

Competency Modeling in Extension Education: Integrating an Academic Extension Education Model with an Extension Human Resource Management Model

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The purpose of this study was to compare and contrast an academic extension education model with an Extension human resource management model. The academic model of 19 competencies was similar across the 22 competencies of the Extension human resource management model. There were seven unique competencies for the human resource management model. The integration of the models was informative to support and confirm the educational directions of each model. The human resource management model provided information for potential areas to include in the academic preparation of entry-level educators and agents. The academic extension education model indicated possible educational opportunities for credit and non-credit course work.

Keywords: competency modeling, extension education, Extension human resource management

Introduction

As organizations moved into the 21st century, they have faced pressures resulting in organizational change. In recent years, a number of challenges or issues have been identified for Cooperative Extension in the 21st century (Extension Committee on Organization and Policy, 2002; Ladewig & Rohs, 2000; McGee, 2006; Seevers, Graham, & Conklin, 2007) with a focus on increasingly complex and changing social, environmental, and economic conditions that have produced external factors impacting Extension's ability to carry out its mission (Ladewig & Rohs, 2000). Several authors (Extension Committee on Organization and Policy, 2002; Ladewig & Rohs, 2000; McGee, 2006; Seevers et al., 2007; Warner, Rennekamp, & Nall, 1996) have described the external factors or pressures facing Extension organizations including technology, diversity,

competition and resources, globalization, and a changing knowledge base.

Trends and issues specifically affecting Extension structure, function, and staffing include: funding issues; changing clientele needs; restructuring, downsizing, and changes in staffing patterns; and variations in delivery methods or how the mission is achieved (Morse, 2009; Seevers, et al., 2007; Warner et al., 1996). Ladewig and Rohs (2000) described an increased focus on human capital in Extension and how profound and interconnected changes are producing internal challenges requiring employees to become more customer-driven, focused on cost effective approaches, fast and flexible to meet changing needs, process-oriented, involved in shared leadership, and focused on continuing to improve to satisfy customer expectations. Finally, Extension Committee on Organization and Policy (ECOP) (2007) summarized internal challenges in three

key areas including: (a) becoming more flexible and agile in identifying and serving a diverse array of clientele, (b) strengthening and diversifying funding streams, and (c) speeding up the rate of organizational transformation.

Extension organizations have historically placed a high value on their people. However, the 21st century is a time of change for Extension organizations; a time when more than ever, success depends on the knowledge and capabilities of employees. In this changing environment, authors in human resource management (Dubios, Rothwell, Stern, & Kemp, 2004; Lawler, 1994; Lucia & Lepsinger, 1999) and specifically Extension organizations (Maddy, Niemann, Lindquist, & Bateman, 2002; Stone & Bieber, 1997) recommend competencies as powerful tools that can provide focus on individual behaviors that contribute the most to organizational success.

Competency identification, modeling, and assessment are not new to Extension organizations. Within the U.S., a number of state Extension organizations have adopted a set of competencies for some or all of their employees and the Cooperative Extension System developed a list of core competencies. A number of studies have examined best practices for Extension professional development (Bailey & Deen, 2007; Conklin, Hook, Kelbaugh, & Nieto, 2002; Gamon, Mohamed, & Trede, 1992) and competencies needed for successful employment in Extension organizations (Cooper & Graham, 2001; Michigan State University Extension, 2003; Stone & Coppernoll, 2004).

Investigations have also been conducted to develop academic models designed to deliver core competencies through academic extension education programs (Scheer, Ferrari, Earnest, & Connors, 2006; Harder, Mashburn, & Benge, 2009). However, no studies (to the authors' knowledge from the review of the literature) have jointly integrated Extension human resource management (HRM) competencies and academic extension education competencies to better inform each other. This investigation brings together two recent, but separate studies to determine similarities and differences between competencies focused on academic preparation for entry-level extension professionals and competencies essential for HRM. In combination, the findings from this effort, not only have implications for

organizational change, but improving organizational effectiveness. Competency-based modeling provides a clear basis of what skills and abilities are needed that contribute to the extension organizations success and effectiveness (Dubois et al., 2004).

Theoretical Framework

The competency movement has roots from over 50 years ago when Flanagan (1954) developed key methodologies used in subsequent competency studies. During the same period, psychologist Robert White (1959) identified a human trait he called competence and described it in terms of an organization's capability to interact with its environment effectively. McClelland is credited with coining the term competency, which he defined as a characteristic that underlies human performance (McClelland, 1973). Although many different methods for identifying competencies have evolved, most share certain characteristics, following McClelland's dictate to determine what leads to superior performance and find out what superior performers do (Lucia & Lepsinger, 1999).

