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New Mexico Cooperative Extension Service Home Economists' Perceived Technical Knowledge and Estimated Client Needs

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PREVIOUS
ARTICLE



ISSUE
CONTENTS



NEXT
ARTICLE

New Mexico Cooperative Extension Service Home Economists' Perceived Technical Knowledge and Estimated Client Needs

Abstract

The study reported here determined the differences between New Mexico Cooperative Extension Service Home Economics agents' perceived technical knowledge and client needs for 144 Family and Consumer Sciences concepts. Data were collected using mailed questionnaires to all agents. Follow-up procedures resulted in a 94% return rate. For 71 of the concepts, respondents felt their knowledge exceeded client needs; for 67 of the concepts, respondents felt client needs exceeded their knowledge. Analysis of variance found no differences for participants by years of employment. Data indicated a need for agent information in some critical areas that will influence future pre-service and in-service education.

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Introduction

Cooperative Extension Service Home Economics/Family and Consumer Sciences agents are trained professionals whose responsibility is to help improve the quality of life for individuals and families through community education. At the county level these agents educate clientele on a wide variety of Family and Consumer Sciences issues and content areas. Extension specialists, administrators, and Family and Consumer Sciences educators are challenged to provide both pre-service and in-service educational programs to keep agents abreast of subject matter content changes so they may better meet their clients' needs.

Initially, county agents were hired for their practical farm and home experiences. Today, Extension agents are required to include a broader focus and address more complicated client needs (Cooper & Graham, 2001; Muske & Stanforth, 2000; SeEVERS, Graham, Gamon, & Conklin, 1997). For Extension agents to stay current with societal changes and be effective educators, training must be an on-going process. When there is a discrepancy between Extension agents' technical knowledge and their client needs, productivity suffers (Crawford, 1979).

Understanding client needs is important both for the Extension professional and those preparing and updating Extension programs. The information disseminated to clients ". . . is intended to increase [their] knowledge and ability to make informed decisions, and improve their lives" (Bazik & Feltes, 1999). The Extension agents themselves are in a key position to assess the congruence between their technical knowledge levels and the needs of their clientele. Accordingly, "The extent to which programming is effective in specific geographic locations will be largely determined by agents whose job responsibilities place them in direct contact with local people" (Cooper and Graham, 2001).

To encourage every level of success, in-service training programs should serve to improve employee performance through increased job-related knowledge and skills. Additionally, frequent

assessments of clientele needs must be made and the pre-service and in-service training programs adjusted accordingly so Extension agents are better prepared to serve the ever-expanding client base.

Purposes and Objectives

The study reported here assessed New Mexico Cooperative Extension Service Home Economics agents' perceived technical subject matter knowledge and their perceptions of their clients' needs related to the subject matter knowledge. The objectives were to:

1. Determine the technical subject matter concepts where the largest positive and negative discrepancies existed between agents' perceived competence in technical knowledge and agents' perceptions of client needs.
2. Determine whether years of Extension service influenced agents' perceived client needs and perceived personal technical knowledge.
3. Propose recommendations for pre-service and in-service education programs for Home Economics Extension agents.
4. Develop a reliable and valid instrument that could be replicated in similar studies in other states.

Methods

Based on a review of current Home Economics/Family and Consumer Sciences curricula, textbooks, and Extension programs, the researchers generated a list of technical content areas and specific concepts in each area that were believed to be relevant to clients being served by county Extension agents. This initial list of technical content areas, each containing specific concepts, was given to a panel of experts consisting of three content area specialists and one district director for review and editing. The panel members, who provide technical knowledge to the county agents, were asked to add or delete technical content areas and/or concepts so that the listing best reflected the areas currently dealt with by County Extension Home Economics agents.

The revised instrument was sent to four county agents in a neighboring state. These agents were asked to complete the questionnaire, provide information regarding any unclear questions or directions, and report the approximate length of time required to complete the questionnaire. Revisions to the questionnaire were made based on the county agents' responses.

The population for the study was the 31 New Mexico Cooperative Extension Service Home Economists employed at the time of the study. Each agent was mailed a questionnaire consisting of 12 technical subject content areas and 144 related concepts. Twenty-nine surveys were completed and returned for a 94% return rate. The following content areas (with the number of concepts in each area) were used in this study:

- Child Development (24)
- Community Issues (12)
- Consumer Education (13)
- Employment Issues (7)
- Family Dynamics (11)
- Gerontology (10)
- Health Issues (11)
- Housing and Interiors (17)
- Nutrition and Foods (13)
- Parenting (10)
- Personal Management (7)
- Textiles and Clothing (9)

Using the questionnaire, Extension Home Economists were asked to rate the following for each of the 144 concepts: (A) their perceived technical knowledge level and (B) their perceived client needs. Likert scales were used for the two sets of responses. In column A the Extension agents rated their perceptions of their own technical knowledge from 5=very high knowledge to 1=no knowledge. For Column B, the agents rated their perception of their clients' needs for the technical information from 5=very high client need to 1=no client need.

