

A COMPARISON OF THE INSERVICE EDUCATION NEEDS OF TWO COHORTS OF BEGINNING MINNESOTA AGRICULTURAL EDUCATION TEACHERS

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Abstract

This study sought to identify the common and unique in-service education needs of year 2000 and 2001 cohorts of beginning agricultural education teachers who had completed one semester of teaching. The study assessed the perceptions of beginning teachers regarding the importance of, and their competence with 59 professional competencies using a revised instrument originally designed by Garton and Chung (1996). The in-service education needs for each cohort were determined using the mean weighted discrepancy scores for each competency and categories of competencies. The results revealed the beginning teachers from both cohorts viewed the listed competencies as important for their survival and success, although they believed they were only somewhat competent in implementing the competencies. The program design and management and teaching and classroom management categories of professional competencies were the categories with the highest need for in-service education for both cohorts. Further analysis revealed that except for the program and design category of competencies, the two cohorts had differing in-service education needs for the professional teaching competencies within the teaching and classroom management, leadership and SAEP development, and technical agriculture categories. Therefore, it was recommended that assessments of teacher in-service needs continue to be conducted with each new cohort of beginning agricultural education teachers.

Introduction

Access to appropriate and timely in-service education activities is critical to the initial success, effectiveness, continued development, and retention of beginning agricultural education teachers. The primary reason for providing seamless and continuing education for beginning teachers is to improve their overall effectiveness and efficiency. Teachers who are prepared in progressive traditional teacher education programs (Darling-Hammond, 1999) and continue their education through ongoing in-service education and other professional development activities help ensure elevated levels of personal satisfaction, student achievement scores and success.

Should we assume that the in-service needs of beginning agricultural education teachers are the same for each cohort and follow the patterns of previous cohorts of teachers? The in-service education needs of

new cohorts of beginning teachers and newly hired beginning teachers change over time (Claycomb & Petty, 1983). Equally important is acknowledging that the in-service education needs of beginning teachers are, indeed, different from experienced teachers (Claycomb & Petty, 1983; Kahler, 1974). In addition to the differences in the backgrounds, preservice preparation, and teaching sites and experiences of beginning teachers, changing in-service education needs are due to the phase or stage of teacher development (Berliner, 1990; Fuller, 1969; Fuller & Bown, 1975; Reiman & Theis-Sprinthall, 1998; Steffy, Wolfe, Pasch & Enz, 2000), changing attitudes about teaching (Moir, 1990), levels of pedagogical knowledge (Veenman, 1984), technical knowledge (Kahler, 1974; Birkenholz & Harbtreit, 1987; Garton & Chung, 1996, 1997) and the domains of adult functioning (Bee, 1987; Bee & Bjorklund, 2000). These changes

require that assessments of their changing in-service education needs be conducted on a continual basis (Claycomb & Petty, 1983; Birkenholz & Harbstreet, 1987).

What has the research literature revealed about the experiences and challenges faced by beginning teachers that can be partially or completely addressed through in-service education programs? New teachers often experienced difficulty with various aspects of classroom management or discipline (Shippy, 1981; Veenman, 1984; Griffen, 1985; Odell, 1986; Talbert, Camp, & Heath-Camp, 1994; Mundt, 1991; Nichols & Mundt, 1996; Mundt & Connors, 1999, Joerger & Boettcher, 2000), student motivation (Veenman, 1984; Griffen, 1985; Odell, 1986; Garton & Chung, 1996, 1997; Mundt & Connors, 1999), and room and lesson organization and development (Hillison, 1977; Griffen, 1985; Odell, 1986; Veenman, 1984; Talbert, Camp, & Heath-Camp, 1994). Additional studies reveal they have difficulty locating adequate teaching materials (Griffen, 1985; Odell, 1986; Veenman, 1984; Camp & Heath-Camp, 1992; Joerger & Boettcher, 2000). They also have difficulty understanding complex school or community systems and policies (Shippy, 1981; Veenman, 1984; Griffen, 1985; Odell, 1986; Mundt & Connors, 1999). Due to their inexperience, other findings confirm the difficulty beginning teachers experience in meeting the needs of individual students (Veenman, 1984; Griffen, 1985; Odell, 1986). In his meta-analysis of 83 studies from around the world, Veenman (1984) found that relationships with parents of students, insufficient time for preparation due to heavy teaching loads, relationships with colleagues and effective use of alternate teaching methods were also high ranking problematic experiences of beginning teachers.

