceptance of lacked competence or expertise in selected areas of the educational processes in extension. They arrived at this conclusion by observing their own and their peers' behaviors in the work place (e.g., Bem, 1972). Vella (1997) stated that adults like to distinguish between relevant and irrelevant material, and filter out the irrelevant ones. If extension educators in the North Central Region would have distinguished the professional development competencies included in this study as irrelevant for their professional development, they would not have perceived them as highly important.

Another possible reason that respondents in this study perceived high importance for the educational process competencies is that with the introduction of the Government Performance and Result Act of 1993, administrators and legislators are asking extension educators to demonstrate the accountability of the extension programs they offer to clients (O'Neill, 1998; Radhakrishna & Martin, 1999; Radhakrishna, 2001). As a result, program funders, policy-makers and decision-makers want data relating to program results, impacts, and social and economic consequences on the lives of people served (Radhakrishna & Martin, 1999; O'Neil, 1998; Bailey & Deen, 2002). Recently, the Federal Government announced the tough economic times in the nation at the beginning of fiscal year 2008 and this study was conducted in March 2009. When there is a crisis, the importance of program accountability becomes more evident than in times of normal economic development.

The four important questions required to assess program accountability in extension are: how was the program determined for the target audience? What learning objectives were set? How should the program be delivered to the audience? What impacts were assessed and how? (Bennet, 1975; Rennekamp & Engle, 2008; Braverman & Arnold, 2008; Patton, 2008). To provide information raised by these questions, extension educators require professional competence in the areas of systematic program development and implementation processes. These processes include: assessing needs, setting priorities, identifying the solutions, developing the program, setting learning objectives, determining evaluation methods, developing teaching materials, delivering the program, evaluating the impacts and communicating the results. In other words, these are none other than the educational processes professional competencies included in this study (e.g., Seevers et al., 2007).

Peters (2002) stated that there is little research conducted in the Cooperative Extension Service on educational organizing in extension. When reviewing the literature for this study (chapter two), no studies were found to have been conducted to determine the importance of the educational process professional competencies of extension educators in the North Central Region of the United States. From the ongoing discussions we can assume that extension educators may have reported their true needs for educational process professional competency development through this research study based on their knowledge and experience in the workplace.

Perception is the psychological process affiliated with awareness and it involves the senses to enable individuals to arrive at true beliefs about their environment (Coats, 1998; Clark, 1994). Similarly, people have tendencies to report their actual feelings of the situations that surround them (Bem, 1972), because feelings are the perceptions of our actions and the contexts in which they are performed (Laired & Brelser, 1992). Therefore, it appears that extension educators have reported their true feelings of their views regarding the perceived importance of the professional development competencies and were willing to improve their level of competence related to the educational processes in extension. Professional competence depends upon professionals themselves having an honest understanding of their abilities. It is crucial that errors in practice, or gaps in skill or knowledge, are acknowledged as early as possible and used as an opportunity for learning, rather than being suppressed or hidden out of fear of blame or sanction (Kennedy et al., 2001).

Therefore, it can be assumed that there is a need for educational process professional competency development models for extension educators in the North Central Region Cooperative Extension Service. Based on the findings of this study, a professional

competency development model developed for extension educators is presented at the end of this chapter.

After relating the extension educators' views regarding the perceived importance of educational process competencies to the theoretical framework of this study, the views of other authors related to the findings in this study about the importance of educational processes in extension are discussed below.

Extension is an educational process that serves to meet the educational needs of clientele (Jones & Garforth, 1997; Maunder, 1972). Through the use of educational processes, extension helps people to solve their problems (Seevers et al., 1997). The need of educational process competencies for extension educators was recognized nationwide as early as 1959 by the National Task Force on Cooperative Extension Inservice Training (Federal Extension Service, 1959). In 1991, the NCR-158 Committee on Adult Education in Agriculture identified the need of four educational process competency areas as the most important competency areas in the North Central Region agricultural extension and education program (Martin, 1991). These four competency areas were needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems. In 2005, the National Research Agenda for Agricultural Education and Communication (2007-2010) also identified these four competency areas as the important national research priorities in agricultural education and communication (Osborne, 2005). In 2006, Excellence in Extension Task Force and Work Group of the Extension Committee on Organization and Policy (ECOP) confirmed the need of these four educational process competencies in extension to determine the quality of extension programs in the Cooperative Extension System of the United States

Seevers et al. (1997) stated that the extension professional has to play a key role in extension educational program development because it is associated with the needs of the communities. They further stated that understanding community needs is challenging for extension educators because it is a complex process and affected by social, historical, economical, educational, emotional and political factors. The Food and Agriculture Organization of the United Nations (FAO, 1979) stated that extension program development involves a process of selecting the best course of action to accomplish an objective. It deals with an individual extension worker's decision. Making a precise decision by extension educators varies considerably as community situations differ from one another. The FAO further stated that professional knowledge of needs assessment and community analysis, therefore, greatly affects the decision of the extension educators for appropriate extension program development and implementation.

In 2005, the North Central Regional Center for Rural Development (NCRCRD) recognized the continuous socio-economic change in the American society and the challenges faced by community development workers in assessing the needs corresponding to community development programs. Therefore, the North Central Region Community Development program leaders suggested that there was an increasing need for extension professionals in the North Central Region to have knowledge, skills and competence in the processes, tools and techniques to conduct community development educational programs (NCRCRD, 2005).

According to Birkenholz (1999), it is important for community development workers such as, extension educators, to understand that educational needs assessment encompasses the learning required to achieve a desired level of knowledge or skill in a learner. Therefore,

conducting a thorough and accurate situational analysis and needs assessment includes essential steps in defining learning needs of the extension audience (Richardson, 2009).

Learning is one of the most delicate, significant, and complex of all social processes because it changes the way people think and act. Therefore, extension educators must skillfully provide learning experiences effectively to their clientele (Leagans, 1963).

Learning is the mental/physical reaction of a learner to seeing, hearing, or doing the things to be learned, therefore the learning experience is the core of the educational process in extension (Reddy, 1993). The learning needs of the clients and program delivery in extension are interconnected.

Richardson (1994) conducted a study in North Carolina to determine the preferred modes of learning and program delivery preferences of both the extension audience and the extension agents. He found that the extension audience and the extension agents had distinct preferences for certain specific modes of learning. This means, there were gaps between extension educators' preference of learning modes for the clientele and the learning modes preferred by the clients. The learning preferences of most of the extension audience were a combination of *seeing, doing and discussing*, while most extension educators preferred to use the learning mode *doing* for their clientele.

Richardson (1994) further stated that using this information for learning preference of the clientele, extension educators can select a wide variety of program delivery methods to most effectively provide opportunities for learners to have the opportunity to receive information in ways they can learn most effectively. The delivery methods most preferred by the extension clientele as found by Richardson were personal visits, meetings, newsletters, method demonstrations, workshops, seminars and field days. Yet, even though such delivery

methods are available, there can be some methods which may be unpopular with adult audiences. Richardson (1994) concluded that selection of delivery methods for a program delivery system in extension should be based on the needs and learning preferences of the targeted audience and the specific educational purpose.

Alfaro (2004) studied the perceptions of farmers about the delivery of livestock extension services in Honduras and concluded that the extension audience can develop negative and positive attitudes toward the extension service providers based on the program delivery methods. Alfaro recommended that extension agents should carefully select the content and delivery methods so that desired educational objectives could be accomplished. Swanson et al. (2003) stated that for an extension organization to remain a viable institution, extension educators need to plan and deliver extension programs that can help clients take advantage of the new opportunities to increase their knowledge, skills and income.

The extension educators and the stakeholders determine the level of success of an educational program and learning experience of the clientele through evaluation. Tylor-Powell (1996) stated that evaluation in extension is conducted largely to improve educational efforts and to address accountability. According to Patton (1988) evaluation in extension is focused to measure the program outcomes in terms of (1) adoption of a practice and improvement in productivity (2) participants' ability to make decisions and apply knowledge, and (3) capacity building of the communities and individuals.

According to King and Cooksy (2008), many programs in the Cooperative Extension System operate with funding from multiple levels of government as well as from the private and nonprofit sectors. Therefore, evaluating multilevel programs can be a challenging task to extension educators because each level of the program has distinct stakeholders and varying

uses for evaluative information. For example, program staff at the local level may be interested in collecting information for program improvement but those at the state and national level may be more focused on the data that can be used for accountability purposes.

Rennekamp and Engle (2008) stated that the commitment for the improvement of knowledge and skills of the extension educators for program evaluation is lacking in the Cooperative Extension System. According to King and Cooksy (2008), this situation has further stemmed two main issues in educational program evaluation in extension. First, there is a lack of competence by extension educators in program evaluation. Many times, inappropriate performance indicators developed by extension educators to evaluate programs have conveyed incorrect messages about program impacts to legislators at various levels and has thus portrayed the wrong image about extension.

Second, extension serves a variety of audiences approaching them with a variety of programs. Each program has its own objectives and different impacts. This has made it difficult for extension educators to collect evaluation data in each program for each audience to satisfy different stakeholders. Owing to these arguments, it is obvious that extension educators in this study perceived high importance for the professional competency in the area of evaluation systems.

Perceptions Regarding the Best Time to Learn the Educational Process Competencies

Regarding their choice of time to learn the educational process professional development competencies included in this study, the extension educators in the North Central Region reported that of the 42 competency statements, 41% should be learned on-the-job, 33% in in-service programs and 26% in a graduate program.

One of the reasons extension educators emphasized learning several competencies on-the-job may be that on-the-job is an experiential learning process that provides the opportunity to learn through mistakes made during presentations, holding meetings, and planning educational programs. Kennedy et al. (2001) stated that learning through mistakes can often be a very effective way of improving competence and understanding. But to acknowledge errors and shortcomings, professionals must feel safe to do so. Employers, therefore, must create an environment which enables this to happen. Adults learn through mistakes and they are ready to take such risks for their lifelong learning (Knowles, 1970).

On-the-job learning through experience has some advantages over the other methods of professional competency development for extension educators in the North Central Region. These advantages as stated by Yi (2005) are: (1) it seeks to increase problem-solving and critical thinking skills of the professionals, (2) it builds communication and interpersonal skills, and (3) it targets specific technical skills that can be directly related to their field of work.

Educational process competencies are often learned best through on-the-job experience because it promotes co-learning between extension educators and the audience. A participant in this study reported his/her experience of on-the-job learning stating that,

“....some of the best county agents I have seen and known in my 21 years as an agent were sought out for their knowledge by local clientele, most were not good plan of work writers, evaluators of their programs and reporters of impacts. But they knew the people and what they wanted because they were out and about among them, learning and talking with them (coffee shop, elevator, cotton gin) and from those conversations and even gripe sessions they knew what made them tick. Then they could have some good basic and advanced programs that the locals wanted. Having formal committee meetings rarely yields this kind of information.”

However, it can be contended that learning on-the-job through practice may provide a thorough and circumspect understanding of the given topic or issue under learning, although this method generally consumes considerable amount of time. In addition, time consideration is an important element in considering the process of learning within an organization like the Cooperative Extension Service that must meet specific deadlines or has a client base that needs to be managed continuously.

In such circumstances, competencies that are not suitable to learn by on-the-job learning because they require elaborate training or a formal educational program, can be learned in an in-service training or in a graduate program. Extension educators in this study preferred learning 33% of the competencies in an in-service program and 26% in a graduate program. It was found from this study that many people joined extension after several years of their career in other professions. Therefore, graduate programs or in-service programs can be the best option for the professional competencies development of such educators to prepare themselves to be ready for extension jobs rather than waiting to be learned through on-the-job practice. Weber and Antal (2003) contended that the learning processes that require practice are much slower than those that do not require practice. Therefore, organizations must consider time pressure as a tool that can encourage learning and speed up these processes. This further emphasizes the need for separate professional development competency models in the North Central Region Cooperative Extension Service for the educational processes professional competencies that are suitable to learn in a graduate program, or in an in-service program or on-the-job.

Regarding their views about the time to learn these competencies, some of the extension educators stated that,

“.....This was a survey that in places was hard to understand. It needs to be put in normal terms that the general county staff would use. Many of these competencies would probably use all three learning locations - graduate school, in-service and on the job or combination of two of them and that choice was not given.”

