



Perceived professional development strengths and weaknesses among Montana agricultural education and family and consumer science educators
by James Carl Hafer

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in
Agricultural Education
Montana State University
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Abstract:

The purpose of this study was to determine the perceptions of agricultural education and family and consumer science teachers toward twenty professional development-related categories in Montana during 1996 - 1997. This research used a descriptive study approach to identify perceived professional development strengths and weaknesses of Montana Agricultural Education and Family and Consumer Science teachers. Each Agricultural Education and Family and Consumer Science teacher was sent a mailed survey to complete and return to the researcher.

A survey entitled "Professional Development Survey" was administered to 180 Montana Agricultural Education and Family and Consumer Science teachers, who appeared in the statewide directories for the respective groups of teachers. The professional development survey instrument adapted for this study was originally developed by the Human Resource Development (HRD) program at the Westinghouse Waste Isolation Division in Carlsbad, New Mexico.

A final response rate of 57.7% was obtained. Anonymity was protected throughout the course of the study. Professional development categories examined in this study were divided into twenty categories: Quality of Work, Quantity of Work, Job Knowledge, Related Work Knowledge, Judgment, Initiative, Dependability, Analytical Ability, Adaptability to Work Assignments, Ability to Work Under Pressure, Creativity, Planning and Organization, Communication Skills, Interpersonal Skills, Leadership, Cost Consciousness, Personal Safety and Housekeeping, Supervision Level, Attendance and Punctuality, and Conflict Resolution.

Results of the study show when grouped by teaching profession, some of the professional development categories significantly differed between the two vocational educator groups. When grouped by years of experience, results also showed that some of the professional development categories significantly differed among years of experience category subgroups. Descriptive statistics used in this study indicated the perceived strengths and weaknesses between Montana Family and Consumer Science and Agricultural Educators, as to the twenty categorical areas of professional development, found in the survey instrument.

It is recommended that a professional development needs assessment be conducted on a periodic basis with the instrument used in this study to determine nontechnical professional development needs. It is also recommended that school administrators use the instrument to identify and plan future professional development goals and workshops.

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AMONG MONTANA AGRICULTURAL EDUCATION AND FAMILY AND
CONSUMER SCIENCE EDUCATORS

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APPROVAL

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

The purpose of this study was to determine the perceptions of agricultural education and family and consumer science teachers toward twenty professional development-related categories in Montana during 1996 - 1997. This research used a descriptive study approach to identify perceived professional development strengths and weaknesses of Montana Agricultural Education and Family and Consumer Science teachers. Each Agricultural Education and Family and Consumer Science teacher was sent a mailed survey to complete and return to the researcher.

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A final response rate of 57.7% was obtained. Anonymity was protected throughout the course of the study. Professional development categories examined in this study were divided into twenty categories: Quality of Work, Quantity of Work, Job Knowledge, Related Work Knowledge, Judgment, Initiative, Dependability, Analytical Ability, Adaptability to Work Assignments, Ability to Work Under Pressure, Creativity, Planning and Organization, Communication Skills, Interpersonal Skills, Leadership, Cost Consciousness, Personal Safety and Housekeeping, Supervision Level, Attendance and Punctuality, and Conflict Resolution.

Results of the study show when grouped by teaching profession, some of the professional development categories significantly differed between the two vocational educator groups. When grouped by years of experience, results also showed that some of the professional development categories significantly differed among years of experience category subgroups. Descriptive statistics used in this study indicated the perceived strengths and weaknesses between Montana Family and Consumer Science and Agricultural Educators, as to the twenty categorical areas of professional development, found in the survey instrument.

It is recommended that a professional development needs assessment be conducted on a periodic basis with the instrument used in this study to determine non-technical professional development needs. It is also recommended that school administrators use the instrument to identify and plan future professional development goals and workshops.

CHAPTER 1

THE PROBLEM AND ITS SETTING

Introduction

These are times of considerable promise and challenge for all who work in education. The nation should now understand that raising the academic expectation levels of all learners, from kindergarten through adult, should be a top priority and essential to America's future economic security, social stability, and well-being.

High-quality professional development must be part of all successful educational programs. All too often, the part the educator will play is ignored in discussion of educational reform. How effectively will educators be prepared to stand and deliver first-class instruction to an increasingly diverse group of learners?

As stated in Goals 2000: Educate America Act (1994):

Professional development to enhance the skills and abilities is increasingly viewed by federal, state and local educational administrators and policy makers as the primary means for providing students opportunities to meet world class standards. The Goals 2000 legislation enacted in 1994, the framework for all federal education programs, emphasized the importance of professional development through the addition of a national goal to provide the country's teaching force with access to staff development programs. This goal states by the year 2000, 'the nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century. (p. 8).

The professional development needs of the public school educators are identified and administered in a style which best suits all educators. Often this style of "mass

treatment” provides a “feast or famine” setting for many educators, an approach which often, if not totally, ignores the needs of individual educators and certain programs. Professional development topics are well received and needed, while others are non-productive and often void of any specific content pertaining to instructional areas or educational program context for most educators. In the vocational education setting, the evolving nature of the workplace and the time lag of knowledgeable dissemination impacts professional development needs (Finch and Crunkilton, 1999).

Normally, vocational educators spend about eight hours a day, five days a week, fifty weeks a year for as many as forty years in the classroom. Educators owe it to themselves and their profession to make this time as productive as possible.

What do professional educators need to do to assure their effectiveness in the future? How do educators control their future goals and direction? How are educators to better serve their students’ needs and better their profession without a direction?

The most comprehensive and suitable way to allow educators to control their own destiny is to allow them to direct their own professional development. By developing a “professional development survey”, an opportunity is provided for vocational teachers to have a say in the direction of their destiny, whether that destiny is related to the content of yearly inservice programs, or the opportunity to voice an opinion within the local district. This survey will give educators an opportunity to express their concerns.

It is apparent that educators need the chance to express their opinions and concerns regarding professional development. Without a voice in the inservice subject arena, educators stand to lose precious, hard-fought ground regarding their professional

development needs and wants. Dr. Gerald M. Therman (1986) stated it best when he said:

To know who you are and to be who you are is the ultimate form of self-expression and power. To the extent that you do know who you are, your work, career, and life choices are more likely to lead you to a more fully self-expressive work life--a life of more satisfaction, contribution, and joy (p.3).