Additional findings from agricultural education researchers, who have used a variety of instruments and designs, indicate that beginning agricultural education teachers from various states have difficulty with and a have a need for in-service education that addresses advising and/or managing the FFA program (Birkenholz & Harbstreet, 1987; Talbert, Camp & Heath-

Camp, 1994; Mundt & Connors, 1999; Edwards & Briers, 2000). Program design, planning, administration, and evaluation are challenges many new teachers experience (Shippy, 1981; Birkenholz & Harbstreet, 1987; Garton & Chung, 1996, 1997; Mundt, 1991; Mundt & Connors, 1999). Other research findings reveal beginning teachers have difficulty in changing and designing curricula to meet local needs (Mundt, 1991; Edwards & Briers, 2000). Anecdotal and research findings also reveal that many beginning teachers also have in-service needs relating to a variety of teaching concerns, practices and activities (Shippy, 1981; Garton & Chung, 1996, 1997).

Research findings confirm that most beginning agricultural education teachers experience similar challenges (Steffy, Wolff, Pasch & Enz, 2000) and have need for some common in-service education programming (Shippy, 1981; Birkenholz & Harbstreet, 1987; Garton & Chung, 1996, 1997). In addition, beginning teacher groups have different in-service education needs depending upon their current teaching setting, personal background, and experiences. Due to the differences among cohorts, researchers recommend assessing the in-service education needs of beginning agricultural education teachers on a continual and regular basis (Claycomb & Petty, 1983; Birkenholz & Harbstreet, 1987). Given the findings and recommendations of earlier studies, the author conducted this study to identify the common and unique in-service needs from two consecutive cohorts of beginning Minnesota agricultural education teachers so that appropriate programming could be designed.

Purpose and Objectives

The purpose of the study, therefore, was to determine the in-service education needs of two consecutive cohorts of beginning agricultural education teachers who completed their first semester of teaching. The objectives that guided the study were to: (1) describe the perceived importance, competence, and in-service needs of the cohorts of beginning teachers within the teaching and classroom management,

leadership and SAEP development, technical agriculture, and program design and management categories of professional teaching competencies; and (2) compare the in-service education needs for the professional teaching competencies within the categories of teaching and classroom management, leadership and SAEP development, technical agriculture, and program design and management.

Methods and Procedures

The populations of this descriptive study included 42 beginning agricultural education teachers who had completed teaching their first semester of agricultural education courses to secondary and/or middle school students. Nineteen and 23 of the teachers, respectively, participated in a 1999-2000 and 2000-2001 statewide agricultural education teacher induction program. The combined data from 2000 and 2001 indicate that 50% (21) of the beginning teachers were females, 85.6% (36) completed bachelor's degrees, 14.4% (6) completed graduate degrees, and 89.7% (35) taught in schools outside of the seven county metropolitan area in local agricultural education programs that averaged 101 students. The mean ages of the 2000 and 2001 cohorts were 27.2 and 26.3 years, respectively.

The *Minnesota Beginning Agricultural Education Teacher In-service Programming Needs Assessment* was the instrument used to collect the data. The reformatted assessment was patterned after an instrument initially designed by Garton and Chung (1996, 1997) using principles of the Borich Needs Assessment Model (Borich, 1980). In addition to collecting demographic data, the self-reporting instrument was designed to assess the level of importance and competence of 59 professional teaching competencies representing four categories of professional development. Ten of the professional teaching competencies were added by the author. The titles of the four categories of professional teaching competencies needed for success and survival that were grouped by the author included classroom management; leadership and SAEP

development; technical agriculture; and, program design and management. Participants responded to the importance of the professional competencies and their levels of competence by circling responses of Likert-type scales. The responses for the importance scale ranged from 5 = very important to 1 = not important. The responses for the competence level scale ranged from 5 = very competent to 1 = not competent. The face and content validity for the instrument was re-established with assistance from a panel consisting of two University of Minnesota faculty, two graduate students, and three agricultural education teachers. The coefficient of internal consistency of the instrument as measured by Cronbach's alpha was .94.

Administration of the instrument and data collection occurred during seminar sessions of the Teacher Induction Project (TIP) in January of 2000 and 2001. Teachers unable to attend the seminar returned completed instruments by mail and facsimile. The return rates of usable instruments were 95.8% (23) and 95% (19), respectively, for 2001 and 2000.

The data from usable instruments were entered into and analyzed using functions of an Excel™ spreadsheet and Minitab™. Calculations reflecting the design and specifications of the Borich Needs Assessment Model (Borich, 1980) were established for determining the prioritization of the in-service needs of the beginning teachers using the procedure developed by Borich and described by Garton and Chung (1996, 1997). A discrepancy score was initially calculated for each teacher for each competency by subtracting the competency score from the importance score. A weighted discrepancy score was then calculated by multiplying the discrepancy score by the mean importance rating for each competency. A mean weighted discrepancy score (MWDS) was calculated by taking the sum of the weighted discrepancy scores and dividing by the number of complete participant responses for the competency. The individual and groupings of professional competencies were ranked from highest to lowest using the mean weighted discrepancy scores. Descriptive parameters including the means

and standard deviations were established for responses of each population. Initial rankings of the priority for in-service education for categories and professional competencies were established using the descending mean weighted discrepancy score values.