This means further research may be needed to identify the competencies that are required to be learned at all three locations or combination of any two of the locations as stated above. Similarly, it is important to know while conducting future research that the researchers need to format the language and wording of the questionnaire to be compatible with the level of knowledge and capabilities of the people working in the field. Some of the respondents chose to learn these competencies in the graduate school or on-the-job because they thought in-service training may not be a good idea to learn these competencies and stated that,

“...I have found in-service trainings have not been effective in educating on most of the skills evaluated in the survey. They function best as a refresher or teaching additional issues and skills associated with our technical specialties. The skills evaluated in this survey need a multi class or day educational setting and not a week of concentrated work. A solid week would burn most attendees out on these subjects. This is why I chose the graduate school for most competencies.”

This statement provides a suggestion for the Cooperative Extension Service on how to design effective in-service training programs and how participants can get the most out of these programs for their professional skills development and competence.

The emphasis provided by the respondents regarding the best time to learn several of the competencies included in this study may change over the years due to change in technology.

Difference in Perceptions Based on the Demographic Characteristics

All extension educators in this study irrespective of their level of education, years of experience as extension professional, age range and professional positions perceived the educational process professional competencies included in this study as moderately important to highly important for their professional development. This confirms the importance and relevance of the educational process competencies in extension.

A significant difference between the perceptions of females and males was observed for three of the professional development competency areas: needs assessment/analysis and program development, learning systems and evaluation systems. Even though significant differences in the perceptions between males and females were observed, all male and female participants in this study perceived these competencies as highly important ($M \geq 3.5$ to 4.49).

There can be two reasons for the significant differences in their perceptions though: first, the sample size of this study and second, the intentions of the female participants. From a sample of 811 participants, 441 extension educators responded to the survey. According to Ary et al. (2004), Agresti and Finlay (2008) and Norusis (2008), if the sample size is large it can end up with a high response rate. In such situations, statistical analysis can depict even a small difference in the findings as significant. However, it is important for the researcher not to get carried away with the statistical significance but instead be aware of the practical importance of that significance (Miller, 1994; 1998).

Similarly, as stated in the previous section of this chapter (p.78) that compared to men, women are more conscious about the level of competence at the work place (Seward, 2002). There were more female respondents in this study than male respondents. Some of these female respondents might have attached a very high importance to the professional competency statements included in this study. While computing the average responses to determine the overall perceptions of males and females in the professional competency areas needs assessment /analysis and program development, learning systems and evaluation systems, these responses might have appeared as statistically significant in the analysis.

The Pearson partial correlation coefficient (r) computed between gender and the perceptions regarding the four professional competency areas included in this study indicated that being male and female had contributed only about 4 % for the perceived importance in each of these competency areas. This contribution of gender in perception is too low to be considered to be of any practical importance in designing separate professional development programs for male and female extension educators or giving first priority to females than males in any of the educational process professional competency development programs in the North Central Region (e.g., Miller, 1998). Therefore, with their perceived high importance given to all professional competency development areas included in this study, we can conclude that all competency areas are equally important for both males and females.

This study did not find any statistically significant differences between levels of education of the respondents and their perceptions, and between years of work experience as extension professionals and their perceptions. When analyzed the difference between age groups and the perceptions, the Bonferroni post hoc analysis indicated statistically significant differences between the age group 24 - 29 years ($M = 4.12$) and ≥ 60 years ($M = 3.71$) for the

evaluation systems. The Pearson partial correlation coefficient (r) between age and the perceptions regarding the professional competency development in the area of evaluation systems indicated that the contribution of age to their perceptions was only .14%, which is very low.

Since both of these age groups perceived high importance for the evaluation systems, it may not be an important implication in designing separate professional development programs for younger and elder extension educators. However, we can assume that because of their shorter work experience compared to the elder extension educators, the younger generation of the extension educators might have perceived a higher need for professional development regarding the professional competency area of evaluation systems.

Additional Competencies Suggested by the Respondents

Based on the researcher's request to identify additional competencies that may be needed in the workplace beyond the educational process competencies included in this study, 135 respondents suggested some additional professional competencies which they perceived as important. From the list of their suggestions, a total of 16 themes were developed to add to the list of professional development competencies for extension educators in the North Central Region. Of the 135 respondents who provided suggestions for additional competencies, nearly 70% of the extension educators (see Table 4.18) perceived the need for other professional competencies (beyond those in the educational processes) in the areas of people management skills, organizational management and partnership with agencies, group dynamics and facilitation skills, listening and communication skills, writing and publications skills, knowledge of statistics and research methodologies, and conflict management.

These additional professional competencies identified in this research study were similar to the findings of two national surveys carried out by the U.S. Department of Labor, Employment and Training Administration in 1989 and in 1996. According to Carnevale, Gainer, and Meltzer (1988), these two national surveys listed competencies that the employers were looking for in entry-level workers. These competencies were: (1) listening and oral communication, (2) adaptability and creative responses to setbacks and obstacles (3) personal management, confidence, and motivation to work (4) group and interpersonal effectiveness, cooperativeness and teamwork, (5) skills at negotiating disagreements, (6) effectiveness in the organization and leadership potential, and (7) competence in reading, writing and math.

The additional competencies identified in this study that were perceived as important by the respondents indicates that the North Central Region Cooperative Extension Service expects similar competence from the extension educators as it is expected by other employers in the nation. This further confirms the findings of this study are legitimate and apply at a national level. This means, it can be assumed that the findings about extension educators' perceived importance of the educational process competencies included in this study can be used to develop professional competency development programs in other regions of the nation, as well.

In addition, the additional competencies identified from this study that are similar to the competencies expected by the employers of entry-level workers as found in the national survey by the U.S. Department of Labor, Employment and Training Administration can be included in the undergraduate and/or graduate curricula of the land-grant universities and

colleges in designing courses for the students pursuing development of their professional career in the Cooperative Extension Service.

Extension work starts with the people and ends with individual development and community empowerment through the educational processes (Seevers et al., 1997).

Extension work is not intended primarily to make better crops and animals, but better men and women (Burritt, 1922). This means social intelligence, people skills, public relations, and interpersonal skills are important in extension to deal with the clientele for the success of extension programs. These skills were perceived as primarily important additional competencies by the extension educators for their professional competence (Table 4.18).

According to a major research study conducted by Harvard University, the Carnegie Foundation and the Stanford Research Institute, 85% of the success at home, community and the work place depends on an individual's "peoples' skills" and only 15% on technical knowledge and skills (Braun, 2002). Similarly, in his book entitled *People Skills*, author Robert Bolton (1986) reported that 80 percent of the people who fail at work, do not fail due to their lack of technical skills but rather because of their inability to relate well with others. Ozowa (1995) stated that many people in extension are ill-prepared for extension and an extension communication job. The emphasis in their training is more on technical proficiency rather than rhetorical and persuasive skills. There is a great need for extension educators training to be relevant to their jobs at the grassroots level. Norcott (1993) stated that extension educators are often inadequately trained to handle the 'people management' aspects needed to encourage clientele to participate in development programs.

According to Goleman (2006) the set of people skills includes the ability to negotiate successfully, manage and resolve conflicts confidently and amicably, and communicate

effectively to establish rapport and deepen bonds. All these will contribute to the building of a high performance team of unique individuals working effectively with each other. As stated by Delaney and Murray (2004), social intelligence includes empathy, political awareness, the ability to understand others' emotions or other talents or skills needed to influence, communicate, lead, develop others, manage conflict, promote team work and catalyze change. The social, intelligence, people skills and interpersonal skills go hand in hand while working with an extension audience.

Regarding people skills, the respondents who provided suggestions stated their need for learning to interact effectively within an office and with clients and develop relationships with the people they work with. These extension educators were of the opinion that they needed competence to become resourceful, know clients and community, and understand the client's culture and point of reference to get help and answers to problems. This statement indicates an increasing interest of the extension educators in the North Central Regions toward co-learning and participatory approaches to extension. According to Braun et al. (2000), co-learning is important in extension because there are questions that none of the stakeholders can answer satisfactorily, but can best be addressed through working in collaboration and partnership with the clients.

The respondents in this study also suggested their perceived need for competency development in the areas organizational behavior and management. They opined that they were in need of competence to understand the unique organizational structure of extension, to have the ability to deal with staff and county government, to identify resources and collaboration with partner agencies, to generate revenue through programming and to be effective supervisors.

The Cooperative Extension System possesses the nature of a complex organization, it has a multifaceted structure involving county, state and federal governments. County, multicounty or multistate extension educators housed in local offices plan, implement, and evaluate educational programs for their clientele (Franz & Towson, 2008). In addition, it recruits, trains, and uses hundreds of thousands of volunteers to help plan, deliver, and evaluate extension educational programs (Seevers, et al., 2007). Therefore, professional competencies related to organizational behavior and management are important for the extension educators to be an efficient manager for the success of the educational program.

According to a survey of human resource managers from 133 organizations by Right Management Consultants in Philadelphia, the world's largest career transition and organizational consulting firm, almost one-third of the managers and executives are regarded as severely lacking in their management abilities and talents (Business Wire, 2004). Business Wire (2004) further stated that companies need to provide the necessary leadership development coaching to the bottom third of managers and executives to turn around their performance. But they also need to pay very close attention to the managers and executives who are in the middle, and work with them toward advancing into excellent leaders, rather than becoming sub-par managers.

One of the additional competencies suggested as important by the extension educators in this study was group dynamics and facilitation skills. These extension educators perceived their need to learn (1) to understand how groups think and work, (2) to facilitate groups to achieve their own outcomes, (3) to use information of a group for the benefits of the communities, and (4) to deal with focus groups. Cooperative Extension programs are delivered in a very different environment today than in the past. According to Dollahite and

Scott-Pierce (2003), the U. S. demographics have been changing and the current extension service is facing challenges to deal with a pluralistic society with a diversified culture, economy and society.

Dollahite and Scott-Pierce (2003) in their study entitled 'Expanded Food and Nutrition Education Program' that was conducted in New York, recommended the need for group facilitation skills for extension educators to deal with groups in audiences with heterogeneous backgrounds, cultures and languages. Foster (2001) suggested that today extension professionals of the land-grant universities need competencies in group dynamics and facilitation skills (1) to connect educational knowledge and resources to communities with different cultures and diversity, (2) to capitalize on the positive contribution of the diverse communities in community and agricultural development, and (3) to create better understanding of how people work together to span the differences in culture, values and knowledge.

In their suggestions for perceived need of listening and communication skills, the extension educators in this study stated that they had to be competent in communicating with groups, organizations, key stakeholders, TV, radio and news papers, office co-workers and with general public. Similar findings about the need for communication skills for extension educators were identified by the Moore and Rudd (2004) in their study 'leadership skills and competencies for extension directors and administrators'. They recommended competency development training for extension educators to improve listening, speaking and written communication skills such as: identify and reduce barriers to active listening, communicate orally with groups of various sizes and interests, communicate with individuals with various depths of knowledge capabilities, and recognize and effectively use non-verbal cues of the

people. Lee and Hatesohl (1993) stated that listening is the communication skill we need to use frequently but extension educators lacked training on active listening skills. They further stated that listening activates the capacity of our mind and then we can respond effectively to the concerns and questions raised by the audience.

Similarly, extension educators also suggested their need for writing and publication skill competencies. Moore and Rudd (2004) in their study found similar competencies expected to be learned by the extension educators. They stated that to be effective in communicating the results of their programs to stakeholders, it is important for extension educators to be able to write for various organizational purposes ranging from writing for newspapers and journal articles to communicating the impact of the extension programs to the key decision makers.

The knowledge of statistics and research methodologies were also suggested as important by the extension educators in this study. The Cooperative Extension System provides unbiased research based information to people therefore its future depends substantially on the development and application of new knowledge through research. The understanding of research methods and procedures, especially social science research is increasingly important for the extension educators in the North Central Region to explore the existing processes, improve the existing programs, find out effective methods of technology transfer or program delivery, and predict and explain the factors contributing to the success or failure of a program.

Mannebach, (1981) stated that agricultural education and extension research has been cited as too shallow to develop essential understandings, focused on secondary areas, and often unrelated to what is already known. Miller (2006) and Williams (1991) pointed out the

lack of well developed research procedures, appropriate theoretical frameworks and methodologies in agricultural education and extension. Considering the views stated by Miller and Williams, it is relevant for the extension educators to have further training and education in research methodologies and statistics.