Data Analysis

Cronbach's alpha scores were calculated as a measure of the internal reliability of the instrument and to assess inter-item consistency. For each score used later in the analysis, a single Cronbach's alpha was calculated to assess the reliability of that score.

Discrepancy scores were calculated for each of the 144 concepts. These scores were calculated by taking each agent's perceived level of technical knowledge (from 5 to 1) and subtracting from that each agent's perceived level of client need (from 5 to 1). Agents' discrepancy scores were averaged for each concept. A mean negative discrepancy score for any concept indicated higher

agents' perceptions of client needs than agents' perceptions of their own technical knowledge for that concept. A mean positive discrepancy score indicated higher agents' perceptions of their own technical knowledge for that concept than their perceptions of clients' needs.

A series of *t* tests were used to compare the mean scores for perceived competency levels of Extension Home Economics agents in the 12 technical content areas when they were classified on the variable of years of employment with the New Mexico Cooperative Extension Service. Another series of *t* tests were used to compare the agents' mean scores in their perceived client needs for 12 technical content areas by length of employment. Mean scores in both sets of tests were compared for agents employed for fewer than five years and agents employed for five years or more.

Results

Cronbach's alpha coefficients for the responses ranged from .74 to .98. Alpha scores of .70 and higher indicated inter-item consistency among agents' scoring.

Twenty-eight agents provided answers to the background questions. It was determined that 11 agents (39%) had been employed with the New Mexico Extension Service for less than 5 years, while 17 agents (60%) had been employed 5 years or longer. In the category of highest level of formal education attained, 22 agents (78.6%) held master's degrees.

Technical Knowledge Content Area Scores

The mean scores for agents' perceptions of their technical knowledge and their perceived client needs in the 12 technical content areas were calculated. These scores are found in Table 1.

Table 1.
Mean Scores (with Standard Deviation) for Agents' Perceptions of Technical Knowledge and Perceived Client Needs in 12 Technical Content Areas

Technical Content Areas	Mean Scores for Agents' Perceptions of Technical Knowledge <i>n</i> = 29	Mean Scores for Agents' Perceived Client Needs <i>n</i> = 29
Family Dynamics	3.7 (◆.4)	3.8 (◆.5)
Child Development	3.7 (◆.5)	3.8 (◆.6)
Parenting	3.7 (◆.5)	3.9 (◆.8)
Gerontology	3.2 (◆.6)	3.5 (◆.9)
Nutrition and Foods	4.2 (◆.5)	4.0 (◆.5)
Health Issues	3.5 (◆.5)	3.8 (◆.8)
Personal Management	4.1 (◆.6)	3.9 (◆.9)
Consumer Education	3.7 (◆.5)	3.8 (◆.6)
Employment Issues	3.6 (◆.7)	3.6 (◆.8)
Community Issues	3.6 (◆.5)	3.5 (◆.7)
Housing and Interiors	3.4 (◆.7)	3.0 (◆.7)

Textiles and Clothing	3.7 (◆.7)	3.2 (◆.6)
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For agents' perceptions of technical knowledge, the area with the highest mean score (4.2 out of a possible 5.0) was in the technical content area of Nutrition and Foods. The area with the lowest mean score (3.2) was in the technical content area of Gerontology. For the agents' perceived client needs in the 12 technical content areas, the area with the highest mean score (4.0 out of a possible 5.0) was in the technical content area of Nutrition and Foods. The area with the lowest mean score (3.0) was in the technical content area of Housing and Interiors.

In Table 2, the 12 technical content areas are ranked from the content area having the highest percentage of concepts with negative discrepancy scores (90% in Gerontology) to the area having the lowest percentage of concepts with negative discrepancy scores (0% in Personal Management). A negative discrepancy score for any concept indicated higher agents' perceptions of client needs than agents' perceptions of their own technical knowledge for that concept.