A Mann-Whitney U Test analyses procedures, which determine whether the median scores on a variable differ significantly between two groups (Green, Salkind, & Akey, 2000), were conducted to compare the in-service education needs within categories for the 2000 and 2001 cohorts as determined by the mean weighted discrepancy scores. An alpha of .05 was established *a priori*.

Findings

Objective 1. *Describe the perceived importance, competence, and in-service needs of the cohorts of beginning teachers within the teaching and classroom management, leadership and SAEP development, technical agriculture, and program design and management categories of professional teaching competencies.*

The findings regarding program design and management in Table 1 reveal the two cohorts believed all but three of the professional competencies were important. They believed working with administrators and fellow teachers was very important. The 2001 teachers indicated it was somewhat important, and the 2000 cohort believed it was of little importance to organize and conduct adult education programs including the Farm Business Management Education program. Other than working with administrators and fellow teachers and conducting adult-related programming, both cohorts indicated they were only somewhat competent in

implementing the professional competencies. The mean weighted discrepancy scores (MWDS) reveal the initial in-service needs for the 2001 cohort, and five of the seven needs of the 2000 cohort, related to the need for instruction related to establishing, maintaining, and utilizing advisory committees. professional competencies.

The findings in Table 2 regarding the teaching and classroom management category of professional competencies reveal the 2000 and 2001 cohorts believed 84.2% (16) and 100% of the competencies, respectively, were important or very important for their survival and success.

Managing student behavior and motivating students to learn were the two common competencies regarded as very important. The cohorts each believed they were competent in performing 36.8% (7) of the competencies and only somewhat competent in implementing the remainder. The professional competencies they felt most competent conducting were using computers in teaching, organizing and supervising teaching in laboratories, and teaching students problem-solving and decision-making skills. The four highest ranking and common in-service needs of the two cohorts as determined by the mean weighted discrepancy scores were managing student behaviors, motivating students to learn, providing guidance for postsecondary education needs, and providing career exploration activities. The findings indicate that teachers of the 2001 cohort had a need to learn about how to determine course content, develop Tech Prep and School-to-Career programs, and how to assess and evaluate student performance. The 2000 cohort had in-service needs concerning how to conduct teacher/parent conferences, and developing performance based assessments.

Table 1
Importance, Competence and Mean Weighted Discrepancy Scores of the Program Design and Management Category of Professional Competencies for the 2000 and 2001 Cohorts of Beginning Agricultural Education Teachers

	2001 (n=23)					2000 (n=19)				
	Import. ¹		Comp. ²		M W D S ³	Import. ¹		Comp. ²		M W D S ³
Professional Competency	M	SD	M	SD	S ³	M	SD	M	SD	S ³
Maintaining the usefulness of an advisory committee.	4.13	.90	2.71	.88	5.02	4.17	.83	2.95	1.19	4.39
Utilizing an advisory committee to promote the local agriculture and FFA programs.	4.09	.83	2.71	.88	4.52	4.22	.79	3.05	1.28	4.22
Ability to use the local advisory committee to acquire resources to sustain the local program and chapter.	4.09	.58	2.93	.88	3.80	4.22	.92	2.95	1.28	4.67
Utilizing advisory committee members as resources for classroom, laboratory, SAE, and FFA activities.	4.00	1.02	2.89	.98	3.71	4.22	.92	3.05	1.23	4.22
Establishing a program advisory committee.	3.96	.69	2.96	.82	3.11	4.17	.76	2.89	1.29	4.61
Evaluating the local program.	4.22	.66	3.29	.88	2.86	4.44	.68	3.26	.96	5.15
Developing an effective public relations program.	4.30	.69	3.43	.78	2.77	4.42	.67	3.21	.83	5.12
Developing relations with fellow teachers and administrators.	4.70	.55	3.96	.73	2.68	4.78	.42	4.00	.92	3.02
Coordinating activities with local agricultural organizations/agencies.	3.91	.60	3.15	.76	2.46	4.32	.80	3.70	.90	2.15
Utilizing a local advisory committee.	3.96	.91	3.32	.93	2.26	4.44	.90	3.05	1.28	5.38
Repairing and reconditioning agriculture tools and equipment.	3.83	.76	3.21	1.05	2.05	3.63	1.22	3.25	1.34	1.09
Organizing a local FBMA (Farm Business Management) program.	2.60	1.11	2.15	1.29	1.14	2.41	.91	1.83	.69	1.21
Conducting an adult program.	2.86	1.14	2.52	1.10	.95	2.79	1.00	2.42	1.04	1.03
Completing reports for local and state administrators.	3.09	.97	3.14	.99	.33	3.89	.79	2.75	.83	4.09