The Purpose of the Study

The purpose of this study was to determine the perceptions of agricultural education and family and consumer science teachers toward twenty professional development-related categories in Montana during 1996 – 1997.

Need for the Study

The concept of professional development is not new. The majority of today's in-service education is targeted at a vast array of teachers. Within these strata lie several different topic areas of instruction, each requiring specific, specialized information and training. Often educators attempt to direct their professional development and in-service sessions to address the majority of the campus educator's needs, ignoring or not fully addressing the needs of vocational educators.

The daily requirements of the vocational educator are often much different and more demanding than that of the main-stream classroom educator. Knowledge and training is needed which allow teacher-educators and administrators the opportunity to address and document their needs, plan or map their instructional goals and strategies,

sharpen their technical skills and provide information on state of the art technological advances.

Schools and society have changed dramatically. One can look to technology to see just how massive the changes are becoming. For example, the personal computer was not invented when many educators went through their student teaching. Other evidence of change in our schools include the increasing diversity of students, the social changes which have impacted learners and schools and the ever-growing body of knowledge and research on how students learn. In addition, new legislation and ideas in education make the need for area specific professional development and in-service clear. Industry, the medical contingency, higher education, and the life sciences all respond to scientific and technological advances through continuing education; educators must be given the same opportunity for continued professional development.

Too often, professional development has been treated as a passing trend rather than a long term planning and diagnostic tool. Often professional development is treated as a luxury, rather than a necessity and is the first item to be dropped when budgets are tight. In an article by Howell (1989) and Schmuck & Schmuck (1992), the authors stated:

Providing ongoing professional opportunities that support systematic school reform remains a challenge for rural and small schools. Declining rural enrollment and the consequent loss of funds, school closings, taxpayer revolts and staff reductions have been dominant issues (p.15).

School districts cannot expect their teachers to acquire updated skills and respond to the challenges facing today's students without helping them gain these new skills.

Camp (1988) stated:

To further complicate matters for rural educators, the school reform movement in the 1980's led to an increased emphasis on accountability, stricter teacher accreditation standards, and increased course requirements for high school graduation (p.7).

Objectives

In order to accomplish the purpose of this study, specific objectives were developed.

1. The instrument used in this study was adapted for educational purposes from an industrial setting. Therefore, an objective of this study was to establish overall validity of the instrument used, as well as reliability for each of the 20 categories represented in the instrument.
2. Develop a categorical profile for Montana Agricultural Educators and Family and Consumer Science Educators that describes differences in the two sample populations.
3. Compare responses to the 20 professional development categories between Montana Agricultural Educators and Montana Family and Consumer Science Educators.

Assumptions

The following assumptions were made concerning this study:

1. Professional development is important to educators.

2. Professional development needs of vocational educators differ from those of other professional educators.
3. Educators possess the ability to identify perceived professional development strengths and weaknesses and be honest in their responses.

Limitations

This study was limited in the following ways:

1. The study took place during the 1996-97 academic school year. The data were collected April through May and represented respondent attitudes at that time.
2. The preexisting level of professional development, knowledge and interest the agricultural and family and consumer science educators possess.
3. The study will be limited to agricultural and family and consumer science educators in the state of Montana.

Definition of Terms

The following terms are defined as they are applied to this study:

AAFCS: American Association of Family and Consumer Sciences.

Agricultural Educator: A person who is responsible for the daily instruction of agricultural concepts.

AVA: American Vocational Association.

Family and Consumer Science Educator: A person who is responsible for the daily instruction of family and consumer related concepts.

Inservice: Professional growth and development enrichment opportunities and activities for educators to participate throughout the academic school year.

PIR: A day provided for inservice education in Montana schools.

Preservice: Professional growth and development enrichment opportunities and activities for educators to participate before the academic school year.

Professional Development: Any process or activity, planned or otherwise, that contributes to an increase in or the maintenance of knowledge, skills, and personal qualities related to learning and teaching.

MAFCS: Montana Association of Family and Consumer Sciences.

MEA: Montana Education Association.

MVA: Montana Vocational Association.

MVATA: Montana Vocational Agricultural Teachers Association.

NEA: National Education Association.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

A wealth of information exists on the holistic needs of educators. Historically, educators are known to voice opinions regarding their needs. Often their opinions fall upon deaf ears. The specific content of vocational educators' needs indicate they are a mixed group, with different yet similar needs. One overall need which is agreed upon is the need for professional in-service development.

Professional development is a term that makes many an educator or administrator cringe. Brown (2000) stated:

Often, professional development means an extra inservice meeting after school, or more time learning new ideas or techniques that may not be all that readily transferable to one's work. As a result, Professional Development may be seen useless and time consuming... (p. 26).

Varied ideas and opinions exist regarding the construction of personal development for educators. Some will argue in favor of preservice education, yet others side for the notion of in-service education. In-service, for this purpose, Goodland (1983) defined professional development as:

....efforts to promote by appropriate means the professional growth and development of workers while on the job...includes planned and organized efforts to improve the knowledge, skill, and attitudes of instructional staff members to make them more effective on the job... (p. 18).

Bail and Shinn (1982) reported that inservice education, at its broadest dimension, is to be defined as “any professional activity which purports to upgrade the performance of a teacher” (p. 183). Barrick and Hughes (1992) defined professional development as, “planned workshops, correspondence, or other activities designed to improve teachers’ technical, pedagogical, or professional skills” (p. 2).

Anderson (1988) stated: “only through ongoing education and development can one become a more effective professional. However, one must remember what the primary focus for Professional Development should be – ultimately improving student learning” (p. 211).

Regardless of definition, most educators will agree that professional development is an important and critical part of their educational and instructional task. The history of professional development in education is a long and rich one. Bail and Shinn (1982) reported,

In-service education and professional development for teachers had its origin in the beginning of the formal school. Following the Land-Grant Act of 1862, attention was focused upon assisting the school to respond to social change with the “agricultural and mechanical” aspects of a changing society beginning to be reflected in the public school curriculum. By the 1880’s many colleges and institutions were holding summer courses designed for teachers. These in-service programs helped teachers deal with changes in both the technical and philosophical issues of the day (p. 273).