A competency approach to human resource management and academic curriculum development can be a useful framework for building organizational capacity and ensuring academic program relevancy. Competencies are defined as a collection of observable dimensions (individual skills, knowledge, attitudes, behaviors and collective processes and capabilities) which are necessary for individual, organizational, and program success (Athey & Orth, 1999). Competencies serve as the foundation for organizations to identify the focus of their efforts and strengths (Vakola, Soderquist, & Prastacos, 2007) and specifically for Extension to deliver needed programs and improve its value to communities (Maddy et al., 2002).

The competency approach, as formulated by McClelland (1973), posits that competencies are ideal for determining the potential for effective performance of individuals which ultimately impacts organizational outcomes. Therefore competencies should drive professional development and training which ultimately should influence educational efforts in the academic preparation of Extension professionals.

Purpose and Objectives

The purpose of this study was to compare and contrast results from two recent competency modeling efforts: an academic extension education model (Harder et al., 2010) and a model developed for HRM in Extension (Cochran, 2009). Specific objectives were to: (a) examine the models for similarities and differences; (b) describe how the combined results inform academic extension education for credit and non-credit coursework or in-service training; and (c) identify gaps in current research on competencies for professionals in the Cooperative Extension System.

Methods

The methods section is divided into three parts: (a) a national Delphi study to determine academic extension education competencies for beginning educators or agents, (b) a study to develop and validate a competency model for a state Extension organization's use in HRM for all employees and (c) integration of the findings from the two studies described.

Academic Extension Education Study

A national study was conducted to determine the academic extension education competencies required for entry-level Extension educators/agents to be successful in the year 2015 (Harder et al., 2010). The use of a Delphi panel is especially useful for futuring (Cornish, 2004) and as a group communication process for addressing complex issues or problems (Linstone & Turoff, 2002).

A panel of experts was identified by contacting all 50 state directors of Extension to nominate two Extension experts internal to their states and two external Extension experts. Thirty-three directors responded resulting in 117 nominations. Duplicate nominations were labeled as individuals who were highly regarded in the Extension field. Ten potential panelists were nominated through this method (seven state directors, two specialists, one associate dean). To include panelists who were experts in their fields of study, elected officers from each of the educators/agents associations - National Association of Extension 4-H Agents (NAE4-HA), National Association of County Agricultural Agents (NACAA), National Association of Community Development

Extension Professionals (NACDEP), National Extension Association of Family and Consumer Sciences (NEAFCS), and Association of Natural Resource Extension Professionals (ANREP) were asked to serve as panelists. This resulted in five additional individuals. A final list of 15 potential panelists was determined. Each person was mailed a personalized invitation explaining the purpose of the study, informed consent, and directions for opting out. This process resulted in 12 Delphi panelists.

The Delphi study consisted of four phases to collect broad levels of data to form concise summaries (Linstone & Turoff, 2002). Round 1 asked participants to develop their vision of Cooperative Extension in 2015. The vision statement was used to generate competencies in Round 2 that would be essential for the 2015 entry-level Extension educator/agent. Panelists in Round 3 indicated their level of agreement with the competency statements using a six-point rating scale (1 = *strongly disagree* to 6 = *strongly agree*). The level of consensus that a competency needed to achieve was determined *a priori* (66% of the respondents needed to rate an item "agree" or "strongly agree" to progress to the next round). This follows previous research in agricultural and extension education (Martin, Fritzsche, & Ball, 2006; Shinn, Wingenbach, Briers, Lindner, & Baker, 2009). Final competencies were determined in Round 4 as panelists confirmed their selections of competencies.

Extension Human Resource Management Study

The study was conducted to develop and validate a competency model for a state Extension organization that was transitioning from a jobs-based to a competency-based approach to HRM (Cochran, 2009). Decisions on research design and methods were based on recommendations from the literature on competency modeling (e. g., Dubois, Rothwell, Stern, & Kemp, 2004; McLagan, 1988; Rothwell & Lindholm, 1999). Mixed methods (Jones, Torres, & Arminio, 2006) were used with an emphasis on qualitative approaches including reviews of existing research and gathering data from employees through interviews and focus groups. Peer debriefing and survey research were used to validate and further refine the competency model.

The study took place in Ohio State University Extension's organization with

purposeful sampling used to select various groups of employees for participation as key informants; they participated as members of the Administrative Cabinet, a Competency Project Team (CPT - composed of exemplary performers and key internal stakeholders), focus group participants (drawn from exemplary performers), and survey respondents (a census of the exemplary performer criterion group). CPT members and exemplary performers represented all the job groups in the organization including office support, program support, program management, technical support, educators, specialists, and administrators.

The multiple-step process for this study included four phases: background review and initial data collection, model development, model refinement and validation, and final review. During Phase I, existing data were reviewed and assembled for use in the study including research on competency-based HRM and competency modeling, data on external forces and internal context, and existing competency lists or models. A criterion group of exemplary performers was identified using peer nominations, supervisory nominations, and performance data. New data were then gathered on context, competencies, and organizational alignment through interviews and member checks with an administrator as well as a CPT session using a modified nominal group process.