Note. ¹ Importance Level: 5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Of Little Importance, 1 = Not Important. ² Competence Level: 5 = Very Competent, 4 = Competent, 3 = Somewhat Competent, 2 = Of Little Competence, 1 = Not Competent. ³ MWDS = Mean Weighted Discrepancy Score.

Table 2

Importance, Competence, and Mean Weighted Discrepancy Scores of the Teaching and Classroom Management Category of Professional Competencies

Professional Competency	2001 (n=23)					2000 (n=19)				
	Import. ¹		Comp. ²		M W D S ³	Import. ¹		Comp. ²		M W D S ³
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Managing student behavior problems.	4.74	.53	3.50	.73	4.91	4.78	.53	3.11	.97	7.54
Determining the content that should be taught in specific courses.	4.52	.58	3.50	.68	3.71	4.17	.90	3.21	.95	3.73
Motivating students to learn.	4.57	.50	3.75	.78	2.93	4.83	.37	3.40	.97	6.61
Providing guidance to students interested in post-secondary education.	4.30	.80	3.46	.73	2.92	4.61	.59	3.53	1.27	4.61
Developing Tech Prep or School-to-Careers Programs.	4.17	.92	3.18	1.07	2.83	3.83	1.01	3.00	1.03	3.23
Assessing and evaluating student performance.	4.52	.58	3.80	.56	2.58	4.44	.60	3.44	.96	4.20
Providing career exploration activities in the food, fiber, and natural resource industries.	3.44	.59	3.32	.97	2.33	4.56	.60	3.58	.99	4.32
Locating and selecting student references and materials.	4.04	.91	3.36	.81	2.31	4.44	.76	3.74	.96	2.81
Embedding graduation standards into the agriculture curriculum.	3.07	1.33	2.71	1.16	2.30	4.11	1.15	3.26	1.29	3.46
Teaching students problem-solving and decision-making skills.	4.39	.64	3.79	.86	2.04	4.67	.58	3.80	.98	3.44
Developing a variety of curriculum-based School-to-Work and/or School-to-Career activities.	2.64	.93	3.04	1.05	1.89	3.72	.93	3.11	1.07	2.35
Conducting parent/teacher conferences.	4.39	.71	3.89	.76	1.88	4.37	.74	4.00	.89	1.53
Conducting needs for planning courses.	3.78	.83	3.29	.80	1.62	3.68	.98	3.16	1.14	2.13
Teaching learning disabled students.	4.09	.78	3.50	1.02	1.61	4.21	.83	3.20	1.17	4.21
Developing performance based assessment instruments.	3.61	.82	3.00	.93	1.55	4.39	.68	3.32	.92	4.62
Teaching using experiments.	3.87	.74	3.43	.86	1.24	4.26	.64	3.40	1.16	3.62
Teaching in laboratories.	4.30	.69	3.89	.72	1.23	4.05	.76	3.80	.81	1.01
Using multimedia equipment in teaching.	4.04	1.00	3.64	1.08	0.87	3.95	.76	3.50	1.12	1.78
Using computers in classroom teaching.	3.96	1.08	3.68	.93	0.28	4.37	.58	3.65	1.15	3.06

Note. ¹ Importance Level: 5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Of Little Importance, 1 = Not Important. ² Competence Level: 5 = Very Competent, 4 = Competent, 3 = Somewhat Competent, 2 = Of Little Competence, 1 = Not Competent.

³MWDS = Mean Weighted Discrepancy Score.

The findings in Table 3 relating to the leadership and SAEP development category reveal both cohorts of teachers believed all professional competencies were important or very important for experiencing success and survival. Teachers of the 2001 and 2000 cohorts believed they were somewhat competent with seven and four of the professional competencies, respectively. The 2000 cohort believed they had little competence in preparing proficiency award applications. The MWDS scores indicate both cohorts had a high need for in-service education for preparing FFA Degree and proficiency applications, and utilizing local FFA Alumni or Young Farmer affiliates. Additionally, the 2001 cohort had a high need for additional in-service education concerning how to supervise student SAEPs and conducting local FFA activities. The third highest need for in-service education for the 2000 cohort was instruction on how to prepare agriculture/FFA career development event teams.