Dealing with conflicts can be a frustrating and uncomfortable experience for professionals working in extension. As said earlier, extension deals with the communities with varying backgrounds, skills, interests, and cultures and conflict arousal is obvious when these communities or individuals confront problems of great scale and complexity, without commensurate resources, policies or outcomes. In this study, extension educators suggested their perceived need for conflict management skills to carry out the educational programs efficiently. When conflict occurs, strong feelings are frequently aroused, objectivity flies out the window, egos are threatened, and personal relationships are placed in jeopardy (Schmidt & Tannenbaum, 1960). To be successful professionals, extension educators must be able to manage conflict situations effectively. This requires using different conflict management styles, depending upon the conflict situation faced (Earnest, 1994).

People usually perceive conflict as a negative and unproductive activity. However, researchers have reported that conflict has the potential to be productive and is, in fact, a necessary part of positive interpersonal relationships, creative problem-solving, and group cohesiveness (Chanin & Schneer, 1984; Hocker & Wilmot, 1985). According to Zacharakis (2006), in the United States, the notion of conflict as a positive source of energy is not typically taught to community development specialists or community workers, such as extension educators. Rather, workshops on conflict management are offered to teach techniques on how to minimize and control conflict. Yet, by minimizing conflict we may risk

disempowering the community and neutralizing its energy. This means, the conflict management training courses should be designed to develop their professional development competencies in such a way that could help extension educators to perceive conflict as a positive resource and encourage them to utilize it for the betterment of the clientele, communities and the organization.

This section discussed the additional professional competencies suggested by 135 respondents in this study. These additional competencies may be needed to support and enhance the educational process professional competencies included in this study that are required by the extension educators to be effective extension professionals. The additional competencies suggested by the respondents are supportive of but are not the educational process skills that are needed in extension to empower the extension clients to learn and address their problems and opportunities, and develop local programs to meet the individual and community needs. This study is unique in that it focuses on the specific educational process professional competencies that are represented in the four crucial areas i.e., needs assessment/analysis and program development, learning systems, delivery systems and evaluation systems. These four educational processes make agricultural extension education a discipline because they transform extension objectives into reality (e.g., Fleshman, 1908). Therefore, the professional competency development model based on the educational process competencies perceived to be highly important by the majority of the extension educators in this study is presented and described below.

Educational Process Professional Competency Development Model

The Cooperative Extension System serves a variety of audiences, approaching them with a variety of programs. It has a multi-faceted organizational structure, implements

educational programs funded by multi-levels of government and serves rural, urban and peri-urban audiences ranging from youth to adults of various ages and backgrounds. Therefore, competency, in the sphere of extension work, can be a difficult concept to pin down. Yet, it is particularly difficult when competency relates to professional occupations where roles can be complex and the knowledge and skills involved are many and varied, for example, the educational process professional competencies needed for successful extension programming.

In developing a model for developing educational process competencies of extension educators, the researcher was not, of course, starting from scratch because he had a considerable amount of data related to the educational process competencies in extension obtained from the findings of this study. In addition, the researcher had suggestions from the respondents in the study for other professional competencies perceived as important for the extension educators in the North Central Region beyond the educational process competencies included in this study.

The aim was to produce an educational process professional competency development framework that brings together the coherent elements of the educational processes in extension into a single holistic model. The model described in this section attempts to unify the four educational processes in extension that are the key features in the Cooperative Extension System to plan, implement, deliver and evaluate educational programs. The proposed model, its features and implications to the North Central Region Cooperative Extension System are described in the following paragraphs.

The purpose of the proposed educational process professional competency development model is to contribute to the professional growth and development of extension

educators in the North Central Region of the United States. One of the objectives of this model is to increase the level of efficiency and productivity of the extension educators' competence related to the educational processes in extension.

The educational process competency development model portrayed in Figure 1 consists of 42 educational process professional competency statements categorized under four educational process professional competency areas: 11 statements categorized under needs assessment /analysis and program development, 11 statements under learning systems, 10 statements under delivery systems, and 10 statements under evaluation systems. Each competency statement represents an educational process competency and 81% of these competency statements were perceived as highly important and the remaining items as moderately important by the respondents in this study. To determine the importance of each competency statement, the perceptions of the respondents were measured on a five-point Likert-type scale ranging from 1- of being a very low importance and 5- of being a very high importance.

In the model (Figure 1), each competency area containing the number of competency statements is represented by a separate box. The four educational process competency areas included in this study and portrayed in this model are a set of educational processes used in extension for successful programming. Absence of any one of these four educational processes not only hinders the success of an educational program but also makes it impossible to continue educational work in extension. Therefore, the arrows pointed at both ends (\longleftrightarrow) are connected to the box located at the center of the model which is named 'educational process professional competencies' with the other four boxes containing

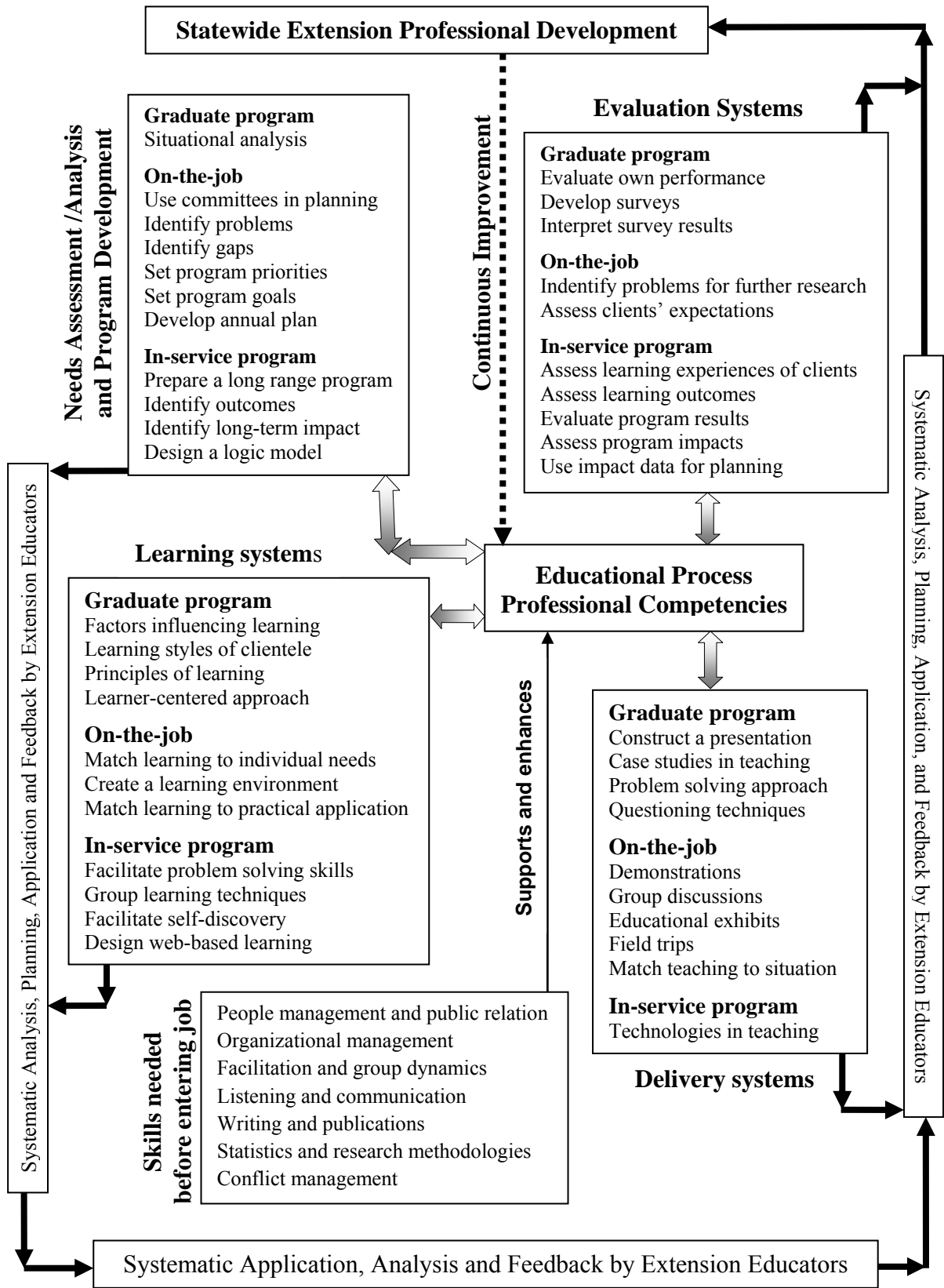


Figure 1: Educational process professional competency development model

educational process competencies in the areas of needs assessment/analysis and program development, learning systems, delivery systems and evaluations systems (Figure 1).

One of the important characteristics of this model is that it signifies the best time to learn each competency as reported by the respondents in this study. In other words, this model clearly depicts the locations to learn each of the competencies, whether in a graduate program or on-the-job or in an in-service training program.

The information regarding the educational process competencies in the area of ‘needs assessment /analysis and program development’ are presented in a box at the top, left corner of the model in Figure 1. According to the model, the skills needed to conduct socioeconomic and cultural situational analysis of a community should be learned in a graduate program. The skills needed to use various committees (e.g., advisory committee) to identify clients’ problems, set priorities and goals, and develop an appropriate plan to meet the needs of the communities should be learned on-the-job. Similarly, the model suggests that extension professionals need to learn in an in-service program the competencies required to identify program outcomes and long term impacts, and to use a logic model to demonstrate program development and implementation processes.

The information presented in a box at the left, middle of Figure 1 is related to the educational process competencies in the area of ‘learning systems’. This box indicates that the graduate program is the best time to learn the principles of learning, skills needed to identify the learning styles of clientele and factors that influence their leaning, and the skills needed for use of a learner-centered approach in extension. The competencies required for matching learning to individual needs of clientele and matching learning for practical application should be learned on-the-job. Similarly, skills needed to use learning techniques

to develop problem solving skills in clients and facilitate their self-discovery potential should be learned in an in-service program.

At the bottom, right corner of the model in Figure 1, depicted in a box are the educational process competencies in the area of ‘delivery systems’. The model indicates that these competencies are best learned in a graduate program: use of case studies, the problem solving approach and questioning techniques while teaching an extension audience. The skills needed to conduct demonstrations, group discussions, exhibits, and field trips should be learned on-the-job through practice. The skills needed to use various technologies in extension teaching to promote active and participatory learning should be learned in an in-service program.

The box at the top, right corner of the Figure 1 presents the educational process competencies in the area of ‘evaluation systems’. Listed in the box are some competencies that should be learned in a graduate program: how to evaluate one’s own performance as an educator, how to develop and conduct a survey, and how to analyze and interpret the responses gathered from such surveys. Similarly, the competencies required to assess client expectations and identify problems requiring further research should be learned on-the-job. The evaluation competencies such as assess learning experiences of the clients, identify program results, outcomes and impacts, and the skills needed to use impact data for planning future educational programs should be learned in an in-service program.

Apart from the four educational process professional competencies, at the bottom, left corner of the model in Figure 1, additional professional competencies are depicted in a box named as ‘skills needed before entering job’. These additional competencies represent various skills needed by extension educators in the areas of people management and public

relation, facilitation and group dynamics, organizational management, listening and communication, writing and publications, statistics and research methodologies, and conflict management. It is expected that these additional competencies can play an important role to support and enhance the educational process professional competency development skills of the extension educators.

These additional competencies were derived from the suggestions provided by 135 respondents in this study who reported that the extension educators in the North Central Region may need these competencies beyond the educational process competencies included in this study. These additional competencies are listed in the model under the ‘skills needed before entering job’ because when searching the literatures to identify the importance of such skills to extension professionals, some authors (Carnevale et al., 1988) suggested these competencies as are the ‘skills that the employers are looking for in entry-level workers’.

It is assumed that after their participation in the professional development programs to learn the educational process competencies included in this model, extension educators will systematically apply the knowledge and skills they learned from such programs in their day to day extension work. In addition, they will analyze their experiences regarding the impacts of such skills in an educational program and report their feedback to the state extension professional development program leaders.