In Phase II, a draft competency model was constructed using data from Phase I. Then using data from Phase I, new data (from group interviews with Administrative Cabinet, CPT Session #2, and focus groups with employees), and two analysis and integration steps, a new model was constructed. A questionnaire was developed using model content for model

refinement and validation in Phase III. Respondents from a pool of exemplary performers identified in Phase I completed the survey, which included importance ratings for trends, competencies, and key actions. Survey data were analyzed and integrated to create a final draft of the model. Finally, in Phase IV the Administrative Cabinet and the CPT reviewed the final draft of the model and provided feedback through group interviews that was then used in a final data integration step to develop the Competency Model.

Integration of Competency Studies

The authors used qualitative comparative analysis to examine the findings from the academic extension education and HRM studies. Through this process, the competencies identified from each investigation were analyzed to generate competencies across both studies that were similar and unique. Each of the authors individually reviewed the data for reliability purposes. Complete agreement was attained between the four authors in determining which competencies were similar or unique.

Results

Academic Extension Education Study

Panelists generated 25 competencies in Round 2; 24 competencies in Round 3 and finally 19 competencies in Round 4 reached the *a priori* level of agreement. The 19 competencies are presented in Table 1. Many of the competencies can be broadly grouped to the program development process and core interpersonal skills. For in-depth information of this national study refer to (Harder et al., 2010).

Table 1
Entry-Level Extension Educator Competencies for 2015

<u>Core Interpersonal Skills</u>
Communication skills (including oral and written)
Cultural Sensitivity
Interpersonal Skill
Organizational leadership development
Personal leadership development
Problem-solving
Professionalism
Relationship building
Self-management
<u>Extension Program Development Process</u>
Program planning
Program implementation
Program evaluation
Teaching skills
Accountability
Able to utilize technology for program delivery
<u>Other Competencies</u>
Applied research skills
Develop extramural funding
Technical/subject matter expertise
Volunteer development

Extension Human Resource Management Study

A competency model was developed, refined, and validated using a multiple step process as described in the methods section. Results used to inform model development included existing literature and contextual data, analysis of interviews with administrators, modified nominal group process data from the Competency Project Team, and focus groups. Survey respondents reviewed a draft model with 14 core competencies. Competencies were defined and further described by key actions in the model. Each competency was rated as very important or essential by at least 82% of

respondents and therefore each was retained in the model.

The final data integration phase, incorporating both an analysis of open-ended comments from the survey and an analysis of final groups interviews with Administrative Cabinet and the CPT, resulted in a model with 14 core competencies (see Table 2), each with a definition and three to eight key actions illustrating the competency. The model included multiple layers. One layer was the core competencies. Another layer was areas of expertise (AOEs) listed in Table 2. For detailed information about this larger study refer to (Cochran, 2009).

Table 2

*Core Competencies and Areas of Expertise for a State Extension Organization's HR Model*Competencies

Communication
 Continuous learning
 Customer service
 Diversity
 Flexibility and change
 Interpersonal relationships
 Knowledge of Extension
 Professionalism
 Resource management
 Self-direction
 Teamwork and leadership
 Technology adoption and application
 Thinking and problem solving
 Understanding stakeholders and communities

Areas of Expertise (AOEs)

Extension teaching
 Information technology
 Management and supervision
 Marketing
 Program planning, development, and evaluation
 Research
 Subject matter expertise
 Volunteer management

Note. AOEs are preliminary. Identified from qualitative data but were not refined/validated.

Areas of expertise (AOEs) were used in this model to distinguish between what is meant by core competencies, defined as a broad set of competencies that cut across job groups, and AOEs, described as the specific subject matter, technical, or professional knowledge and skills required for successful Extension work in individual jobs or job groups. They are above and beyond the core competencies. In order to be successful in a given job, Extension professionals must have a foundation of the appropriate core competencies and a blend of unique AOEs. While some Extension work is

highly specialized, most require expertise in several AOEs.

Integration

The 19 competencies identified by the academic extension education model were similar to the 22 competencies of the Extension human resource management model. See Table 3 for the competencies that were similar to each other. Seven competencies unique to the Extension HRM model were: knowledge of Extension, flexibility and change, understanding stakeholders and communities, management and supervision, marketing, continuous learning, and customer service.