True (1929) reported that, “by 1910, 46 agricultural colleges had teacher-training work in agriculture” (p. 273). Martin (1967) concluded that, “this work was chiefly inservice in nature and evidently was not regarded as constituting a “teacher-training program” (p.6). True (1929) stated, “this increased attention in agricultural sciences resulted in programs in more than 3000 public secondary schools as well as many normal

schools by 1915-1916” (p. 276). Udell (1993) reported, “The passage of the Smith-Hughes Act, Public Law No. 347, by the 64th U.S. Congress on February 23, 1917, moved agricultural education into a new era” (p. 7).

Bail and Shinn (1982) reported, “The Smith-Hughes Act supported in-service and professional development of the teacher of vocational agriculture. By 1919, 40 states had teacher education programs in agriculture. Many states had well-developed programs for preservice and inservice education by 1930” (p. 186).

Content Need Areas

With this information in mind, educators have yet to address the content needs of the professional development area(s). What specific areas and information regarding professional development are most important? How do they go about the task of identifying these areas? Bail and Shinn (1982) stated:

Even the best preservice program is limited in scope and application. Performance must be accurately evaluated to determine if the desired changes have come about... It is no longer acceptable to speak of teachers of agriculture as a monolithic group. Specialization in subject matter, variation in preservice training, and personal socio-economic factors lead to much diversity. Target groups must then be those with commonality, as determined by a sophisticated needs assessment (p. 184).

Bail and Shinn (1982) reported, “As a primary responsibility, the teacher representatives should poll their subgroup to determine the needs for credit and non-credit courses, workshops, and other professional development activities” (p. 187) while Murphy (1997) stated:

In many cases, time is the critical factor. Although Professional Development programs often provide educators with useful and

meaningful ideas, their incorporation into daily use is often impeded by a lack of time for teachers to routinely learn together, reflect on their teaching practices in a collaborative fashion, test new ideas together and support each other... (p. 29).

Supporting the need for this study are statements which are crucial in reinforcing the need for an instrument which will address the audience regarding professional development perceptions. Hall and Scanlon (1990) reported, "The lack of teacher participation in professional development activities is an on-going concern to leaders in agricultural education across the country" (p. 245). Ryan (1987) emphasized the critical nature of professional development, suggesting that the nation annually spends two billion dollars to facilitate such programs. The National Research Council Committee on Agricultural Education in Secondary Schools (1988) recommended increased agricultural education teacher in-service involvement. This was not a revolutionary recommendation since agricultural educators have typically recognized the need for keeping current with both technical and pedagogical changes. Emphasizing the agricultural educator profession's concerns, all five of the 1986 issues of volume 59, The Agricultural Education Magazine, dealt with themes addressing "staying current".

Bail and Shinn (1982) stated,

If teaching is truly a profession, then the professionals therein should play the major role in determining their professional development and growth. In theory this is correct. In actual practice, it may sometimes vary with the reality that teachers may not have adequate time or resources to plan such activities. A needs assessment should be used to evaluate both individual and collective priority needs (p. 194).

In a review of professional development needs, Lovelace and LaBrecque (1991) stated:

The implementation of professional development activities based on the assessed needs can improve the ability of postsecondary instructors to meet the special needs of their students. The considered judgment of the respondents regarding their perception of their present level and desired level of development is an effective approach for identifying the professional development needs of current faculty of postsecondary technical/vocational education programs (p. 11).

Hartley, Brookhart, and Smith (1990) found, "There were few regional differences in perceived professional development needs of secondary and postsecondary vocational educators in Colorado." They also found that, "vocational educators at different levels had similar professional development needs and that the top four methods of meeting needs identified by vocational educators were: group workshops, seminars, on-the-job work experiences, and university courses. However, formats most preferred were all day, intensive activities, three-hour blocks and weekends" (p. 381).

Brown (2000) commented, "As the internet has pervaded life, a variety of approaches to professional development involve the use of electronic technology." Linkages with other teachers are an important professional development strategy for sharing practical knowledge" (p. 17).

Cook and Fine (2000) further stated, "A number of educational reformers have recommended that at least 20% of a teacher's total work time be devoted to professional study and collaborative work" (p. 4).

Hartley, Brookhart, and Smith (1990) also found:

The areas of greatest perceived professional development needs of secondary and postsecondary vocational educators in Colorado were: (1) keeping abreast of new technology, (2) computer managed instruction, (3) computer assisted instruction, (4) motivating students, (5) writing proposals for funding, and (6) developing critical thinking skills (p. 381).

Brown (2000) recommended:

Teachers look for professional development that integrate technology with other subjects and identify practitioners who can model technology use in teaching. The need to link professional development to the workplace and community is a recurring theme (p. 1).

Responsibility for Delivery

Herein lies another opportunity for a professional development needs assessment.

As previously mentioned, many postsecondary educators harbor the same concerns as that of the secondary classroom educator; what professional development skills do educators really need, and where can they go to get them?

To help answer this question, Hamilton and McElroy (1983) stated:

Large numbers of vocational/technical teachers at both the secondary and postsecondary levels were considered to have substantial or critical need for updating in the technology of their teaching fields. Of the occupational areas, one-half of the agricultural instructors showed substantial or critical need for updating in the technology of their teaching fields (p. 3).

According to Goodland (1983),

The teacher is the single most important variable in school effectiveness. Maintaining an effective teaching force requires that qualified teachers regularly enter the ranks and that practicing teachers are kept abreast of changes in the profession. Teachers develop their skills, pedagogical and technically, through high quality professional development programs. Because of increased public demand for teacher accountability and technical advancements in the occupational areas of vocational programs, vocational teacher professional development has never been more important (p. 18).

Another area of uncertainty exists as to the responsibility for professional development. Who ultimately has the responsibility for organizing, delivering, and

evaluating professional development? How should educators address the broad areas of educational need? "If high quality professional development activities are to be provided, cooperation and a clear understanding of responsibilities among groups involved in providing the activities are essential (Wolpert, 1984, p.1).

Anderson (1988) stated, "Although professional development is viewed as an imperative for vocational teachers, little research has been conducted to clarify the responsibilities that various groups have for providing professional development activities (p. 211).

How much of their professional development opportunities do teachers care to leave to chance? Who should have a say in professional development processes? Reyes, Alter, and Smith (1986) stated, "We all understand that the key player in the educational process is the teacher" (p. 56). However, Cruickshank and Armaline (1986) stated:

Yet, the processes that are used in the education and professional development of public school agriculture teachers are more the result of political decisions, administrative convenience, and historical accident than of educational research or empirically-based theory (p. 36).