This model is also based on the assumption that the state extension professional development program leaders will adopt a mechanism to obtain continuous feedback from extension educators. The feedback provided by the extension educators will help continuously improve the educational process competency development programs in their states. In addition, it is also expected that each state extension service will continuously

assess the effectiveness of such educational process professional competency development programs to identify the knowledge, skills and behaviors that extension educators need to get the best results as well as to identify the skills and functions that are no longer effective at the workplace.

Based on the information presented, the proposed model portrayed in Figure 1 can have various implications. First, it provides guidelines to develop an effective educational process professional development programs for the extension educators in the North Central Region of the United States.

Second, the model is useful to design educational process professional competency courses in an in-service training program and on-the-job training program of the Cooperative Extension Service. Similarly, the model has implications to design educational process professional competency courses in the land-grant universities and colleges of the North Central Region for mid-career professional development students as well as for the students attempting to develop their professional career in the Cooperative Extension Service. In addition, the model can be useful in designing potential undergraduate and/or graduate courses for developing professional competency skills that employers are looking for in entry-level workers and/or entry –level extension educators (see box ‘skills needed before entering job’ in Figure 1).

Third, the model can be a landmark to design new policies in the North Central Region Cooperative Extension Service for employee selection, training, professional development, performance appraisal and succession planning. The new policy design for employee selection includes extension educators, professional development experts and other staff.

Fourth, this model has implications to identify the organizational training priorities in the areas of the educational processes both in public and private extension agencies.

Fifth, since the model points out that the best time to learn many educational process professional competencies is on-the-job through practice, the model has implications to adopt experiential learning approaches in professional development programs through appropriate research, policy, training and other means.

Finally, the model has implications for conducting further research related to the educational processes in extension as well as to conduct research identifying the relative importance and best time to learn the professional competencies listed under ‘skills needed before entering job’ in the model (Figure 1).

Staff development is critically important to help professionals stay on the cutting edge of the program delivery process. This needs continuous learning and updates of knowledge on both ‘product’ and ‘process’. Product refers to the technologies needed by the clientele and process refers to the soft skills required by the staff to deliver these technologies to the target audience. The mission of the Cooperative Extension Service is to effectively deliver new technology, program and services to people to improve their lives. Therefore, the professional development model derived from the findings of this study can play an important role in developing the competence needed by the extension educators in planning and implementing the educational program delivery process.

King and Lawler (2003) stated that as the world is changing around us, there are challenges ahead to shape the professional development programs needed for educators of adults. However, little attention is being paid to the learning needs of the adult educators.

Lawler and King (2003) contended that since external stakeholders demand more accountability from our educational organizations, such as the Cooperative Extension Service, there is a need of professional development model in these organizations to depict what is wrong in our professional development programs. Such models are expected to provide guidelines in developing a proactive professional development system that will see extension educators' learning as a holistic framework of educational processes. This concept was further emphasized by the Stone and Bieber (1997). They stated that there is a need for a professional development model in extension that could redefine the role of the Cooperative Extension Service to focus on learning.

Lawler and King (2003) stated that models of professional development are lacking in the professional development of educators of adults. They claimed that although there are many models of good practice for program planning, training and development, and adult education, there is little that addresses the best practices of professional developers working with the educators of adults such as, extension educators.

This study has proposed a new perspective on professional development of extension educators through an educational process professional competency development model (Figure 1). The researcher encourages the professional developers of extension educators to reflect on this model and seek opportunities for best practices required to enhance the professional competency of extension educators.

CHAPTER 6

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Summary

For many years, the Cooperative Extension Service has been assisting producers and rural communities in solving problems and improving lives through various educational processes. The problems faced by rural and urban communities today are complex and specialized in nature. Therefore, extension educators must develop selected professional competencies to meet varied needs of their clientele (Gibson & Hillison, 1994; Gonzalez, 1982).

According to Cooper and Graham (2001) and Gonzalez (1982), the success of the Cooperative Extension Service is largely determined by the professional skills and competencies of extension educators. Therefore, continuous professional competency development of extension educators is important to help them be effective in their jobs and to be successful change agents.

Since professional competency development is a continuous process, the Cooperative Extension Service should continuously assess the professional development needs of extension educators (1) to provide meaningful staff development programs, and (2) to identify the competencies needed by extension professionals (Radhakrishna, 2001; Castetter, 1981).

According to the literature, there appeared to be a lack of an up-to-date comprehensive assessment of the educational process professional competencies required by extension educators in the North Central Region of the United States. These competencies are needed by extension educators to efficiently utilize their technical proficiency with the

larger community of extension audiences. Therefore, extension educators need to conform to a set of required educational process professional competencies in order to effectively implement educational programs and adequately meet the needs of their clientele. These competency categories are: (1) needs assessment/analysis and program development, (2) learning systems, (3) delivery systems, and (4) evaluation systems.

In 1991, the North Central Region -158 Committee on Adult Education in Agriculture identified these educational process professional competencies as the most important competencies needed by extension educators in the North Central Region (Martin, 1999). In 2005, the National Research Agenda for Agricultural Education and Communication (2007-2010) also identified these four competency areas as the important national research priorities in agricultural education and communication (Osborne, 2005). In 2006, the Excellence in Extension Task Force and Work Group of the Extension Committee on Organization and Policy (ECOP) confirmed the need of these four educational process competencies in extension to determine the quality of extension programs in the Cooperative Extension System of the United States. This study was linked to the NCR-158 Committee Report (1991) and to a study by Gonzalez (1982) and others.

The purpose of this study was to determine the relative importance of the selected educational process professional development competencies as perceived by extension educators in the North Central Region and to identify when these competencies should be learned. The specific objectives of the study were to determine:

1. The relative importance of professional competencies related to needs assessment/analysis and program development as perceived by extension educators.

2. The relative importance of professional competencies related to learning systems as perceived by extension educators.
3. The relative importance of professional competencies related to educational delivery systems as perceived by extension educators.
4. The relative importance of professional competencies related to evaluation systems as perceived by extension educators.
5. Demographic information of extension educators including their level of education and experience.
6. The differences in perceptions of extension educators based on their demographic characteristics.
7. When these competencies should be learned by extension educators.

The theoretical framework for this study was based on the theory of ‘how social perception can automatically influence human behavior’ coming from research by Ferguson and Bargh (2004). According to Ferguson and Bargh (2004), social knowledge that is automatically activated in memory during the natural course of perception, shapes and guides people’s impressions, judgments, feelings, intentions and behaviors without people being aware that such influence is occurring. Andragogy was used as a conceptual framework for the professional competency development of the extension educators in the North Central Region and related literature was reviewed in adult education philosophies and principles. Similarly, the literature was also reviewed in the areas of professional development, specifically in the Cooperative Extension Service. In addition, studies conducted by various authors regarding professional development competencies needed by extension educators were reviewed.

A review of the literature revealed that studies were conducted as early as 1920 to determine training needs of extension agents in the Cooperative Extension Service. However, it was found that no studies have been conducted in the North Central Region to identify the relative importance of the four categories of educational process professional competencies listed above that are purported to be needed by extension educators to be effective extension education professionals.

The data collection instrument for this study was a closed-form questionnaire. The instrument that was used by Gonzalez (1982) to conduct a similar study in Pennsylvania was adapted for use in this study. The face and content validity of the instrument was established prior to collecting the data by a panel of experts containing four members. The reliability of the instrument was established through a pilot-study using a Cronbach's coefficient (α) and the reliability coefficient of the instrument was found to be .91.

The target population for this study consisted of all extension educators in the North Central Region of the USA that included the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. A total sample of 811 extension educators was randomly selected from the target population.

To collect data, the survey instrument was electronically mailed to all participants selected randomly using Survey-Monkey. The response rate was 55.70% with 441 questionnaires returned with responses that could be used for the study. Of the 441 usable questionnaires, 400 (90.70%) questionnaires were completed, responding to each and every statement. To meet the objectives of this study, means, standard deviations, frequencies, percentages, correlations, t-tests and analysis of variance were computed from the data.

The demographic data showed that 58% of the respondents in this study were female. The mean age of the respondents was 48 years and the mean number of years they had worked as extension professionals was 15 years. The majority of the respondents (77%) had master degrees followed by bachelor's degrees (15%) and doctoral degrees (8%).

A total of 42 educational process professional competency statements included in this study were categorized under the four educational process professional competency areas listed above: 11 statements were categorized under needs assessment/analysis and program development, 11 statements under learning systems, 10 statements under delivery systems, and 10 statements under evaluation systems (see Appendix B).

The respondents were asked to rate their perceived importance of these 42 educational process competency statements on a five-point Likert-type scale (1 = Very low importance, 2 = Low importance, 3 = Moderate importance, 4 = High importance, and 5 = Very high importance). In addition, respondents were asked to identify the best time to learn each of these competency statements on a category scale using three items (1 = Graduate program, 2 = On-the-job and 3 = In-service program).

Overall, the findings of this study revealed that the extension educators perceived 81% of these educational process professional competencies as highly important and 19% as moderately important for their professional development. This means that the majority of the extension educators had high perceptions for the professional development competencies related to the educational processes in extension.

Regarding their perceived choice of times to learn the educational process professional competencies included in this study, the extension educators reported that of the 42 competency statements, 41% should be learned on-the-job, 33% in an in-service program

and 26% in a graduate program. Many competencies perceived to be best learned on-the-job by the extension educators indicates that they believed in the experiential learning process that provides the opportunity to learn through mistakes made during presentations, conducting meetings, and planning educational programs.

The t-test and analysis of variance (ANOVA) tests observed significant differences in the perceptions between males and females and between age groups 24 - 29 years and ≥ 60 years for some of the professional competencies included in this study. However, when analyzing the association between perception and the demographic characteristics using correlation coefficients, the contribution of the demographics on the respondent's perceptions was found to be only 4%, which was too little to be considered for any practical importance.

Conclusions

Female extension educators responded in greater numbers than male extension educators in this study. A majority of the extension educators in the North Central Region are well experienced, middle-aged extension professionals with master's degrees. A total of 62 different major areas of study reported by the respondents in their higher educational degrees means that extension educators in this study represent a broad spectrum of academic experience.

The perceived high importance of the professional competencies included in this study by the respondents confirms the potential for designing an educational process professional development program for extension educators in the North Central Region. While writing their comments about this study, some participants stated that they needed knowledge and skills regarding the teaching and learning processes in extension. This further

emphasizes the importance of the educational processes for planning and implementing extension programs.

The low association between the demographics and the perceptions suggests that demographic characteristics of the extension educators did not appear to have considerable influence in making decisions regarding the perceived importance of the professional competencies included in this study.

Respondents' preference to learn many of the educational process professional development skills on-the-job through practice means that extension educators believe in the experiential learning process that provides the opportunity to learn through mistakes made during planning and conducting extension programs in field. Thus, the experiential learning approach can have considerable impact in developing professional competencies of the extension educators in the North Central Region.

Similarly, the educational process competencies indicated to be best learned in a graduate program suggests that these competencies be included in the graduate curricula of the land-grant universities and colleges. The competencies reported to be best learned in an in-service training program is an indication that there is need for a professional training programs in the area of the educational processes in extension.

All respondents reported perceived high importance of the four educational process professional competency areas included in this study. This homogeneity in their responses appear to indicate that extension educators, irrespective of their disciplines, professional positions, and geographical locations of their works believe that the educational processes are important to be successful extension professionals.

Beyond the educational process professional competencies included in this study, the additional competencies (e.g., people skills and organizational management) suggested as important by the respondents emphasize the point that continuous professional development is necessary in extension education. This indicates that further study may be needed to determine the importance of such additional competencies and how they support the educational process professional development skills of the extension educators in the North Central Region.

Some respondents who became extension educators after their experience in other professions preferred to learn competencies related to extension in graduate programs. This emphasizes that graduate programs are critical in preparing extension professionals and there is need for courses in a graduate program for the students pursuing careers in the Cooperative Extension Service.

Some extension educators appeared to be interested in achieving their educational process professional competencies through team work because each team members bring different skills and competencies. This indicates the potential of improving the extension educators' performance through the inclusion of team work training. Efforts are needed to find ways on how to develop successful teams in planning and implementing educational programs in extension.

Recommendations

Following recommendations were made based on the results and conclusions of this study:

1. Extension leaders should design and implement an educational process professional competency development program in the North Central Region Cooperative Extension Service.