The importance findings in Table 4 for the technical agriculture category reveal the 2000 cohort teachers believed all professional competencies were important

for their success and survival. Teachers from the 2001 cohort believed 12 competencies were important for their survival and success. Data from the two cohorts indicate one of the two most important topics in the category was teaching about agriculture's relationship with the environment. Teachers within the 2000 and 2001 cohorts felt somewhat competent with 12 and 10, respectively, of the listed professional competencies. Both groups felt competent teaching knowledge and skills in the animal sciences and about agriculture's relationship with the environment. The mean weighted discrepancy scores indicate that the common and relatively high priorities for in-service for the cohorts were integrating current advances in agriculture technology into the curriculum, teaching record keeping skills, and teaching about agriculture's relationship with the environment. The second and third highest-ranking in-service education needs for the 2001 cohort were teaching agribusiness and soils management knowledge and skills. The two highest in-service education needs for the 2000 cohort were teaching electricity and forestry.

Table 3
 Importance, Competence, and Mean Weighted Discrepancy Scores of the Leadership and SAEP Development Category of Professional Competencies

	2001 (n=23)					2000 (n=19)				
	Importance ¹		Competence ²		M W D S ³	Importance ¹		Competence ²		M W D S ³
	M	SD	M	SD		M	SD	M	SD	
Professional Competency										
Preparing FFA degree applications.	3.96	1.00	2.93	1.13	3.25	4.17	.69	2.53	1.31	5.70
Preparing proficiency award applications.	3.91	1.02	3.00	1.10	2.93	4.06	.78	2.42	1.31	5.98
Utilizing a local FFA alumni or young farmer affiliate.	3.59	.98	2.81	1.25	2.26	3.67	1.00	2.47	1.23	4.44
Supervising students' SAE programs.	3.78	.93	3.18	1.10	2.16	4.26	.78	3.65	1.11	2.34
Conducting local FFA chapter activities.	4.43	.58	3.75	.83	2.06	4.63	.67	4.00	1.00	2.55
Developing SAE opportunities for students.	3.83	.96	3.21	1.08	1.91	3.95	1.19	3.45	1.12	1.58
Preparing agriculture/FFA contest teams.	3.83	.82	3.18	.89	1.50	4.47	.68	3.35	1.11	4.47
Organizing fund raising activities for the local FFA chapter.	4.00	.72	3.54	.94	1.43	4.39	.76	3.42	.99	3.46
Planning banquets.	3.57	.92	3.29	.96	.76	4.00	.94	3.68	1.08	0.84

Note. ¹Importance Level: 5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Of Little Importance, 1 = Not Important. ²Competence Level: 5 = Very Competent, 4 = Competent, 3 = Somewhat Competent, 2 = Of Little Competence, 1 = Not Competent. ³MWDS = Mean Weighted Discrepancy Score.

Table 4
Importance, Competence, and Mean Weighted Discrepancy Scores of the Technical Agriculture Category of Professional Competencies

Professional Competency	2001 (n=23)					2000 (n=19)				
	Import. ¹		Comp. ²		M W D S ³	Import. ¹		Comp. ²		M W D S ³
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Integrating current advances in agriculture technology into the curriculum.	3.47	.63	3.48	.84	2.79	4.61	.59	3.58	.94	4.61
Teaching agribusiness knowledge and skills.	3.96	.75	3.25	.95	2.49	4.05	.76	3.55	.92	1.82
Teaching knowledge and skills in soils and soil management.	4.00	.66	3.29	1.13	2.29	3.78	.92	3.16	1.09	2.39
Teaching record keeping skills.	3.95	.71	3.41	.73	2.05	4.21	.77	3.25	1.13	3.79
Teaching about agriculture's relationship with the environment.	4.22	.78	3.63	.67	2.03	4.50	.60	3.63	.93	3.79
Teaching knowledge and skills in agricultural construction.	3.52	1.06	3.04	1.32	1.64	3.67	1.15	2.79	1.24	2.89
Teaching knowledge and skills in marketing agricultural products.	3.78	.78	3.29	.84	1.62	4.16	.74	3.25	1.22	3.74
Teaching about public issues regarding agriculture.	4.13	.80	3.61	.72	1.48	4.33	.67	3.37	.93	3.88
Teaching agriscience-integrating science and agriculture.	4.13	.74	3.57	.90	1.48	4.32	1.08	3.50	1.12	3.24
Developing knowledge and skills in the animal sciences.	4.22	.66	3.75	.95	1.36	4.33	.58	4.00	.86	1.60
Teaching forestry knowledge and skills	3.26	1.15	2.82	1.00	1.05	4.06	1.08	2.79	1.06	4.91
Teaching knowledge and skills in electricity.	3.22	1.18	2.82	1.10	1.03	4.00	.82	2.63	1.18	5.26
Teaching small gas engines.	3.43	1.31	3.11	1.32	0.98	3.21	1.20	2.95	1.47	0.48
Planning and conducting student field trips.	3.61	.64	3.46	.82	0.90	4.26	1.07	3.90	.77	1.49
Teaching equine science.	3.17	.82	2.71	1.28	0.68	3.50	.76	2.8	1.40	2.03
Teaching knowledge and skills in horticulture.	3.65	.76	3.29	1.03	0.65	4.05	.83	3.65	.91	1.42
Teaching knowledge and skills in the plant sciences.	4.00	.59	3.86	.79	0.29	3.95	.89	3.63	1.09	1.04