Miller (1975) identified the "partners" of an education system as teachers, administrators, teacher educators, and state education agency administration staff. Cooperation among these groups is essential if high quality professional development activities are to result. Hawley and Valli 2000 stated:

Professional development clearly involves time and effort, requiring decision making and planning on a number of levels, from the district to the teacher. Professional Development also involves the use of technology to expand current practices and upgrade skills, as well opportunities for teachers to gain first-hand knowledge of the workplace in order to create authentic learning experience for their students... (p. 9).

Another question in need of discussion is: Which teachers are the most in need of professional development? Is it new educators? What about the teachers with the most experience in the field? Are these the teachers with the most to gain, especially from the information on new technology and instructional methodology? Wolpert (1984) contended that to become a master teacher is a lengthy, challenging undertaking that must be viewed as a long-term, developmental process. Camp (1988) added, "Teacher professional development can be visualized as a continuum, including preservice education, induction, and continuing development" (p. 7).

A review of the literature found that no research studies on professional development, which used similar methodologies to the methodology in this study, existed. In addition, a review of the literature found that there were no survey instruments similar to the one used in this study related to professional development topics.

In summary, this review of literature represents the vast array of activities, needs and strategies for professional development that exist within the education profession. Only through the use of a reliable and valid instrument can these needs be identified.

CHAPTER 3

METHODOLOGY

In this chapter, the procedures used in completing this study are described. This chapter is organized into five different sections: (1) Population Selection, (2) Instrument Design, (3) Instrument Validation, (4) Data Collection and (5) Data Analysis.

Population

The population for this study was comprised of Montana Family and Consumer Science and Agricultural Education secondary teachers. The selection of this population was based on the assumption that professional development needs of Agricultural Educators and Family and Consumer Educators differed from those of other professional educators. A purposeful census of these educators was conducted for this study.

The teacher population for this study consisted of 180 teachers from the vocational areas of Agricultural Education and Family and Consumer Science in Montana during the 1996-1997 academic year. The population was identified by utilizing respective vocational teaching program lists obtained from the Montana Office of Public Instruction. Fifty-eight agricultural education teachers comprised a segment of the population, while 52 family and consumer science educators constituted the rest of the population. Of the 104 teachers participating in the study, 57 were female, 47 were male. When analyzed by respective vocational area, six female and 54 male teachers were found in the agricultural

education teacher segment of the population, while 55 female and 2 male teachers were found in the family and consumer science educator segment.

Instrument Design

The instrument used in this study was originally developed by the Human Resource Development (HRD) Program at the Westinghouse Waste Isolation Division, which operates the Waste Station Pilot Plant (WSPP) for the US Department of Energy located near Carlsbad, New Mexico. The instrument originated with the need to establish a developmental program geared toward the non-management employee. In an attempt to set forth the developmental program, the Human Resource Development and Total Quality (HRD&TQ) Department began development of the Successful Professional Development Program (SUPRO) which consisted of self-paced classroom courses built upon the Westinghouse 12 Conditions for Excellence. A condition was development, specifically focusing on self-assessment and professional development in the workplace. To encourage self-assessment, HRD&TQ developed a paper-and-pencil self-assessment tool. HRD&TQ conducted focus groups with managers, employees, and customers to determine the content of the self-assessment tool. HRD&TQ piloted the tool and made modifications. HRD&TQ calculated KR-20 coefficients and standard deviation and found them to be acceptable. A numeric KR-20 coefficient was not made available to the researcher. Over 300 division personnel participated in the program, and the SUPRO program has been transferred to over 500 organizations across the U.S. through the federal government's Technology Transfer Program. The instrument had 20 categories

and 100 items, which were changed for the secondary school teacher context. All items remaining were reworded for the context of a vocational teacher. The first section of the data collection instrument (perceptions) consisted of 100 perception statements, (20 categories, five statements for each category) to which respondents were directed to use a Likert-type response scale ranging from (4) Always, (3) Most of the time, (2) Occasionally, (1) Seldom, and (0) Never. The instrument assessed teachers' professional development needs other than technical knowledge within their respective vocational areas.

Demographic variables included gender, age, other experience, years of teaching experience, membership in professional organizations, and offices held within professional organizations. Career choice satisfaction, self-study improvement, responsibility for professional development, and delivery of professional development were also variables included in section two.

The first objective of this study was to determine a reliability estimate for the Westinghouse Waste Isolation Human Resources Unit Professional Development Survey instrument as it was used for the purposes of this study. Items in the original survey instrument were modified to address agricultural education and family and consumer science teachers education context. The overall Cronbach's alpha reliability coefficient for the entire instrument was .97 for the pilot test of the instrument. A Cronbach's alpha was also calculated to determine instrument reliability for its administration with this study's population. When calculated with using this population, the Cronbach's alpha coefficient was .94. A Cronbach's alpha was computed for each of the 20 categories (5

items per category), which constitutes section one of the survey instrument. Table 1 reflects the results of analysis using the Cronbach's Alpha procedure to determine instrument reliability. The Cronbach's Alpha's for 16 of the 20 categories was found to be above .60, while the Initiative category Cronbach's Alpha (.4061), Supervision level (.5204), Communication Skills (.5822) and Attendance and punctuality (.5204) were found to be lower than this standard. The category with the highest reliability estimate was Creativity (.8241).

Table 1. Results of Analysis Using the Cronbach's Alpha Procedure to Determine Instrument Reliability (n=104).