2. Educators should design graduate level courses and workshops at the land-grant universities and colleges based on the professional educational competencies indicated to be best learned in a graduate program.
3. Professional development leaders should design and conduct appropriate experiential learning training and development workshops at the workplace site.
4. North Central Region Extension administrators should employ professional development educators to address the best practices of educational processes professional development in the Cooperative Extension Service.

Recommendation for Further Studies

Research studies are recommended in the following areas:

1. Identify current professional competency development programs related to the educational processes in extension and their effectiveness in the professional development of the extension educators in the North Central Region.
2. What are the differences in competencies needed by various extension professionals in the areas of 4-H youth development, agriculture and natural resources, family and consumer science, and community and economic development.
3. Identify the sequencing and/or the order of the competencies to be learned by the extension educators during their professional development. In other words, what is the order of developing competencies by the extension educators so that they can grow over time.
4. Beyond the educational process competencies included in this study, some respondents suggested additional competencies they perceived as important for the extension educators in the North Central Region. These additional competencies appeared to be

important to support and enhance the educational process competencies needed by extension educators to be effective extension professionals. However, this study did not identify the importance of each of these additional competencies and what is the best time to learn them. Therefore, further research is needed to determine the perceptions of the extension educators regarding relative importance of these additional competencies at the work place and identify when these competencies should be learned.

Implications and Educational Significance of the Study

Perception is the psychological process affiliated with awareness and it involves the senses to enable individuals to arrive at true beliefs about their environment (Coats, 1998; Clark, 1994). Bem (1972) stated that people come to know their attitudes and preferences by observing their own behavior and the circumstances in which that behavior occurs. In addition, people have tendencies to report their actual feelings of the circumstances (the situation) that surround them, because feelings are the perceptions of our actions and the contexts in which they are performed (Laired & Breiser, 1992).

The extension educators in this study perceived the majority of the educational process professional competencies as highly important. They also identified their perceived best time to learn each of these competencies whether in a graduate program or on-the-job or in an in-service program. The majority of the extension educators had positive perceptions regarding the educational process professional development competencies included in this study.

The positive perceptions of the extension educators for the educational process competencies foster their assertiveness for positive attitudes and motivation (Knobloch & Martin, 2000), mainly in two ways: (1) their desire to effectively educate the community

with the improved level of professional competence than they currently possess (Heider, 1960), and (2) their readiness to carry out their choices of the perceived importance of the educational process competencies into action to improve the level of their competence when opportunity comes their way to do so, for example: active participation in professional development programs (Ferguson and Bargh, 2004; Ajzen, 1985).

Based on the above argument, the first implication of this study is that extension educators would respond positively to educational process professional competency development programs offered to them. In other words, there are implications for developing policies and guidelines to design the effective professional competency development programs related to the educational processes in extension for the extension educators in the North Central Region.

The second implication is that the perceived time to learn the various competencies indicated by the extension educators has important educational significance to design courses (1) in graduate programs of the land-grant universities and colleges, (2) in the in-service training programs of the North Central Region Cooperative Extension Systems, and (3) to create the environment for learning educational process competencies while on-the-job through experience at situ. It has further implications to identify and develop various experiential learning techniques through research, policy, training, and other means.

In addition, based on the suggestions provided by the respondents for additional competencies, there may be a need to design potential undergraduate courses for developing the professional competency skills that employers are looking for in entry-level workers.

Finally, these four educational process competency areas are equally important for the discipline of agricultural education. Since agricultural education is a teaching learning

process, these competencies have significance for the professional competency development of the agricultural educators at all levels: from secondary schools to land-grant universities and colleges.

Over the past few years, there has been a growing realization in American academia of the need for learner-centered approach. Literatures suggest that the educational institutions seek to effectively apply learner-centered approaches but struggle with the implementation and institutionalization of these approaches into day-to-day practice. This further emphasizes the significance of the educational process professional development competencies to develop the ability of agriculture educators mainly for: (1) identifying the learning needs of students in rapidly changing agricultural market situations, (2) planning learning programs and developing curricula that fit the changing needs of the marketplace , (3) delivering agricultural knowledge and information to meet the learning needs of students that can prepare them for the world of work, and (4) evaluating the impact of the teaching learning processes to determine whether the learning objectives were met as planned.

**APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL LETTER
AND FORM**

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Assurances
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4366
FAX 515 294-4267

DATE: February 18, 2009

TO: Nav R. Ghimire
223 Curtiss Hall

CC: Dr. Robert A. Martin
201 Curtiss Hall

FROM: Jan Canny, IRB Administrator
Office of Research Assurances

TITLE: **The Relative Importance of Selected Educational Process Competencies to Extension Educators in the North Central Region of USA**

IRB ID: 09-071 **Study Review Date:** 17 February 2009

The Institutional Review Board (IRB) Chair has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making any changes**, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use the documents with the IRB approval stamp** in your research.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

For IRB Use Only	Review Date: <u>February 17, 2009</u>	IRB ID: <u>09-071</u>
	Approval Date: <u>February 18, 2009</u>	Length of Approval: <u>n/a</u>
	Approval Expiration Date: <u>n/a</u>	FULL Committee Review: <u>1B</u>
	EXEMPT per 45 CFR 46.101(b): <u>2</u> Date: <u>2/17/09</u>	Minimal Risk: <u>yes</u>
	EXPEDITED per 45 CFR 46.110(b): _____	More than Minimal Risk: <u>IRB</u>
	Category _____, Letter _____	Project Closed Date: <u>FEB-11-2009</u>

ISU NEW HUMAN SUBJECTS REVIEW FORM

SECTION I: GENERAL INFORMATION

Principal Investigator (PI): Nav R. Ghimire	Phone: 515-294-4930	Fax: 515-294-0530
Degrees: PhD	Correspondence Address: 223 Curtis Hall, Iowa State University, Ames, IA 50010	
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Center/Institute:	College: Agriculture and Life Sciences	
PI Level: <input type="checkbox"/> Faculty <input type="checkbox"/> Staff <input type="checkbox"/> Postdoctoral <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student		
Alternate Contact Person: Robert A. Martin	Email Address: drmartin@iastate.edu	
Correspondence Address: 201 Curtiss Hall, Iowa State University, Ames IA, 50010	Phone: 515-294-0896	
Title of Project: The Relative Importance of Selected Educational Process Competencies to Extension Educators in the North Central Region of USA		
Project Period (Include Start and End Date): [mm/dd/yy][02-15-2009] to [m.n/yy/dd][01-31-2009]		

FOR STUDENT PROJECTS

Name of Major Professor/Supervising Faculty: Dr. Robert A. Martin Phone: 515-294-0896	Signature of Major Professor/Supervising Faculty: <i>Robert A. Martin</i> Campus Address: 201 Curtiss Hall, Iowa State University, Ames, IA 50010
Department: Agricultural Education and Studies	Email Address: drmartin@iastate.edu
Type of Project: (check all that apply)	
<input type="checkbox"/> Research	<input type="checkbox"/> Thesis
<input type="checkbox"/> Independent Study (490, 590, Honors project)	<input checked="" type="checkbox"/> Dissertation
	<input type="checkbox"/> Class project
	<input type="checkbox"/> Other. Please specify: _____

KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project.

NAME & DEGREE(S)	SPECIFIC DUTIES ON PROJECT	TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING
✓ Nav R. Ghimire	Writing proposal, developing questionnaire, collecting and analyzing data, writing dissertation, and publishing results.	Spring 2008 5/1/08
✓ Dr. Robert A. Martin	Supervising complete research process including writing dissertation and its publication	July 2000 7/20/00
✓ Dr. Gaylan G. Scofield	Developing web-based survey, communicating electronically with participants of the research, collecting	2000 3/12/02

	survey results and exporting survey data into the spreadsheet	

To list additional personnel please attach separate sheet.

FUNDING INFORMATION

Internally funded, please provide account number:
Externally funded, please provide funding source and account number:
Funding is pending, please provide OSPA Record ID on GoldSheet:
Title on GoldSheet if Different From Above:
Other: <i>e.g., funding will be applied for later.</i>

SCIENTIFIC REVIEW

Study is not federally funded. (c) 2/17/05

Although the assurance committees are not intended to conduct peer review of research proposals, the federal regulations include language such as "consistent with sound research design," "rationale for involving animals or humans" and "scientifically valuable research," which requires that the committees consider in their review the general scientific relevance of a research study. Proposals that do not meet these basic tests are not justifiable and cannot be approved. If an assurance review committee(s) has concerns about the scientific merit of a project and the project was not competitively funded by peer review or was funded by corporate sponsors, the project may be referred to a scientific review committee. The scientific review committee will be ad hoc and will consist of your ISU peers and outside experts as needed. If this situation arises, the PI will be contacted and given the option of agreeing that a consultant may be contacted or withdrawing the proposal from consideration.

Yes No Has or will this project receive peer review?

If the answer is "yes," please indicate who did or will conduct the review:

A panel of experts that included three professors from the Department of Agricultural Education and Studies including major professor, one professor from Leopold Center for Sustainable Agriculture and an Assistant Professor from the Department of 4-H Youth Development of ISU Cooperative Extension Service reviewed the questionnaire developed for this study.

If a review was conducted, please indicate the outcome of the review:

After reviewing the questionnaire for its face and content validity, the expert panel concluded that the questionnaire was valid for accomplishing the objectives of the proposed study.

NOTE: RESPONSE CELLS WILL EXPAND AS YOU TYPE AND PROVIDE SUFFICIENT SPACE FOR YOUR RESPONSE.

COLLECTION OR RECEIPT OF SAMPLES

Will you be: (Please check all that apply.)

Yes No Receiving samples from outside of ISU? See examples below.
 Yes No Sending samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the identity of the samples you will be sending or receiving outside of ISU:

N/A

Please note that some samples may require a USDA Animal Plant Health Inspection Service (APHIS) permit, a USPHS Centers for Disease Control and Prevention (CDC) Import Permit for Etiologic Agents, a Registration for Select Agents, High Consequence Livestock Pathogens and Toxins or Listed Plant Pathogens, or a Material Transfer Agreement (MTA) [EHS Website](#)

Yes No Does this project involve human research participants?

Yes No Does this project involve laboratory chemicals, human cell lines or tissue culture (primary OR immortalized), or human blood components, body fluid or tissues?

ASSURANCE

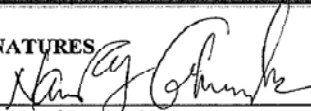
- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subject or welfare of animal subjects are protected. I will report any problems to the appropriate assurance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

CONFLICT OF INTEREST

A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook (<http://www.provost.iastate.edu/faculty>) and have made all required disclosures.

Yes No Do you or any member of your research team have an actual or potential conflict of interest?
 Yes No If yes, have the appropriate disclosure form(s) been completed?

SIGNATURES

 2-12-09
Signature of Principal Investigator Date

 2-11-09
Signature of Department Chair Date

Major Professor/Supervising Faculty: Please sign cover page.

PLEASE NOTE: Any changes to an approved protocol must be submitted to the appropriate committee(s) before the changes may be implemented.

Please proceed to SECTION II.

SECTION II: IRB SECTION - STUDY SPECIFIC INFORMATION**STUDY OBJECTIVES**

Briefly explain in **language understandable to a layperson** the specific aim(s) of the study.

The purpose of this study is to determine the relative importance of selected professional development competencies as perceived by extension educators in the North Central Region of USA and identify when these competencies should be learned. The specific objectives of the study are to identify:

1. The relative importance of professional competencies related to needs assessment and analysis and program development as perceived by extension educators.
2. The relative importance of professional competencies related to learning systems as perceived by extension educators.
3. The relative importance of professional competencies related to educational delivery systems as perceived by extension educators.
4. The relative importance of professional competencies related to evaluation systems as perceived by extension educators.
5. Demographic information of extension educators including their level of education and experience.
6. The differences in perceptions of extension educators based on their demographic characteristics.
7. When these competencies should be learned by extension educators.

BENEFITS TO SOCIETY AND PARTICIPANTS

Explain in **language understandable to a layperson** how the information gained in this study will advance knowledge, and/or serve the good of society. Please also describe the direct benefits to research participants; if there are no direct benefits to participants, indicate that. **Note:** monetary compensation cannot be considered a benefit to participants.