Note. ¹Importance Level: 5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Of Little Importance, 1 = Not Important. ²Competence Level: 5 = Very Competent, 4 = Competent, 3 = Somewhat Competent, 2 = Of Little Competence, 1 = Not Competent.

³MWDS = Mean Weighted Discrepancy Score.

Table 5 provides a summary of the scores for each of the previous categories of professional teaching competencies. The mean values show the two cohorts of beginning teachers believed all categories of competencies were important and that they were somewhat competent in implementing the competencies. The teaching and classroom management and leadership and SAE development categories were viewed to be the most important for survival and success as a beginning teacher. The cohorts

believed they were least competent with program design and management competencies and most competent with teaching and classroom management competencies. The mean weighted discrepancy scores reveal the order of in-service education needs; from greatest to least, by category, were program design and management, teaching and classroom management, leadership and SAE development, and technical agriculture.

Table 5
Importance, Competency, and Mean Weighted Discrepancy Scores of Professional Competency Categories for 2000 and 2001 Beginning Agricultural Education Teachers

Competency Category	2001 (n=23)					2000 (n=19)				
	Importance ¹		Competence ²			Importance		Competence		
	M	SD	M	SD	MWD	M	SD	M	SD	S
Program Design and Management	3.84	.81	3.03	.93	2.69	4.01	0.83	3.03	1.08	3.60
Teaching and Classroom Management	4.02	.79	3.46	.87	2.16	4.29	.74	3.43	1.04	3.59
Leadership and SAEP Development	3.88	.88	3.21	1.03	2.03	4.18	.83	3.22	1.14	3.48
Technical Agriculture	3.75	.82	3.32	.96	1.46	4.06	.85	3.32	1.07	2.85
	M	3.87		3.26	2.06	4.14		3.25		3.36
	SD	.11		.18	1.08	.13		.17		1.58

Note. ¹ Importance Level: 5 = Very Important, 4 = Important, 3 = Somewhat Important, 2 = Of Little Importance, 1 = Not Important. ² Competence Level: 5 = Very Competent, 4 = Competent, 3 = Somewhat Competent, 2 = Of Little Competence, 1 = Not Competent. ³ MWDS = Mean Weighted Discrepancy Score.

Objective 2. Compare the in-service education needs for the professional teaching competencies within the categories of teaching and classroom management, leadership and SAEP development, technical agriculture, and program design and management.

Though similarities existed in the findings for each of the previous categories, are the in-service needs different or the same for the two cohorts? Mann-Whitney U analysis procedures were used to compare

the Mean Weighted Discrepancy Scores (MWDS) of the professional teaching competencies for each category for the 2000 and 2001 beginning teachers. The findings in Table 6 reveal that the in-service education needs of the cohorts were same only for the program design and management category. The in-service needs were different, however, for the professional teaching competencies in the teaching and classroom management, leadership and SAEP development, and technical

agriculture categories. The findings also reveal that when all 59 competencies were compared, the in-service education needs as

measured by the MWDS were, indeed, different for the two cohorts.

Table 6
A Comparison of the In-service Education Needs of the 2000 and 2001 Cohorts of Beginning Minnesota Agricultural Education Teachers

Competency Category	No. of Competencies	MWDS ¹		Point Estimate Eta1-Eta2	p
		2001	2000		
Program Design and Management	14	2.69	3.60	-1.15	.08
Teaching and Classroom Management	19	2.16	3.59	-1.40	.00
Leadership and SAEP Development	9	2.03	3.48	-1.40	.05
Technical Agriculture	17	1.46	2.85	-1.34	.00
All Professional Teaching Competencies	59	2.06	3.36	-1.36	.00

Note. Average of mean weighted discrepancy scores of professional competencies within each category.