No.	Categories and Descriptions	Cronbach Alpha
1.	Quality of work-Thoroughness and acceptability of work produced or accomplished.	.6109
2.	Quantity of work-Volume of acceptable work.	.7353
3.	Job Knowledge- Knowledge of requirements, methods, techniques, and skills involved in the job.	.6545
4.	Related Work Knowledge- Knowledge of how own work impacts other areas.	.6699
5.	Judgment- Soundness of conclusions, decisions, and actions.	.6177
6.	Initiative- Ability to take effective action without being told.	.4061
7.	Dependability- Reliability in assuming and carrying out commitments, obligations, and assignments.	.7589
8.	Analytical Ability- Effectiveness in thinking through a problem.	.8114
9.	Adaptability to Work Assignments- Ability to learn new knowledge and complete a variety of assignments.	.6645
10.	Ability to Work Under Pressure- Perform under unusual circumstances and in meeting tight schedules.	.6294
11.	Creativity- Ability to generate worthwhile new ideas or techniques with practical applications.	.8241
12.	Planning and Organization- Ability to plan and organize workload to meet priorities.	.7213
13.	Communication Skills- Effectiveness communicating with peers, supervisors, and other contacts.	.5822
14.	Interpersonal Skills- Works effectively with others and in accordance with school district.	.7167
15.	Leadership- Demonstration of leadership characteristics and qualities.	.6787
16.	Cost Consciousness- Effective uses of school supplies, materials and service.	.8466
17.	Personal Safety and Housekeeping- Demonstrates good safety practices and awareness of own personal safety and safety of others. Maintains neat and orderly work area and exhibits care and use of equipment, tools, etc.	.7127
18.	Supervision Level- Amount of supervision needed as compared to the position standard.	.5204
19.	Attendance and punctuality- Reports to class on a regular basis, on time and ready to work at start of day and after lunch period; devotes school hours to conduct of school/teaching assignments.	.3982
20.	Conflict Resolution- Ability to handle conflict and disagreements between self and others.	.7593

Data Collection

The first instrument mailing to Montana Agricultural Educators and Family and Consumer Science Educators took place on May 9, 1997. A total of 91 teachers responded to the questionnaire on the initial mailing. A follow up post card requesting outstanding surveys was mailed on May 20, 1997 (see Appnedix A). A total of 13 teachers responded to the first follow-up request. A second and final request was made for any non-returned surveys at the Montana Vocational Agriculture Teachers Association Update Conference in July, 1997, in Havre, Montana. A second request was not made for Family and Consumer Science Educators. All of the remaining agricultural education surveys were returned due to a captive audience. Early and late respondents were examined for statistical difference. Gall, Borg, and Gall (1996) suggested that if you are concerned about score, you should consider doing both a t-test and a Mann-Whitney U test. No difference was found to exist between the two respective respodent groups.

All instruments were hand-scored by the researcher, and responses were entered into a Microsoft Excel[®] (1996) spreadsheet. A tally sheet was provided to all survey participants to track their categorical responses. With the aid of the tally sheet, all survey respondents had the opportunity to graph their personal categorical score responses directly from their completed survey instrument. A graph sheet was included and intended to be of use in the identification and tracking of personal professional development needs of each census participant (see Appendix B).

The census population included 180 family and consumer science and agricultural educators in Montana during the 1996-97 school year. A total of 104 surveys were collected and used for analysis. This represented a usable response rate of 57.7 %. The second section of the data instrument was developed with the assistance of a committee of agricultural educators and statisticians at Montana State University-Bozeman. This section consisted of questions directed to the respondents in an attempt to collect personal and situational demographic information.

Instrument Reliability and Validation

The researcher conducted a teacher pilot test with 15 high school teachers in the Commerce High School ISD in Commerce, Texas. The pilot test was validated after a review of clarity, readability, and relevance to the objectives of the research project. This audience was encouraged to review the survey for content and face validity. The respondents said it was well written and easily understood. Minor corrections were made, and the instrument was deemed ready for the population group. This group was chosen to pilot the instrument due to convenience as the researcher had previously taught at this school. Pilot instruments were distributed before the Semester break (1996-1997) to Commerce High School teachers, and were completed by the teachers and returned to the researcher by February 1, 1997. A survey draft was also administered to an expert panel of educators within the College of Agriculture at Montana State University.

Data Analysis

The data from the respondents were recorded, the researcher keyed in the numbered response for each item of the 100 possible questions in section one of the instrument as: (4) Always, (3) Most of the time, (2) Occasionally, (1) Seldom, and (0) Never. After each item was entered into the spreadsheet, the items were then categorized into the 20 categories noted in the Instrument Design section of this chapter. Means were computed for each of the 20 job performance categories. Data were then transferred into SPSS-7.5 for Windows statistical analysis. The results were then compiled into comparative tables to facilitate ease of accurate reporting.

The responses to demographic variables from section two of the instrument were entered into a Microsoft Excel spreadsheet. The researcher sorted demographic data by assigning a simple numeric code for each of the demographic respondents. The data were compiled for analysis for descriptive statistics and significant differences among segments of the study's population. For descriptive purposes only, T-Test and an Analysis of Variance was conducted on the 20 professional development categories to determine if there were any differences between agricultural education, and family and consumer science teachers.

CHAPTER 4

RESULTS OF THE STUDY

This chapter presents results to satisfy the objectives of the study. The results are based on data collected from a Teacher Professional Development survey. Data collected represent two different groups of vocational teachers in Montana; agricultural education and family and consumer sciences. The results of the study can only be generalized to agricultural education and family and consumer science instructors teaching in Montana during the 1996-1997 academic year.

Demographics

Data frequencies presented in the following tables describe the demographic characteristics of the respondent groups. The two subgroups consist of Montana Agricultural Educators and Montana Family and Consumer Science Educators.

Table 2 represents specific demographic variables of agricultural education (AGED) and family and consumer science educators (FCS). The family and consumer science educators averaged 15.87 years of teaching experience while the agriculture educators averaged 11.34 years. The gender distribution for family and consumer science educators consisted of 2 male respondents and 55 female respondents. Agricultural educators consisted of 45 male and 2 female respondents. Eighteen FCS educators indicated that they had "other" career experience, whereas thirty-four AGED respondents indicated other experience. Concerning delivery of professional development activities, thirty-three FCS and forty AGED professionals mentioned that workshops were the

preferred method of professional development delivery. Twenty-five FCS educators and 29 AGED educators preferred inservice activities hosted within their local school district.

Table 2. General Respondent Demographics.

Demographic Variable:	Frequencies		Total
	FCS (n=50)	AGED (n=54)	
Years taught (average)	15.87	11.34	N/A
Gender (Male)	2	45	47
Gender (Female)	55	2	57
Other experience	18	34	52
Workshops	33	40	73
Inservice/local schools	25	29	54

Data in Table 3 depict the membership within professional organizations of Montana Family and Consumer Science and Agricultural Education teachers. Fifty-one agricultural education teachers indicated that they were members of at least one professional organization. The top three responses were noted: "Other, miscellaneous" 46; "MVATA" 42, and "AVA" 32. Forty-six family and consumer teachers indicated that they too were members of at least one professional organization. The top three responses were recorded in the following order: "MEA" 19; "AVA/MVA/NEA/MAFCS" 12 (each); and "AAFCS" 11. The number of respondents who belonged to professional organizations was 97 (93%).