It is intended that the results of this study will serve several purposes. For policy makers, this study will provide information regarding the areas in which extension educators need to develop their professional competencies and how extension educators perceive the relative importance of these competencies. This will have application in design of new policies for employee selection, training, professional development, performance appraisal and succession planning.

The results should be useful to Land-Grant Universities and colleges in designing courses for the students pursuing to develop their professional career in the Cooperative Extension Service. In addition, the time these competencies should be learned through pre-service, in-service and/or on-the job training as indicated by the extension educators of this study will be helpful to organization leaders.

The findings of this study will provide a guideline to identify the organizational training priorities for the professional competency development programs in public and private extension agencies required for continued professional improvement of their extension professionals.

PART A: PROJECT INVOLVEMENT

- 1) Yes No Is this project part of a Training, Center, Program Project Grant?
Director Name: Overall IRB ID:
- 2) Yes No Is the purpose of this project to develop survey instruments?
- 3) Yes No Does this project involve an investigational new drug (IND)? Number:

- 4) Yes No Does this project involve an investigational device exemption (IDE)? Number:
- 5) Yes No Does this project involve existing data or records?
- 6) Yes No Does this project involve secondary analysis?
- 7) Yes No Does this project involve pathology or diagnostic specimens?
- 8) Yes No Does this project require approval from another institution? Please attach letters of approval.
- 9) Yes No Does this project involve DEXA/CT scans or X-rays?

PART B: MEDICAL HEALTH INFORMATION OR RECORDS

- 1) Yes No Does your project require the use of a health care provider's records concerning past, present, or future physical, dental, or mental health information about a subject? The Health Insurance Portability and Accountability Act established the conditions under which protected health information may be used or disclosed for research purposes. If your project will involve the use of any past or present clinical information about someone, or if you will add clinical information to someone's treatment record (electronic or paper) during the study, you must complete and submit the Application for Use of Protected Health Information.

PART C: ANTICIPATED ENROLLMENT

Estimated number of participants contacted to reach required enrollment:	
Number of participants to be enrolled in the study Total: 384 Males: Females:	
Check if any enrolled participants are:	Check below if this project involves either:
<input type="checkbox"/> Minors (Under 18)	<input checked="" type="checkbox"/> Adults, non-students
Age Range of Minors:	<input type="checkbox"/> Minor ISU students
<input type="checkbox"/> Pregnant Women/Fetuses	<input type="checkbox"/> ISU students 18 and older
<input type="checkbox"/> Cognitively Impaired	<input type="checkbox"/> Other (explain)
<input type="checkbox"/> Prisoners	
List estimated percent of the anticipated enrollment that will be minorities if known:	
American Indian:	Alaskan Native:
Asian or Pacific Islander:	Black or African American:
Latino or Hispanic:	

PART D: PARTICIPANT SELECTION

Please use additional space as necessary to adequately answer each question.

- 11. Explain the procedures for selecting participants including the inclusion/exclusion criteria and how participants will be contacted or recruited (i.e., Where will the names come from? Will a sample be purchased, will ads, flyers, word of mouth, email list, etc., be used?).

The target population for this study consists of all extension educators working in state Cooperative Extension Service of the North Central region. That includes: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The sampling frame would be the most current extension educators' directories obtained from the websites of state Cooperative Extension office. Frames would include the names, physical addresses, email addresses and telephone numbers of the extension educators. From this target population, a sample of 384 extension educators will be randomly selected. Web-based survey monkey will be used to send out the questionnaires using the email address of the participants .

- 12. Attach a copy of any recruitment telephone scripts or materials such as ad, fliers, e-mail messages, etc. Recruitment material must include a statement of the voluntary and confidential nature of the research. Do not include the amount of compensation, (e.g., compensation available).

Note: Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).

PART E: RESEARCH PLAN

Include sufficient detail for IRB review of this project independent of the grant, protocol, or other documents.

- 13. The information needed here is similar to that in the "methods" or "procedures" sections of a research proposal—it should describe the flow of events that will occur during your interactions with subjects. Please describe in detail your plans for collecting data from participants, including all procedures, tasks, or interventions participants will be asked to complete during the research (e.g., random assignment, any conditions or treatment groups into which participants will be divided, mail survey or interview procedures, sensors to be worn, amount of blood drawn, etc.). This information is intended to inform the committee of the procedures used in the study and their potential risk. Please do not respond with "see attached" or "not applicable."

Before going to collect data from the participants of this study, a pilot test will be conducted with fifteen extension educators selected randomly from Iowa. The participants of the pilot study will be contacted by email prior to mailing the questionnaire. The email will inform them about the purpose of the study and the information they will provide is important to determine the reliability of survey instrument for the proposed study. If changes are made in the questionnaire as a result of the pilot-test, the revised questionnaire will be submitted to the Office of Research Assurances (ORA) for approval.

An email message will be sent to all potential participants in this study. This email message will inform participants about their selection to participate in this study (which is voluntary and they can withdraw at any time during the study), confidentiality of their participation, and about the purpose of the study and its potential usefulness (same as mentioned in the cover letter). The participants will be requested to complete the questionnaire and submit it electronically.

To address the non-response error, three follow-up reminder email message will be sent to the participants, each in 10 days interval.

- 14. For studies involving pathology/diagnostic specimens, indicate whether specimens will be collected prospectively and/or already exist "on the shelf" at the time of submission of this review form. If prospective, describe specimen procurement procedures; indicate whether any additional medical information about the subject is being gathered, and whether specimens are linked at any time by code number to the participant's identity. If this question is not applicable, please type N/A in the response cell.

N/A

- 15. For studies involving deception, please justify the deception and indicate the debriefing procedure, including the timing and information to be presented to participants. If this question is not applicable, please type N/A in the response cell.

N/A

PART F: CONSENT PROCESS

- 16. Describe the consent process for adult participants (those who are age 18 and older). *If the consent process does not include documented consent, a waiver of documentation of consent must be requested.*

~~N/A~~ A cover letter will be emailed to participants that contains consent information. (kt) 2/17/05

17. If your study involves minors, please explain how parental consent will be obtained prior to enrollment of the minor(s).

N/A

18. Please explain how assent will be obtained from minors (younger than 18 years of age), prior to their enrollment. Also, please explain if the assent process will be documented (e.g., a simplified version of the consent form, combined with the parental informed consent document). According to the federal regulations assent "...means a child's affirmative agreement to participate in research. Mere failure to object should not, absent affirmative agreement, be construed as assent."

N/A

PART G: DATA ANALYSIS

19. Describe how the data will be analyzed (e.g. statistical methodology, statistical evaluation, statistical measures used to evaluate results).

SPSS 16.0 will be used to analyze the data. To report the findings of the study descriptive statistics such as, frequencies, percentages, means, medians, standard deviations, and range will be used. Correlation coefficients will be used to assess correlation between perceptions of the participants and their demographic characteristics.

20. If applicable, please indicate the anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

06/01/2009 Month/Day/Year

PART H: RISKS

The concept of risk goes beyond physical risk and includes risks to participants' dignity and self-respect as well as psychological, emotional, legal, social or financial risk.

21. Yes No Is the *probability* of the harm or discomfort anticipated in the proposed research greater than that encountered ordinarily in daily life or during the performance of routine physical or psychological examinations or tests?
22. Yes No Is the *magnitude* of the harm or discomfort greater than that encountered ordinarily in daily life, or during the performance of routine physical or psychological examinations or tests?
23. Describe any risks or discomforts to the participants and how they will be minimized and precautions taken. Do *not* respond with N/A. If you believe that there will not be risk or discomfort to participants, you must explain why.

There is no anticipated risk or discomfort involved in this study. The questionnaire does not ask the participants to provide any sensitive information. It is clearly stated in the cover letter that participation in this study is voluntary and the participants can refrain from responding to questions, they do not feel comfortable answering.

24. If this study involves vulnerable populations, including minors, pregnant women, prisoners, the cognitively impaired, or those educationally or economically disadvantaged, what additional protections will be provided to minimize risks?

N/A

PART I: COMPENSATION

25. Yes No Will participants receive compensation for their participation? If yes, please explain.

Do not make the payment an inducement, only a compensation for expenses and inconvenience. If a person is to receive money or another token of appreciation for their participation, explain when it will be given and any conditions of full or partial payment. (E.g., volunteers will receive \$5.00 for each of the five visits in the study or a total of \$25.00 if he/she completes the study. If a participant withdraws from participation, they will receive \$5.00 for each of the visits completed.) It is considered undue influence to make completion of the study the basis for compensation.

N/A

PART J: CONFIDENTIALITY

26. Describe below the methods that will be used to ensure the confidentiality of data obtained. (For example, who has access to the data, where the data will be stored, security measures for web-based surveys and computer storage, how long data or specimens will be retained, etc.)

Only the key personnel involved in this research (see page 1) will have access to the data. The names of the participants will not be identified in the results from this research. The findings of this study will be used by the researcher to prepare a PhD dissertation. After the dissertation is approved by the advisory committee, all data will be completely deleted from the computer to ensure the confidentiality of the participants.

PART K: REGISTRY PROJECTS

To be considered a registry: (1) the individuals must have a common condition or demonstrate common responses to questions; (2) the individuals in the registry might be contacted in the future; and (3) the names/data of the individuals in the registry might be used by investigators other than the one maintaining the registry.

- Yes No Does this project establish a registry?

If "yes," please provide the registry name below.

Checklist for Attachments

Listed below are the types of documents that should be submitted for IRB review. Please check and attach the documents that are applicable for your study:

- A copy of the informed consent document OR Letter of introduction containing the elements of consent
 A copy of the assent form if minors will be enrolled
 Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility
 Data-gathering instruments (including surveys)
 Recruitment fliers, phone scripts, or any other documents or materials participants will see or hear

The original signed copy of the application form and one set of accompanying materials should be submitted for review. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

FOR IRB USE ONLY:

Initial action by the Institutional Review Board (IRB):

- Project approved. Date: 2/18/09 - exempt
- Pending further review. Date: _____
- Project not approved. Date: _____

Follow-up action by the IRB:

Kerry A. Agnitsch IRB Approval Signature February 18, 2009 Date

SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION

- Yes No Does this project involve human cell or tissue cultures (primary OR immortalized), or human blood components, body fluids or tissues?

PART A: HUMAN CELL LINES

- Yes No Does this project involve human cell or tissue cultures (primary OR immortalized cell lines/strains) that have been documented to be free of bloodborne pathogens? If the answer is "yes," please answer question 1 below and attach copies of the documentation.

1) Please list the specific cell lines/strains to be used, their source and description of use.

CELL LINE	SOURCE	DESCRIPTION OF USE

Add New Row

- 2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Please list the specific precautions to be followed for this project below (e.g., retractable needles used for blood draws):

N/A

Anyone working with human cell lines/strains that have not been documented to be free of bloodborne pathogens is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (<http://www.ehs.iastate.edu/cms/default.asp>).

PART B: HUMAN BLOOD COMPONENTS, BODY FLUIDS OR TISSUES

Yes No Does this project involve human blood components, body fluids or tissues? If "yes," please answer all of the questions in the "Human Blood Components, Body Fluids or Tissues" section.

1) Please list the specific human substances used, their source, amount and description of use.

SUBSTANCE	SOURCE	AMOUNT	DESCRIPTION OF USE
<i>E.g., Blood</i>	<i>Normal healthy volunteers</i>	<i>2 ml</i>	<i>Approximate quantity, assays to be done.</i>

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Specific sections to be followed for this project are:

N/A

Anyone working with human blood components, body fluids or tissues is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (<http://www.ehs.iastate.edu/bs/bbp.htm>).

APPENDIX B: APPROVED SURVEY QUESTIONNAIRE

ISU IRB # 1	09-071
EXEMPT DATE:	17 February 2009
Initial By:	jc

The Relative Importance of Selected Educational Process Competencies
to Extension Educators in the North Central Region of USA

Part I - Instruction for Questionnaire

Section 1

Each item in the questionnaire states a competency which may be important for successful operation of extension programs. Please read each statement carefully and check (√) the number that best expresses your judgment about the level of its importance.

If you believe the competency is of very low importance Check 1

If you believe the competency is of low importance.....Check 2

If you believe the competency is of moderate importance.....Check 3

If you believe the competency is of high importance.....Check 4

If you believe the competency is of very high importance..... Check 5

Section 2

Also for each competency, please indicate when it should be learned.