Table 2.
Negative Discrepancy Scores Between Agents' Perceptions of Technical Knowledge and Perceived Client Needs in 12 Technical Content Areas
(n =29)

Technical Content Area	Total Concepts	Number of Concepts with Negative Discrepancy Scores	%
Gerontology	10	9	90
Parenting	10	8	80
Health Issues	11	8	73
Family Dynamics	11	7	64
Child Development	24	15	62
Employment Issues	7	4	57
Consumer Education	13	5	38
Community Issues	12	4	33
Nutrition and Foods	13	3	23
Housing and Interiors	17	3	18
Textiles and Clothing	9	1	11
Personal Management	7	0	0

Technical Knowledge Concepts Scores

Extension agents were instructed to respond to 144 concepts related to the 12 technical content areas. Sixty-seven concepts (46.5%) had mean negative discrepancy scores. Fifteen concepts

(22%) received mean negative discrepancy scores of -0.50 or higher. The 15 concepts in Table 3 represent the concepts on which agents indicated that client needs most exceeded their knowledge. The concept receiving the highest mean negative discrepancy score (-0.86) was "Medications" in the Gerontology technical content area.

Table 3.
Concepts Within the 12 Technical Content Areas Receiving the Highest Mean Negative Score Discrepancies

Concept	Mean Negative Discrepancy Score	Technical Content Area
Medications	-0.86	Gerontology
Insurance types and selection	-0.79	Consumer Education
Health care costs and plans	-0.72	Health Issues
Mental health	-0.69	Health Issues
Wills and trusts	-0.68	Consumer Education
Diabetes	-0.65	Health Issues
School violence	-0.61	Community Issues
Welfare to work concerns	-0.59	Employment Issues
Managing youth at risk	-0.53	Child Development
Medical care for children	-0.53	Child Development
Coping with crisis/life transitions	0.53	Family Dynamics
Investments and financial security	0.52	Consumer Education
Health care options/long-term care	0.52	Gerontology
Nutritional and herbal supplements	0.51	Nutrition and Foods
Handling special needs children	-0.50	Child Development

A mean positive discrepancy score indicated higher agents' perceptions of their own technical knowledge for that concept than their perceptions of clients' needs. Seventy-one of the 144 concepts (49%) had mean positive discrepancy scores. Fifteen concepts (21%) received mean positive discrepancy scores of 0.50 to 1.00. The concepts in Table 4 represent those on which respondents felt that their knowledge most exceeded their client needs. The concept receiving the highest mean positive discrepancy score (1.00) was "Color coordination" in the Textiles and

Table 4.
Concepts Within the 12 Technical Content Areas Receiving the Highest Mean Positive Score Discrepancies

Concept	Mean Positive Discrepancy Score <i>n</i> = 29	Technical Content Area <i>n</i> = 29
Color Coordination	1.00	Textiles and Clothing
Food service styles	0.93	Nutrition and Foods
Furniture arrangement	0.93	Housing and Interiors
Wardrobe planning	0.90	Textiles and Clothing
Etiquette and manners	0.83	Nutrition and Foods
Elements and principles of design	0.82	Housing and Interiors
Clothing children	0.78	Child Development
Furniture styles and selection	0.78	Housing and Interiors
Clothing Construction	0.72	Textiles and Clothing
Kitchens and cabinetry	0.64	Housing and Interiors
Interpreting labels (garment, food, and appliances)	0.61	Consumer Education
Window treatments	0.61	Housing and Interiors
Lighting and accessories	0.57	Housing and Interiors
Wall and floor coverings	0.57	Housing and Interiors
Selecting and using appliances	0.57	Housing and Interiors

Comparison of Agents' Mean Scores in Technical Content Areas by Length of Employment

Perceived technical content area mean scores were compared for agents employed for less than 5 years and agents employed for 5 years or more. While agents employed with the New Mexico Extension Service for fewer than 5 years rated their perceived technical knowledge higher than those agents employed for 5 years or more in three of the 12 content areas, and those employed 5 years or more rated their technical knowledge higher than the agents employed less than 5 years on nine areas, there were no differences significant at the .05 level.

When agents' mean scores for perceived client needs in the 12 technical content areas were analyzed, one significant difference (at the .05 level) was found. That was for the area of Community Issues, where those employed more than 5 years rated their perception of client needs significantly higher than those employed 5 years or less.

Conclusions

The number of concepts within the technical content areas receiving negative discrepancy scores suggests that there are areas requiring more attention in the pre-service preparation and the in-service training of Extension agents. The six areas that had over 50% of the concepts resulting in negative discrepancy scores follow.