Table 3. Professional Organization Membership of Respondents.

Membership	Frequencies		Total
	FCS (n=50)	AGED (n=54)	
Professional Organization membership.	46	51	97
Other miscellaneous.	0	46	46
MVATA.	0	42	42
AVA.	12	32	44
MEA.	19	0	19
MVA.	12	0	12
NEA.	12	0	12
MAFCS	12	0	12
AAFCS	11	0	11

Data in Table 4 presents respondent data regarding the demographic variable of career choice satisfaction. Twenty-two respondents specified that they were “always satisfied” (4), 79 indicated they were “satisfied most of the time” (3), 3 noted they were “occasionally satisfied” (2), 0 responded that they were “seldom satisfied” (1), while 0 indicated they were “never satisfied” (0). When analyzed by discipline, 10 agricultural education teachers said they were “always satisfied”(4), 43 indicated they were “satisfied most of the time”(3), 1 said they were “occasionally satisfied” (2), 0 noted they were “seldom satisfied”(1), while 0 said they were “never satisfied” (0). Regarding their career choice, 12 family and consumer science teachers said they were “always satisfied”, 36 indicated they were “satisfied most of the time”, 2 said they were “occasionally satisfied”, 0 noted they were “seldom satisfied”, while 0 said they were “never satisfied”.

Table 4. Career Choice Satisfaction of Respondents.

Demographic Variable:	Frequencies		Total
	FCS (n=50)	AGED (n=54)	
"Always satisfied"	12	10	22
"Satisfied most of the time"	36	43	79
"Occasionally satisfied"	2	1	3
"Seldom satisfied"	0	0	0
"Never satisfied"	0	0	0

Table 5 reflects the participation in self-study and improvement activities by Montana Family and Consumer Science and Agricultural Teachers. Of the 104 respondents, 4 indicated they participated in self-study/improvement activities on a bi-weekly basis. Eleven indicated they participated in self-study/improvement activities on an annual basis. Twelve noted they engaged in self-study/improvement activities on a semi-annual basis, while 26 respondents said they engaged in this type of activity on a quarterly basis. Regarding agricultural education teachers, 3 noted they engaged in self-study/improvement on an annual basis, whereas 5 said they engaged in this type of activity on a semi-annual schedule. Fourteen noted they participated in this type of activity quarterly, 11 on a monthly basis, 6 on a bi-monthly interval, 12 on a weekly basis, and 2 on a bi-weekly basis.

Table 5. Participation in Self-Study and Improvement Activities of Montana Family and Consumer Science and Agricultural Educators.

Self Study	Frequencies		Total
	FCS (n=50)	AGED (n=54)	
Annual	8	3	11
Semi-annual	7	5	12
Quarterly	14	14	28
Monthly	8	11	19
Bi-monthly	8	6	14
Weekly	4	12	16
Bi-weekly	2	2	4

Professional Development Perceptions

The second objective sought to develop a professional development categorical profile of the respondents. The evaluation scale for each category was adapted from the Human Resource Development (HRD) program at the Westinghouse Waste Isolation Division. For this study, a mean for a category (5 items per category with a possible high score of 25) between 25-20 is considered a strength with little or no development needed in this area. A mean between 19-15 is considered within normal range for a professional development performance factor, whereas a mean score between 14-10 indicates a need for improvement is needed for this professional development performance factor. A mean between 9 - 0 denotes a need for immediate improvement in this professional development performance factor.

The data in Table 6 show the means and standard deviations for the 20 professional development categories. The highest mean of the professional development categories was "Attendance and Punctuality"(23.00), whereas, the professional development category with the lowest mean was "Conflict Resolution" with a mean score of 17.54.

Table 6. Means and Standard Deviations of the 20 Professional Development Categories by Agricultural and Family and Consumer Science Educators.

No.	Categories and Descriptions	AGED		FCS	
		Mean ^{y,z} (n=54)	S.D.	Mean ^{y,z} (n=50)	S.D.
1.	Quality of work- Thoroughness and acceptability of work produced or accomplished.	21.27	2.06	21.06	2.72
2.	Quantity of work- Volume of acceptable work.	20.75	2.56	20.77	2.70
3.	Job Knowledge- Knowledge of requirements, methods, techniques, and skills involved in the job.	19.45	3.20	19.79	3.20
4.	Related Work Knowledge- Knowledge of how own work impacts other areas.	18.95	2.92	18.72	2.89
5.	Judgment- Soundness of conclusions, decisions, and actions.	18.64	3.13	18.64	2.91
6.	Initiative- Ability to take effective action without being told.	19.56	2.70	19.08	2.56
7.	Dependability- Reliability in assuming and carrying out commitments, obligations, and assignments.	21.91	2.58	23.14	1.83
8.	Analytical Ability- Effectiveness in thinking through a problem.	19.45	2.81	19.77	3.40
9.	Adaptability to Work Assignments- Ability to learn new knowledge and complete a variety of assignments.	20.77	2.48	20.22	2.88
10.	Ability to Work Under Pressure- Perform under unusual circumstances and in meeting tight schedules.	19.27	2.98	19.00	2.99
11.	Creativity- Ability to generate worthwhile new ideas or techniques with practical applications.	19.16	3.52	19.06	3.52
12.	Planning and Organization- Ability to plan and organize workload to meet priorities.	18.43	2.96	19.22	3.19
13.	Communication Skills- Effectiveness communicating with peers, supervisors, and other contacts.	19.08	2.43	18.81	3.15
14.	Interpersonal Skills- Works effectively with others and in accordance with school district.	20.22	2.46	21.02	2.60
15.	Leadership- Demonstration of leadership characteristics and qualities.	21.31	2.42	21.18	2.64
16.	Cost Consciousness- Effective uses of school supplies, materials and service.	21.27	2.98	22.58	2.64
17.	Personal Safety and Housekeeping- Demonstrates good safety practices and awareness of own personal safety and safety of others. Maintains neat and orderly work area and exhibits care and use of equipment, tools, etc.	20.77	2.37	21.87	2.48
18.	Supervision Level- Amount of supervision needed as compared to the position standard.	22.18	1.75	23.77	7.03
19.	Attendance and punctuality- Reports to class on a regular basis, onetime and ready to work at start of day and after lunch period; devotes school hours to conduct of school/teaching assignments.	23.00	1.67	23.14	1.89
20.	Conflict Resolution- Ability to handle conflict and disagreements between self and others.	17.54	3.42	16.89	3.64

^y Mean calculated from a Likert-type response scale ranging from Always (5), to Nearly Always (4), to Often (3), to Occasionally (2), to Rarely (1), to Never (0).