If you feel that the person should learn the competency in a formal education program (graduate program) before entering the job then.....Check 1

If you feel that the person would best learn the competency through experience (on-the-job) thenCheck 2

If you feel that the person should learn the competency in professional development training (in-service program) thenCheck 3

Example

Competency	Section 1	Section 2
	Level of Importance	When to Learn
Developing a calendar of activities	1 2 √3 4 5	1 √2 3
Presenting information by lecturing	1 2 3 4 √5	√1 2 3
Presenting information with charts	√1 2 3 4 5	1 2 √3

ISU IRB # 1	09-071
EXEMPT DATE:	17 February 2009
Initial By:	jlc

		1- Very low importance 2- Low importance 3- Moderate importance 4- High importance 5 - Very high importance	1- Graduate program 2- On-the-job 3- In-service program
A. Needs assessment and analysis and program development - Designing extension educational programs based on clientele needs, interests and problems.			
1.	Use advisory committees in planning	1 2 3 4 5	1 2 3
2.	Conduct situational analysis	1 2 3 4 5	1 2 3
3.	Identify problems to be addressed	1 2 3 4 5	1 2 3
4.	Identify gaps between what is and what could be	1 2 3 4 5	1 2 3
5.	Determine program priorities	1 2 3 4 5	1 2 3
6.	Determine program goals	1 2 3 4 5	1 2 3
7.	Prepare a long range program of work	1 2 3 4 5	1 2 3
8.	Develop an annual plan of work	1 2 3 4 5	1 2 3
9.	Identify expected outcomes for the program	1 2 3 4 5	1 2 3
10.	Identify potential long-term impact of program	1 2 3 4 5	1 2 3
11.	Design a logic model		
B. Learning systems - Facilitating the learning experiences of extension clientele			
1.	Identify factors that influence learning	1 2 3 4 5	1 2 3
2.	Recognize learning styles of clientele	1 2 3 4 5	1 2 3
3.	Match learning objectives to individual learning needs	1 2 3 4 5	1 2 3
4.	Use principles of learning	1 2 3 4 5	1 2 3
5.	Create a motivating learning environment	1 2 3 4 5	1 2 3
6.	Use techniques to develop problem solving skills of clients	1 2 3 4 5	1 2 3
7.	Use group learning techniques		
8.	Use techniques that facilitate self-discovery	1 2 3 4 5	1 2 3
9.	Use a learner-centered approach	1 2 3 4 5	1 2 3
10.	Match learning to practical application		
11.	Design web-based learning		
C. Delivery systems- Utilizing resources to provide optimal learning experiences			
1	Construct a well organized presentation	1 2 3 4 5	1 2 3
2	Present a concept through demonstration	1 2 3 4 5	1 2 3
3	Use appropriate technologies to enhance oral presentations	1 2 3 4 5	1 2 3
4	Use case studies in teaching	1 2 3 4 5	1 2 3
5	Conduct group discussions	1 2 3 4 5	1 2 3
6	Design educational exhibits	1 2 3 4 5	1 2 3
7	Conduct field trips	1 2 3 4 5	1 2 3
8	Use the problem solving approach in teaching	1 2 3 4 5	1 2 3
9	Use questioning techniques in teaching	1 2 3 4 5	1 2 3
10.	Match situation to appropriate teaching strategies	1 2 3 4 5	1 2 3

ISU IRB # 1 09-071
 EXEMPT DATE: 17 February 2009
 Initial By: JC

1- Very low importance	1- Graduate program
2- Low importance	2- On-the-job
3- Moderate importance	3- In-service program
4- High importance	
5- Very high importance	

D. Evaluation systems- Collecting , analyzing and interpreting information to determine strengths and weaknesses of a program									
1	Evaluate your performance as an educator	1	2	3	4	5	1	2	3
2	Use techniques to assess learner's reaction to learning experiences	1	2	3	4	5	1	2	3
3	Assess learning outcomes	1	2	3	4	5	1	2	3
4	Develop survey instruments	1	2	3	4	5	1	2	3
5	Interpret results of surveys	1	2	3	4	5	1	2	3
6	Evaluate results of extension activities	1	2	3	4	5	1	2	3
7	Assess impact of programs	1	2	3	4	5	1	2	3
8	Identify problems requiring additional research	1	2	3	4	5	1	2	3
9	Assess client expectations	1	2	3	4	5	1	2	3
10	Using impact data for planning	1	2	3	4	5	1	2	3

Part II

Instructions: List any additional competencies that you believe are important but have not been included on this instrument.

A. Additional competencies:

1.	
2.	
3.	
4.	
5.	

B. What comments or thoughts arose while you were completing this questionnaire?

ISU IRB # 1	00-071
EXEMPT DATE:	17 February 2009
Initiated By:	jc

Section III: Biographic Data

Instructions: Please check (✓) your proper classification under each item or fill in the blank with appropriate information.

A. Gender

(1) Male

(2) Female

B. Age: _____ Years

C. Position Title: _____

D. Length of time served as an Extension professional
_____ Years

E. Highest educational degree _____

F. Major area of study for highest educational degree _____

APPENDIX C: COVER LETTER TO QUESTIONNAIRE

ISU IRB # 1	09-071
EXEMPT DATE:	17 February 2009
Initial By:	jc

The covering letter _____

Dear Extension professional,

Since the 1920s, efforts have been made by researchers to identify the professional development competencies needed by extension educators in USA. However, no research has been found to have been conducted in the North Central region to determine the relative importance of the educational process competencies such as: need assessment and analysis and program development, learning systems, delivery systems and evaluation systems. Therefore, little or no information is available about the need for professional development training for extension educators on these topics.

The purpose of this study is to determine the relative importance of selected educational process competencies as perceived by extension educators and identify when these competencies should be learned e.g, in a graduate program, on –the –job or in an in-service program.

We are collecting information from extension professionals in the North Central region. We expect that the findings of this study will provide guidelines to identify the organizational training priorities for the professional competency development programs in public and private extension agencies required for continued enhancement of extension professional skills.

You have been randomly selected to participate in this study. It is important for you to know that your participation is strictly voluntary and you can withdraw your participation at any time. Furthermore, you can skip any question that you do not feel comfortable answering. Your responses will be held in strict confidence and only used for group statistical analysis. To ensure confidentiality, there is no indentifying information on the survey instrument.

The findings of this study will be used to prepare a PhD dissertation. Your cooperation for the study is therefore very important and will be highly appreciated. The questionnaire will take 16 minutes to complete. Please complete the questionnaire and submit electronically by March 11, 2009.

Thank you for your cooperation in conducting this study.

Sincerely,

Dr. Robert A. Martin
Major Professor and Chair

Nav R. Ghimire
Graduate student

APPENDIX D: FOLLOWUP REMINDER EMAIL

ISU IRB # 1	09-071
EXEMPT DATE:	17 February 2009
Initial By:	jc

Reminder email for the participants of this study: *(This email message will be repeated three times)*

Dear extension professional,

Recently a web-based survey monkey was sent to you regarding the "The Relative Importance of Selected Educational Process Competencies to Extension Educators in the North Central Region of USA". We have not yet received your response to the questionnaire.

If you have already completed and submitted the questionnaire prior to receiving this message, please accept our sincere thanks. Otherwise, please complete the questionnaire and submit it electronically.

For your reference, I am attaching the link for the questionnaire. If you have any questions regarding this study, please send an email message to nghimire@iastate.edu or call 515-294-4930.

Your cooperation in this study is greatly appreciated.

Dr. Robert A. Martin
Major Professor and Chair

Nav R. Ghimire
Graduate student

Nav R. Ghimire .02-17-2009

**APPENDIX E: ADDITIONAL COMPETENCIES SUGGESTED BY THE
RESPONDENTS**

Reporting Skills - (Writing for various purposes -- program reports for key stakeholders; research reports for Journals; media releases, etc.
Cultural awareness
Common sense
Enjoy helping people help themselves through educational opportunities
Conflict resolution
Clear written communication
Listening skills
emotional intelligence
relating to people/people skills
General people skills
Conflict resolution - in a program run by volunteers and managed by me - this is SUPER important.
This survey seems very complete!
Flexibility in teaching styles
Facilitating Group Discussions
Poverty based education/ difference in ways clients think/ learn
Group decision making
Building and sustaining strong relationships/partnerships
Marketing / Publicity
Recruit, screen, train, support and recognize volunteers.
Understanding and applying the 4-H educational philosophy (experiential learning model, youth and adult partnership in community)
People skills - learning to interact effectively within office and with clients
Dealing with conflict
Computer skills
wise time use management
Able to develop a reportire with group
Communication skills
News article writing ability is very important
Teaching culturally diverse audiences
Train to use technologies
More advance tech. assistance...Many organizations are beyond what we do at the university level
develop a relationship with your clientele.
subject matter competency
Protocols for working with public officials
Facilitation skills
interpersonal skills, working with people
Funding applied research
Written communications
Social Competence
Competency in subject matter(s)
Ability to put research into a usable form

People Skills
Coworker Communication Skills
Grant writing
People skills
People skills
Understand the unique structure of Extension.
Ability to deal with staff and county government
The ability to multi-task
Supervisory functions
interpersonal skills
dealing with ambiguity
Levels of Programming
marketing programs
Personal well being
Multi-Cultural competency - working with diverse audiences (Diverse in its broadest sense)
facilitation skills
Partnering
Technology education
Facilitation Techniques
setting up and maintaining research plots in the agronomy area of emphasis
Consider Diversity in Programming efforts
Understand both intrinsic and extrinsic motivation of clients
Media, radio, computer skills, power point,
Adapt teaching style to learner needs.
Multi-tasking
Need to balance and use of common sense
Ability to relate to clients needs and desires.
Be able to communicate effectively with peers.
Listening
Change agents
Conflict resolution within learning groups and client groups
Identifying target audience(s)
Conflict Education - understanding styles, 7 element framework, ladder of inference etc.
Public relations skills in working with people
time management
conflict management
Basic understanding of statistics and statistical design
ability to tailor education/presentation to level of audience participants
Knowledge of subject material to be addressed in programming.
Social intelligence
Working with volunteers
A people person who really is interested in clientele and wants to share information that will help others help themselves

Team building
Active listening skills
Ability to develop and maintain relationships with clientele
Revenue generation through programming
Core competence in program area
Learning how to listen - it may have been woven in some of the questions, but I want to make sure it's stated.
Subject based competencies
Team work -- effective ways to work together and measure impact
relationship-building skills
communication skills- especially listening
Identifying resources and collaboration with partners outside the University
collaboration
Communication Techniques for Resolving Conflict
Appropriate use of technology in education-on farm, distance education
ability to facilitate groups
Public Relations Skills - Listening / Communication
having a level of "people" skills that you are out and with clientele
inter-group relations
People skills -- professional, friendly, tactful, helpful, responsive to need, etc.
Ability to work with diverse populations
Personal Knowledge of Subject Matter (Agriculture and Horticulture Topics)
written communications skills
Mentoring
Excellent presentation skills - we are NOT good enough, or trained enough. Our audience expects more!
developing PowerPoint and using technical equipment in presentations
Group dynamics--Assessing how groups think and work. Using that information to one's benefit.
verbal communication skills
systems thinking
understanding communication styles: agency partners and clients
Developing rapport with clients - best learned on the job.
Time Management
Promotion and marketing of 4-H and youth development programs
Working with other agencies to enhance the learning experience
Professionalism - this includes one-on-one conversations, email etiquette, dress - the basics
Effective communication skills, listening
Adult education learning styles
How to self evaluate to determine if you are moving in the right direction
people instincts plays an important role
Having real world experience with the subject areas they will teach
Dependent variables

connecting / networking (not the "old" way... but technologically... catalyzing people & orgs for stronger overall
Relate material to goals of the class, individual and group
Communication skills-written and oral- with internal and external customers
Subject matter expertise. Not just text book education, but practical application.
Academic communication skills
How to conduct strategic planning sessions.
Personal relations skills
Understanding how to integrate technology, pedogogy, andragogy and content knowledge in designing education.
Subject matter competency
The use of different technologies when teaching
Oral communication skills / interpersonal relations
Client / Educator Relationships