Conclusions

The purpose of this study was to identify the common and unique in-service needs of consecutive cohorts of beginning agricultural education teachers who had just completed their first semester of classroom teaching. The findings of the study led to several conclusions. First, the beginning Minnesota agricultural education teachers believed that the professional competencies were important for their success and survival. Second, the cohorts believed they were only somewhat competent in performing the competencies and that in-service education was warranted. The third conclusion is that the 2000 and 2001 cohorts of this study had common in-service education needs relating to: (a) the establishment, maintenance and use of advisory committees; (b) student management, guidance and motivation; (c) the preparation of FFA degree and proficiency award applications; (d) establishment of a support organizations such as the FFA Alumni or Young Farmer

affiliates; (e) how to integrate current advances in agricultural technology into the curriculum, and; (f) how to teach the relationship of agriculture with the environment. This study provides further support to the findings suggesting the need for in-service education for addressing difficulties with classroom and student management reported by Shippy (1981), Veenman (1984), Griffen (1985), Odell (1986), Talbert, Camp, and Heath-Camp (1994), Mundt (1991), Nichols and Mundt (1996), Garton and Chung, (1996, 1997), Mundt and Connors (1999), and Joerger and Boettcher (2000). In addition, the findings of this study confirm earlier findings regarding the need for in-service education regarding aspects of managing and advising the FFA program (Birkenholz & Harbstreit, 1987; Talbert, Camp & Camp, 1994; Mundt & Connors, 1999; Edwards & Briers, 2000).

Fourth, the 2000 and 2001 cohorts of beginning agricultural education teachers had the highest common needs for in-service education in the categories of program design and management, and teaching and

classroom management. This finding further corroborates the need for in-service education relating to issues of program management reported by other researchers (Shippy, 1981; Birkenholz & Harbstreet, 1987; Garton & Chung, 1996, 1997; Mundt, 1991; Mundt & Connors, 1999). Fifth, the two cohorts had the least need for in-service education instruction in the category of technical agriculture as also reported in earlier studies (Garton & Chung, 1996, 1997).

And finally, the in-service education needs should be established for each cohort of beginning agricultural education teachers since the in-service education needs may differ between cohorts. This supports the conclusion reached by previous researchers (Claycomb & Petty, 1983; Birkenholz & Harbstreet, 1987) who also concluded in-service needs should be determined on a regular basis. The differences may vary even more considering the backgrounds and experiences of beginning teachers, changing demand in local schools for non-traditional curricula, and teaching settings change for each annual cohort of beginning teachers.

Recommendations

The findings and conclusions led the researcher to propose a number of recommendations for practice and research. First, individuals who work with beginning teachers should conduct an assessment of the in-service education needs for each new cohort of beginning agricultural education teachers. In addition, they should collect additional background information (e.g., agricultural education program content, licensure requirements, leadership experiences, occupational experience, agricultural education program course offerings) about each instructor and his/her high school agricultural education program. Such information may further assist with in-service education planning and implementation activities. Second, in-service leaders should design in-service education activities and topics that reflect the priority rankings identified from the analyses of the in-service education needs assessment for each cohort. As new cohorts

enter the profession, program leaders need to monitor and compare information concerning the common and unique in-service needs of each cohort. Data and findings from each cohort regarding their in-service needs should be shared with teacher educators, state staff, agricultural education professional associations, funders, and others involved in pre-service and in-service activities so that adjustments can be made in corresponding instructional, support, and funding activities.

Research needs to be conducted using an updated version of the current assessment with additional cohorts of beginning teachers in their first year of teaching. Since there is such diversity in the in-service needs among cohorts, additional investigation may reveal findings concerning the factors that contribute to the differences. In addition, researchers need to compare the perspectives of mentors who work closely with their first year protégé to see if they corroborate or otherwise explain some of the similarities and differences in the in-service needs. Concurrent with these efforts, researchers need to aggregate, validate, test, and refine a contemporary list of professional competencies that can be used as a basis for assessing the competence and in-service education needs of beginning agricultural education teachers. And finally, in order that stage-appropriate in-service education can be provided for all types of teachers, research initiatives need to be commenced that would seek to examine the nature of the relationships that exist between the demographic characteristics, stages of teacher development, levels of teaching performance and in-service needs of beginning and professional agricultural education teachers.

References

- Bee, H. (1987). *The journey of adulthood*. Upper Saddle River, NJ: Prentice Hall.
- Bee, H. & Bjorklund, B. (2000). *The journey of adulthood*. Upper Saddle River, NJ: Prentice Hall.