^z Total Category scale ranged from 0 to 25.

Table 7 reflects the respective means of agricultural education teachers and family and consumer science teachers and T-Test results from a comparison of the two teaching professions. The conduct of a T-Test found three professional development category means to be significantly different at the .05 probability level. The three significant professional development categories were Dependability ($p=.008$), Cost Consciousness ($p=.025$), and Personal Safety and Housekeeping ($p=.028$). The family and consumer science teacher sample had higher means than agricultural education teachers in all three of the statistically significant professional development categories.

Table 7. Comparison of Professional Development Category Mean Using the T-Test for Equality of Means by Montana Agricultural Education and Family Consumer Science Educators.

No.	Professional Development Category	Mean ^z		T Value	Sig.
		AGED n=54	FCS n=50		
1.	Quality of Work	21.27	21.06	.423	.674
2.	Quantity of Work	20.75	20.77	-.039	.969
3.	Job Knowledge	19.45	19.79	-.509	.612
4.	Related Work Knowledge	18.95	18.72	.386	.700
5.	Judgment	18.64	18.64	.000	1.000
6.	Initiative	19.56	19.08	.890	.376
7.	Dependability	21.91	23.14	-2.688	.008*
8.	Analytical Ability	19.45	19.77	-.490	.625
9.	Adaptability to work assignments	20.77	20.22	.984	.327
10.	Ability to work under pressure	19.27	19.00	.443	.658
11.	Creativity	19.16	19.06	.145	.885
12.	Planning and Organization	18.43	19.22	-1.259	.211
13.	Communication skills	19.08	18.81	.471	.639
14.	Interpersonal skills	20.22	21.02	-1.528	.130
15.	Leadership	21.31	21.18	.241	.810
16.	Cost Consciousness	21.27	22.58	-2.281	.025*
17.	Personal Safety and Housekeeping	20.77	21.87	-2.229	.028*
18.	Supervision Level	22.18	23.77	-1.513	.134
19.	Attendance and punctuality	23.00	23.14	-.400	.690
20.	Conflict resolution	17.54	16.89	.895	.373

* T-Prob < .05.

^z Total Category scale ranged from 0 to 25.

An ANOVA test was conducted on 4 Years Experience subgroups of respondents as the classification level. The subgroups were 1 to 6.9 years, 7 to 14 years, 15 to 20 years and 21 to 32 years. Respondents were assembled by this demographic variable so that a near-equal number of respondents were in each of the four subgroups. The results of the One-way ANOVA test are reported in Table 8. The ANOVA was run with the level set at .05. The ANOVA test produced a statistically significant F Value for the professional development categories of "Job Knowledge and Judgment". The F Value for "Job Knowledge" was 4.839 ($p=.004$) and the F Value for "Judgment" was 2.797 ($p=.045$). This means that there is a significant difference among one or more of the "Years Experience" subgroups in the professional development categories of "Job Knowledge and Judgment". The Duncan's and Tukey's post-hoc statistical procedure were used to determine where the difference in the means existed among the respondent subgroups according to the "Years Experience" variable. Although the ANOVA test results indicated a significant difference in the mean for the "Job Knowledge" professional development category and the "Judgment" category, Duncan and Tukey's post hoc procedure was too conservative to statistically determine where the difference existed among the means of the four "Years Experience" subgroups. However, it is worth noting that the means for the subgroups with more years experience were higher than the subgroups with less years experience.

Table 8. Comparison of Professional Development Categorical Mean using the One-way ANOVA by Montana Four Categories of Years Experience.

No.	Professional Development Category		df	Mean Square	F Value	Sig.
1.	Quality of Work	Between Groups	3	21.06	.223	.880
		Within Groups	90	5.98		
2.	Quantity of Work	Between Groups	3	20.77	.231	.875
		Within Groups	90	7.05		
3.	Job Knowledge	Between Groups	3	19.79	4.839	.004*
		Within Groups	90	9.20		
4.	Related Work Knowledge	Between Groups	3	18.72	1.440	.236
		Within Groups	90	8.39		
5.	Judgment	Between Groups	3	18.64	2.797	.045*
		Within Groups	90	8.56		
6.	Initiative	Between Groups	3	19.08	1.341	.266
		Within Groups	90	77.00		
7.	Dependability	Between Groups	3	23.14	.525	.666
		Within Groups	90	5.541		
8.	Analytical Ability	Between Groups	3	19.77	1.778	.157
		Within Groups	90	9.55		
9.	Adaptability to Work Assignment	Between Groups	3	20.22	.105	.957
		Within Groups	90	7.63		
10.	Ability to Work Under Pressure	Between Groups	3	19.00	.857	.466
		Within Groups	90	8.85		
11.	Creativity	Between Groups	3	19.06	2.361	.077
		Within Groups	90	11.89		
12.	Planning and Organization	Between Groups	3	19.22	1.514	.216
		Within Groups	90	9.43		
13.	Communication Skills	Between Groups	3	18.8	1.096	.355
		Within Groups	90	7.94		
14.	Interpersonal Skills	Between Groups	3	21.01	.504	.681
		Within Groups	90	6.75		
15.	Leadership	Between Groups	3	21.18	.163	.921
		Within Groups	90	6.60		
16.	Cost Consciousness	Between Groups	3	22.58	1.931	.130
		Within Groups	90	8.11		
17.	Personal Safety and Housekeeping	Between Groups	3	21.87	1.110	.349
		Within Groups	90	6.23		
18.	Supervision Level	Between Groups	3	23.77	1.946	.128
		Within Groups	90	26.39		
19.	Attendance and Punctuality	Between Groups	3	23.14	1.782	.156
		Within Groups	90	3.07		
20.	Conflict Resolution	Between Groups	3	16.89	.856	.467
		Within Groups	90	12.77		

* F-Prob < .05.