- Gerontology
- Health Issues
- Employment Issues
- Parenting
- Family Dynamics
- Child Development

Ninety percent of the concepts listed under the Gerontology technical content area received negative discrepancy scores. This indicated that agents perceived their technical knowledge to be insufficient for addressing client needs in this area. Clearly, both pre-service and in-service programs should provide increased preparation and supplemental training in the area of Gerontology.

Of the 15 concepts that received the highest mean negative discrepancy scores, eight--more than half--are health-related and could be integrated into a health course or program of study. These concepts and their discrepancy scores include:

- Medications (-.86)
- Insurance types and selection (-.79)
- Health care costs and plans (-.72)
- Mental health (-.69)
- Diabetes (-.65)
- Medical care for children (-.53)
- Health care option/long term care (-.52)
- Nutritional and herbal supplements (-.51)

It is suggested that all Family and Consumer Sciences collegiate curricula include a course on health. For practicing Extension agents, it is suggested that Extension specialists and/or administrators compile and disseminate a listing of Web sites that offer up-to-date information within these eight areas. A follow-up survey could be conducted to elicit feedback from the agents to determine the usefulness and benefits of this type of information update. In addition, in-service workshops need to be held in these areas where experts are brought in to provide the most current information.

Employment Issues is an area that, traditionally, Home Economics Extension agents have not dealt with as a part of their work. Vocational concepts, such as locating and keeping jobs and changing careers, have been taught in the public school Family and Consumer Sciences programs. Extension agents have not received targeted educational preparation for assisting clientele in these areas. In light of the findings of this study, Extension agents need more preparation in this area.

Results of this study also indicate agents' perceptions of client needs to be higher than their own knowledge in the related technical content areas of Parenting, Family Dynamics, and Child Development. When combined, these three areas account for one-fourth of the technical content areas receiving the highest mean negative discrepancy scores.

Although most collegiate programs include course work in these areas, it is evident that agents need more preparation and training to meet client needs. Specifically, this survey indicated that additional training is needed in the areas of managing youth at risk, medical care for children, coping with crisis/life transitions, and handling special needs children. Also, although the "school violence" concept was placed in the Community Issues technical content area in this survey, it is a concern that may be included in programs dealing with parenting, youth, and child issues.

Findings indicated four main areas of focus for university pre-service curricula and Extension in-service training programs. These include:

1. Gerontology and aging
2. Health and health-related issues
3. Employment issues
4. Parenting, youth, and child concerns.

It is suggested that university personnel review course work to ensure that these technical content

areas are addressed in the preparation of Extension Home Economists. For the practicing Extension agents, Extension specialists need to focus on in-service training specifically directed to offering agents more knowledge in these areas. It appears that, in general, agents need this information regardless of years of employment. Seasoned agents may be called upon to share their apparent sensitivity to community issues.

It would be helpful to perform a follow-up survey with the participating New Mexico Extension Home Economics agents to glean how best to deliver the needed training. Suggested ideas for training programs include;

- Workshops,
- Seminars,
- Guest lectures,
- Use of existing videos,
- Newsletters,
- Topic-specific monographs,
- Web-based or distance education courses,
- Videos, and
- Educational kits.

While it is not proposed that Cooperative Extension Service Home Economics agents be experts in every content area of family and consumer sciences programs, the very diversity of the job requires special attention to pre-service and in-service training. "Diverse job assignments require diverse competencies. To be successful, agents must have increased technical competencies in more than one program area" (Cooper & Graham, 2001).

Recommendations

Surveys such as the one discussed here should provide the impetus for necessary changes in pre-service and in-service offerings and formats. Once Extension agents are provided with the changes in pre- and in- service curricula, follow- up studies should be conducted to determine if there are long-term benefits for the Extension educators. Assessments should be made to determine if the strategies implemented are increasing the ability of the educators to stay up-to-date in specific subject matter areas and meet the needs of their clients.

Additionally, it is recommended that in future assessments, the demographic information collected be expanded to gain greater insight into the agents' backgrounds. Additional analyses could be done on relationships between the agents' demographics and the data on competencies and client needs. Some demographic aspects to consider include the number of agents acting as specialists in subject matter for several counties and how many agents had a background in Extension either through prior experience, such as 4-H, or as the son or daughter of an Extension agent.

For Extension programs across the nation, this study has resulted in the development of a reliable and valid instrument that could be replicated in similar studies in other states. State-by-state comparisons would be valuable to assess commonalities and differences across the United States. Additionally, other disciplines, such as agriculture, finance, and human services, might use this research format as a springboard for conducting similar studies.

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