- Berliner, D. (1990). Implications of studies of expertise in pedagogy for teacher education and evaluation. In *The assessment of teaching: Selected topics*. Amherst, MA: National Evaluation Systems.
- Birkenholz, R. J., & Harbstreit, S. R. (1987). Analysis of the in-service needs of beginning vocational agriculture teachers. *The Journal of the American Association of Teacher Educators in Agriculture*, 28(1), 41-49.
- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *The Journal of Teacher Education*, 31(3), 39-42.
- Camp, W. G., & Heath-Camp, B. (1992). *Professional development of beginning vocational teacher: An introduction to the professional development program for beginning vocational teachers*. (NCRVE Publication No. MDS-272). Berkeley, CA: National Center for Research in Vocational Education. (ERIC Document Reproduction Service No. ED 351 568)
- Claycomb, D. M., & Petty, G. C. (1983). A three-year longitudinal study of the perceived needs for assistance as ranked by vocational agriculture instructors. *Journal of the American Association of Teacher Educators in Agriculture*, 42(4), 28-33.
- Darling-Hammond, L. (1999). *Solving the dilemmas of teacher supply, demand, and standards: How we can ensure a competent, caring, and qualified teacher for every child*. National Commission on Teaching and America's Future [On-line]. Available: <http://www.tc.columbia.edu/~teachcomm/CONFERENCE-99/SOLVING/>
- Edwards, M. C., & Briers, G. E. (2000). Assessing the in-service needs of entry-phase agriculture teachers in Texas: A discrepancy model versus direct assessment. *Journal of Agricultural Education*, 40(3), 40-49.
- Fuller, F. F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal*, 6(2), 207-226.
- Fuller, F. F., & Bown, O. H. (1975). Becoming a teacher, In K. Ryan (Ed.) *Teacher education: The seventy-fourth yearbook of the National Society for the Study of Education, part 2*. Chicago, IL: University of Chicago Press.
- Garton, B. L., & Chung, N. (1996). The in-service needs of beginning teachers of agriculture as perceived by beginning teachers, teacher educators, and state supervisors. *Journal of Agricultural Education*, 37(3), 52-58.
- Garton, B. L., & Chung, N. (1997). An assessment of the in-service needs of beginning teachers of agriculture using two assessment models. *Journal of Agricultural Education*, 38(3), 51-58.
- Green, S. B., Salkind, N. J., & Akey, T. M. (2000). *Using SPSS for Windows: Analyzing and understanding data* (2nd ed.). NJ: Prentice Hall.
- Griffen, G. A. (1985). Teacher induction: Research issues. *Journal of Teacher Education*, 36(1), 42-46.
- Hillison, J., (1977). The concerns of agricultural education pre-service students and first year teachers. *The Journal of the American Association of Teacher Educators in Agriculture*. 18 (3), 33-39.
- Joerger, R.M. & Boettcher, G. (2000). A description of the nature and impact of teaching events and forms of beginning teacher assistance as experienced by Minnesota agricultural education teachers. *Journal of Agricultural Education*. 41 (4), 106-117.
- Kahler, A. A. (1974). *Organization and instructional problems of beginning teachers of vocational agriculture*. Ames: Iowa State University, Department of Agricultural Education.
- Moir, E. (1990). Phases of first-year teaching. California New Teacher Project.

California Department of Education (CDE) [Online]. Available at: <http://www.newteachercenter.org/article3.html>

Mundt, J. (1991). The induction year - A naturalistic study of beginning secondary teachers of agriculture in Idaho. *Journal of Agricultural Education*, 32(1), 18-23.

Mundt, J. P., & Connors, J. J. (1999). Problems and challenges associated with the first years of teaching agriculture: A framework for pre-service and in-service education. *Journal of Agricultural Education*, 40(1), 38-48.

Nichols, L. S., & Mundt, J. P. (1996). Surviving the first year of teaching: Perceptions of critical competencies from four educational perspectives. *Journal of Family and Consumer Sciences Education*, 14(2), 23-39.

Odell, S. J. (1986). Induction support of new teachers: A functional approach. *Journal of Teacher Education*, 37(1), 26-29.

Reiman, A. J., & Theis-Sprinthall, L. (1998). *Mentoring and supervision for teacher development*. New York, NY: Longman, 1998.

Shippy, R. D. (1981). Professional competencies needed by beginning teachers of agriculture/agribusiness. *Journal of the American Association of Teacher Educators in Agriculture*, 22(1) 29-34.

Steffy, B.E., Wolfe, M.P., Pasch, S.H., & Enz, B.J. (Eds.). (2000). *Life cycle of the career teacher*. Thousand Oaks, CA: Corwin Press, Inc.

Talbert, B. A., Camp, W. G., & Heath-Camp, B. (1994). A year in the lives of three beginning agriculture teachers. *Journal of Agricultural Education*, 35(2), 31-36.

Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research*, 54(2), 143-178.