APPENDIX F: COMMENTS PROVIDED BY THE RESPONDENTS

<p>Sometimes impact can't be measured without excessive time and money even though you know the impact is huge all we have is the SWAG method Scientific wild Ass guess!!</p>
<p>I have found in service training have not been effective in educating on most of the skills evaluated in this survey. They function best as a refresher or teaching additional issues and skills associated with our specialties. These skills evaluated in this survey need a multi class or day educational setting and not a week of concentrated work. A solid week would burn most attendees out on these subjects. That is why I choose the graduate school type of education for most competencies. I understand most of us in this position did not have the opportunity to take such classes either during, before or after our graduate education. Also, such training would be impossible or at least hard to implement and too expensive even under a better economy for specialists already placed in a regional position. The reality is most of my limited ability to use the competencies evaluated in this instrument have come from on the job education. These were gained mostly from the mistakes made during presentations, holding meetings, planning educational programs from the basic materials or from my limited understanding of the materials needed to be presented. I could go on...</p>
<p>There are a lot of items that should be covered in Graduate degrees that will also be re-taught with on the job training. As well as items that will need additional refresher courses through in service trainings. Working in extension requires a professional to constantly be learning more about themselves as teachers and applying new teaching competencies.</p>
<p>Who is responsible for training-- graduate, on the job, or in-service depends on the systems that are in effect in the state, district or county.</p>
<p>Need to keep in mind that some of the best county agents I have seen and known in my 21 years as a agent. Were sought out for their knowledge by local clientele, most were not good plan of work writers, evaluators of their programs and reports of impacts. But they knew the people and what they wanted because they were out and about among them, learning and talking with them (coffee shop, elevator, cotton gin) and from those conversations and even grip sessions they knew what made them tick. Then they could have some good basic & advanced programs that the locals wanted. Having formal committee meetings rarely yields this kind of information. If we continue to get bogged down with writing plans of work and impact statements, results and the like, we will one day be an organization that is full of good paper pushers that make it look good on paper but are not out among the people actually getting the job done by working with and for the people; instead of working for the administration and reporting people at the state and national level.</p>
<p>A lot of "on the job" and "professional training" answers could be interchanged - you get the training and then you apply it or vice versa if you are the innovator.</p>
<p>Graduate programs are critical in preparing Extension educators. Many do not address the current needs of the Extension professionals in the field. Many Extension educators have to learn on the "fly". In-service trainings are stop-gap approaches that many times miss the mark.</p>
<p>I felt torn to pick just one way to learn for each competency. Many could have been any of the three choices depending upon the educator. There are wise and effective educators with no formal education and workers with two degrees that lack the experience to "read" their audience.</p>
<p>Although it is important to learn varies competencies in a graduate program, the knowledge</p>

must be maintained through frequent in-service teachings.
Education is about a relationship and not just what we teach. You need to develop a trust, trustworthy relationship before learning really goes forward. If that doesn't occur we are at best entertaining these people.
I think most or all have been covered in this survey.
Each extension team needs the competencies identified in this instrument in order to be successful. But each team member does not need to master each competency. In fact, to expect each to do so is not realistic. A team is successful when members bring different skills and competencies, and when the skills and competencies of each are identified and maximized. Thus, all competencies are important for successful extension programming, but all competencies should NOT be expected from each extension programming team member. The focus of this survey is on the individual, so I cannot answer the questions.
The second part of the survey I was unable to answer. Answers to any of the questions should be graduate, at work, and also Professional development. They first learn it in graduate work, then reinforce it by applying it, and then learn something new or a reminder on how to do it in professional development. I can't not see where it is one place that you learn it. It has to be a combination.
When individual departments or programming areas carry attitudes of superiority the total program suffers.
This was a survey that in places was hard to understand. It needs to be put in normal terms that the general county staff would use. Many of these items would probably use all three learning locations, graduate school, in-service, and on the job, and that choice was not given.
I had training as a teacher and instructor which gave me the competencies you asked about, however most extension people have not taught and to expect them to just step in and deliver a program is not going to happen. They need training in order to be effective.
Extension is like any other career...as long as you have formal education with an expertise in something, then the rest are learned skills through doing the job. You will never be able to "train" an Educator about teaching styles until they have the opportunity to teach a community audience...just like you can't train a seed corn salesman to sell seed until he actually meets and works with a client that needs a service.
Who should do what would be an interesting survey.
I found this very difficult to complete. I believe that staff should have training for many of these competencies through their coursework. However, there is much that will be enhanced through on the job experience and continued professional development. I am not sure the results you are getting will accurately reflect the need being assessed.
On the previous page, there were many instances where I felt something was important and it should be learned in all of the venues (grad classes, on the job, and in seminars) because they are the types of things that educators should continue to learn about and enhance their skills. However, since it wasn't possible to select all of them, I chose the best I could.
-Thank you for allowing me to participate. -Survey was formatted nicely. -Would have preferred (in Section 2) other options listed under drop down menu (e.g.; combinations of 2 or more of each choice such as graduate school and ISE or graduate school and on the job).
Several questions were based on problem solving approach and do not reflect "asset based program development" which can empower learners more because of less negative

language. Many times the first step before doing programs is to find the resources with which to do them.
It should be expected that professional staff would come to Extension with the skills required to do the job. They should not expect to be trained for the position AFTER they are employed.
Addressing needs and being able to focus on the ones you can do something about.
Some questions related to research; my position includes teaching and service, but not research
I really think that facilitation skills training and practice would be tremendously valuable to Extension. I also feel that basic presentation and teaching skills would be very valuable. It's embarrassing how dependent we have become on PowerPoint presentations - especially newer colleagues (like myself). We need the basics - group process skills and teaching skills.
I'm not sure if this is where to write this, but there is an assumption in your survey that all Extension educators have gone to graduate school. Many states do not require a M.S. for hiring, including North Dakota. One of the options for section 2 should have been undergraduate program. So, whereas, in many cases I would have selected undergraduate or graduate program, I had no option but to select in-service education since many of my colleagues are not required to have a graduate degree. I hope this makes sense.
Listening to what people are saying is crucial in delivering our programs. This can be a learned skill
Please allow for more than one option to receive the training. It would be preferable that they learned the skills in a graduate program, but if not then extensive professional development would be needed once they received their job to instill these skills for success. Too many educators are doomed for failure before they get started because they lack many of the skills to present, market, analyze, and report on programs, but have a background or experience that will allow them to relate to the current population and their needs.
Good handle on the survey with the questions.
Will be interested in the results.
Just a 'by the way' one gains competencies not only from course work or workshops through Extension, but from previous life/job experience.
Those three items I listed above are often overlooked when it comes to competencies of Extension workers but may be the difference between success and failure. Some are terrible organizers and end up creating emergencies in the office and hamper communications amongst team members to move a project forward in a timely manner.
Many of the competencies would be taught in a graduate program; however, it is important that they are made specific to extension work during in-services.
I believe Extension Educators would benefit from additional training in marketing (being better able to draw clients to their programs) and facilitation skills.
A lot of instances where I chose Graduate Program could/should be addressed through in-service training. The problem exists because most (I'm guessing) extension professionals did not incorporate education courses in their graduate studies (this may also be pointed out as a "flaw" in most tenure-track faculty's graduate coursework).
With all the recent emphasis on "Transformational Education and Leadership" for

<p>communities to problem solve---and if this is the definite direction educators are to move-- --it is in my opinion necessary to train educators in "facilitation, conflict resolution, focus group handling, etc."--if we are to be successful at transformational leadership. This is a shift from the educational focus of programming we as educators are used to.</p>
<p>A successful Extension Educator is the one who is knowledgeable in their subject matter; has a gift of teaching; is willing to stretch and plunge into new venues; has common sense; can attend to the details, but see the whole picture; is dedicated to helping people; and, in all this, assists people in their community to grow and succeed. Educators must be adaptable, flexible, sincere, knowledgeable, humble, and have a true interest in serving each person they touch in the best way possible. Education helps with subject matter attainment, but knowing that clientele are not an interruption, nor outsiders; but that they do Educators' a favor by giving Educators' an opportunity to serve them.</p>
<p>I am a county director. In addition to administrative responsibilities, I plan programs and am involved in assessing effectiveness. I do not have any professional educator staff in our office. Some of your questions applied to me directly, but many I answered as skills needed by center educators that conduct programs in our county. Although a foundation can be achieved by earning a graduate degree, especially on Extension administrative responsibilities, in-service education is vital. I have learned too much by being on the job. It would be preferable to learn about it at in-service trainings and then exercise what I have learned by practicing it in my county.</p>
<p>The skills identified in the first sections of the survey are all fine skills for the Extension professional to develop. They can all be learned in the classroom and/or on-the-job. The competencies that I listed above are ones that are not so easily "taught," but are none-the-less absolutely critical to develop! If the Extension professional doesn't have a "caring heart," he/she will be a wonderful technician, but a failure in the field. In my opinion, being able to relate to people, where they are in life, is far more important than having technical prowess. (It is the same difference that you've undoubtedly experienced in encountering university instructors. One instructor may possess outstanding academic skills. But the one that truly impacts lives is the one who also cares about his/her students - in ways that the students recognize.)</p>
<p>One of the later questions really caught my attention - something about identifying additional research needs. This is very important and there seems to be a growing disconnect between extension staff in the field and the researches at the University or field station. I see a growing amount of the research being driven by grant dollars which may or may not be representative of the needs of the clientele around the state!</p>
<p>It would be helpful to delineate between the needs of field based educators vs campus based faculty. I approached these competencies for existing educators rather than for new hires.</p>
<p>The expert model is making extension education less effective since we do not have enough of them to go around. One needs to be a good reference librarian to be a good extension educator.</p>
<p>We do a lot to understand learning, etc. But, our clients live in an entertainment world. We have to train and blend education and "entertainment" a little better to connect with our audiences. Even if we have the best information out there, we still need some showmanship to reach more people - and we don't always do that as well as we could.</p>

<p>Graduate program, in-service and on the job were somewhat restrictive choices. Is undergraduate a reality for many extension workers? On the next screen I've listed my degree as "MA" as it is the closest of the allowed choices. More accurately, my degree is an MEd.</p>
<p>Many people come into Extension from other professions at many different points in the careers. While it would be nice to have some of these competencies covered in a graduate program, a large majority of the Extension professionals I've worked with are learning these things on the run.</p>
<p>Some of the competencies need to be leaned at all three places: Graduate studies, on the job and in an in service.</p>
<p>Comments which state "on the job" reflect opinion that competency/training on those best in situ.</p>
<p>As an educator for the past 8 years, I have learned the core competencies for my position on the job. I have not learned much from in service training and find that graduate level education is appropriate for the research end of things, but not helpful in preparing someone for being an educator in this format.</p>
<p>Training needs to be done on how to evaluate youth vs adults. All of the education on evaluation is using adults, there is a different way to evaluate youth... but no one has put research based information together on the best way to evaluate youth. Asking all educators to operate under a logic model is like asking every educator to teach in the same manner. Educators need to be allowed to plan and prepare their goals and objectives in a manner which fits their style, not an administrator.</p>
<p>There was one competency "Match learning to practical application" that I believe is understated in this survey. I think this is a huge educational component with any age group as long as the educator has the appropriate life experience in the given subject matter.</p>
<p>All of the degrees in the world do not impress our clientele nearly as much as positive results. The science taught in Graduate school is quite important, but many of those coming from Graduate School lack the real life experience or the willingness to help producers at the farm level. Most who do are quickly snapped up by private industry. Truthfully some of the very poorest Extension Agents I have known were PHD's who felt the job was beneath their dignity.</p>
<p>I feel you have cover the topics well.....all three trainings should be ongoing (graduate, on the job and training)</p>
<p>The more of these topics that are learned in school the better. Once an agent is in the county, the less time and now resources are available to go to trainings. For me there are 4-5 night meetings per week and many weekends when things have to be done. One would like to have a life outside of work.</p>
<p>Overall, I believe strongly that in too little attention is given to quality instructional methods in Extension. So many of my peers believe that superior content knowledge is sufficient to being a good educator and I see time and time again that it's not. These people satisfy their vanity by trying to impress their audiences with their knowledge, and ignore questions of whether their audience can interpret or use the information. "Telling" does not constitute teaching!</p>
<p>I am not sure these are competencies but I believe to be successful in the next century of Extension these are important. We can't continue to look at our pass successes in</p>

Extension. We are in a change world that is global so Extension must think outside of the box in Professional Development of current and future Extension Educators!

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