Table 3
Competency Comparison

Extension Professional Development Model	Academic Extension Education Model
Similar Competencies	
Communication* Program Planning, Development, and Evaluation	Communication skills Program planning Program Implementation Program Evaluation
Interpersonal Relationships*	Interpersonal Skill Relationship building
Diversity*	Cultural Sensitivity
Thinking and Problem Solving*	Problem-solving
Professionalism*	Professionalism
Extension Teaching	Teaching skills
Information Technology Technology adoption and application	Able to utilize technology for program delivery
Volunteer Management	Volunteer development
Subject Matter Expertise	Technical/subject matter expertise
Self-Direction*	Self-management
Research	Applied research skills
Teamwork and Leadership*	Organizational leadership development Personal leadership development
Resource Management*	Accountability Develop extramural funding
Unique Competencies	
Knowledge of Extension Flexibility and Change Understanding Stakeholders and Communities Management and Supervision Marketing Continuous Learning Customer Service	

Note. For purposes of this study, the areas of expertise from the state Extension model are classified with the competencies for comparison to the academic extension education model.

* *Definitions established in the Extension HRM model*

Conclusions, Limitations and Recommendations

The purpose of this study was to compare and contrast two competency models developed from recent research in the Cooperative Extension System. The findings revealed consistent overlap in competencies from a model developed for academic extension education and a model for human resource management in Extension. The similarities in competencies were reaffirming to know that Extension professional development and academic extension education agree on the same direction

for the knowledge, skills, and abilities needed for effective Extension work in the U.S.

The unique competencies found in the Extension HRM model may inform the academic model about areas to consider for inclusion to better prepare Extension professionals before and after they are hired into the profession. The unique competencies may have been identified because of the focus on exemplary performers across the organization versus the focus on entry level Extension educators in the national model. Alternatively, differences may have reflected the unique characteristics of the state's extension system.

Although one could argue that some of the unique competencies are embedded in the academic model. For example, the unique competency of *understanding stakeholders and communities* may have been implied in the academic model competency of *relationship building*. Either way, the two models as a whole were overwhelmingly more similar than different.

The integrated models address most of the assumptions of the competency approach as posited by McClelland (1973). Specifically the competencies are relevant for successful outcomes, need for demonstrated competencies, and evidence for educational criteria for entry-level Extension professionals. The results for both models provide guidance for the hiring and education of Extension educators. Most importantly, we believe the findings have implications for enhancing organizational effectiveness. By knowing what skills and abilities are needed for extension systems to optimally perform, traditional HRM moves toward competency-based HRM which focuses on relevant behaviors and skills, ensures alignment and effective use of development and training, and provides a framework for extension supervisors and leaders (Lucia & Lepsinger, 1999).

Based on the literature, the findings, and the authors' experience as Extension practitioners and faculty in extension education, the following conclusions were reached:

1. The models are congruent and add validity to each other. All competencies identified in the academic extension education model were identified in the Extension HRM model. The Extension HRM model established definitions for its core competencies. Defining competencies is a critical component for utilizing the competency model approach. The HRM model definitions can be used as a starting point to describe each competency. The competencies are generally congruent with the literature for organizations in general (ASTD, 2006; U.S. Office of Personnel Management, 2006) and for Extension organizations. The shared competencies are found in other existing Extension competency models (Maddy et al., 2002; Michigan State University Extension, 2003)
2. The commonalities between the two models and other research findings (Harder et al., 2009) suggest that some important competencies may be underrepresented in academic curriculum for preparing Extension professionals.

Several authors (Garst, Hunnings, Jamison, Hairston, & Meadows, 2007; Maddy et al., 2002) have made the case for highly competent professionals being critical to the future of Extension. Based on recent research with Cooperative Extension directors, the Extension Committee on Organization and Policy (2007) suggested improving the quality and skills of Extension professionals as one strategy for transforming Cooperative Extension. Given the concerns about talented employees, it is recommended that Extension systems assess their human resource management practices using the competencies to inform efforts in hiring, professional development, and other key functions. At the same time, academic extension education programs should examine their curricular requirements and implement updates and revisions as needed.

It is important to mention the limitations of this study. The two competency models integrated in this study were constructed using different methods, data was collected from different subjects, and the models were developed for different purposes. There are clearly limitations for comparing a study conducted in one state's Extension organization to a national study. However, the comparison is valuable because each investigation informs the other and adds validity to the results. This limitation could be addressed with additional research in other states or across multiple states identifying and describing the competencies of exemplary performers.

In order to better understand competencies needed for employees in Extension, further research is warranted in multi-state studies examining the competencies of high performing employees. This research could be used to refine and validate the competency models described here. Additional competency data could be used to develop a competency dictionary for the Cooperative Extension System. This dictionary, a master list of well-researched competencies, definitions, and behavioral indicators for Extension organizations, could aggregate existing research

and provide a valuable tool for updating or creating new competency models for academic extension education or for human resource management in Extension. Finally, research is needed to confirm the results of this study which

identified competencies that were important to have attained by graduation from academic programs and competencies required for exemplary performance in Extension work.

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