Table 9 presents the means of the 20 professional development categories by Years Experience subgroups. For the two significant professional development categories "Job Knowledge" and "Judgment", the two subgroups with the highest number of years experience, 15 to 20, and 21 to 32 years, recorded higher means than the two subgroups, 1 to 6.9, and 7 to 14 years, with less number of years experience.

An ANOVA test was also conducted on the Years Experience subgroups for all agricultural education respondents. The Duncan post hoc procedure was employed to determine which subgroups of significant professional development categories differed significantly. The results of the One-way ANOVA test are reported in Table 10.

The ANOVA produced a statistically significant F Value for the professional development categories of "Job Knowledge" and "Personal Safety and Housekeeping". The F Value for "Job Knowledge" was 3.076 ($p=.038$) and the F Value for "Personal Safety and Housekeeping" was 4.771 ($p=.006$). This means that there is a significant difference among one or more of the agricultural education Years Experience subgroups in the professional development categories of "Job Knowledge" and "Personal Safety and Housekeeping". The Duncan's post hoc statistical procedure ($p=.50$) revealed that the two agricultural education groups with the highest number of years of experience recorded a higher mean in the "Job Knowledge" professional development category. However, the Duncan's and Tukey's post hoc procedure did not find the significant differences that existed between the subgroups regarding the "Personal Safety and Housekeeping" professional development category.

Table 9. Means and Standard Deviations of Professional Development Categories by Four Years Experience Categories.

No.	Categories and Descriptions	Means of Years of Experience Subgroups ^y			
		n=22 1 to 6.9 Years	n=25 7 to 14 Years	n=23 15 to 20 Years	n=24 21 to 32 Years
1.	Quality of work- Thoroughness and acceptability of work produced or accomplished.	20.77	21.16	21.22	21.33
2.	Quantity of Work- Volume of acceptable work.	20.36	20.76	21.00	20.83
3.	Job Knowledge- Knowledge of requirements, methods, techniques, and skills involved in the job.	18.00	18.96	21.17	20.25
4.	Related Work Knowledge- Knowledge of how own work impacts other areas.	18.05	18.56	19.78	18.88
5.	Judgment- Soundness of conclusions, decisions, and actions.	17.36	18.20	19.70	19.13
6.	Initiative- Ability to take effective action without being told.	18.45	19.16	19.91	19.67
7.	Dependability- Reliability in assuming and carrying out commitments, obligations, and assignments.	22.14	22.32	22.70	22.92
8.	Analytical Ability- Effectiveness in thinking through a problem.	18.73	19.00	20.57	20.00
9.	Adaptability to Work Assignments- Ability to learn new knowledge and complete a variety of assignments.	20.55	20.48	20.74	20.29
10.	Ability to Work Under Pressure- Perform under unusual circumstances and in meeting tight schedules.	18.73	19.36	19.74	18.50
11.	Creativity- Ability to generate worthwhile new ideas or techniques with practical applications.	17.86	18.52	20.30	19.71
12.	Planning and Organization- Ability to plan and organize workload to meet priorities.	17.95	18.96	19.78	18.38
13.	Communication Skills- Effectiveness communicating with peers, supervisors, and other contacts.	19.23	18.72	19.65	18.25
14.	Interpersonal Skills- Works effectively with others and in accordance with school district.	20.50	20.52	21.17	20.29
15.	Leadership- Demonstration of leadership characteristics and qualities.	21.14	21.24	21.57	21.08
16.	Cost Consciousness- Effective uses of school supplies, materials and service.	20.77	22.40	22.61	21.67
17.	Personal Safety and Housekeeping- Demonstrates good safety practices and awareness of own personal safety and safety of others. Maintains neat and orderly work area and exhibits care and use of equipment, tools, etc.	22.05	21.40	21.09	20.75
18.	Supervision Level- Amount of supervision needed as compared to the position standard.	21.18	22.88	22.87	24.83
19.	Attendance and punctuality- Reports to class on a regular basis, onetime and ready to work at start of day and after lunch period; devotes school hours to conduct of school/teaching assignments.	22.64	23.00	22.74	23.71
20.	Conflict Resolution- Ability to handle conflict and disagreements between self and others.	16.36	17.04	18.00	17.50

^y Mean calculated from a Likert-type response scale ranging from Always (5), to Nearly Always (4), to Often (3), to Occasionally (2), to Rarely (1), to Never (0).

Table 10. Analysis of Variance Test Results for Years Experience Subgroups Composed of Agricultural Education Respondents.

No.	Professional Development Category		Mean		F Value	Sig.
			df	Square		
1.	Quality of Work	Between Groups	3	2.614	.596	.621
		Within Groups	43	4.386		
2.	Quantity of Work	Between Groups	3	5.292	.806	.497
		Within Groups	43	6.966		
3.	Job Knowledge	Between Groups	3	27.991	3.076	.038*
		Within Groups	43	9.101		
4.	Related Work Knowledge	Between Groups	3	6.703	.763	.521
		Within Groups	43	8.780		
5.	Judgment	Between Groups	3	14.304	1.535	.219
		Within Groups	43	9.319		
6.	Initiative	Between Groups	3	15.039	2.180	.104
		Within Groups	43	6.897		
7.	Dependability	Between Groups	3	2.711	.383	.766
		Within Groups	43	7.078		
8.	Analytical Ability	Between Groups	3	7.535	.934	.433
		Within Groups	43	8.067		
9.	Adaptability to Work Assignment	Between Groups	3	1.866	.282	.838
		Within Groups	43	6.611		
10.	Ability to Work Under Pressure	Between Groups	3	1.366	.150	.929
		Within Groups	43	9.129		
11.	Creativity	Between Groups	3	24.111	2.065	.119
		Within Groups	43	11.678		
12.	Planning and Organization	Between Groups	3	7.185	.801	.500
		Within Groups	43	8.966		
13.	Communication Skills	Between Groups	3	1.730	.275	.843
		Within Groups	43	6.296		
14.	Interpersonal Skills	Between Groups	3	2.630	.406	.749
		Within Groups	43	6.478		
15.	Leadership	Between Groups	3	2.201	.355	.786
		Within Groups	43	6.205		
16.	Cost Consciousness	Between Groups	3	4.567	.490	.691
		Within Groups	43	9.319		
17.	Personal Safety and Housekeeping	Between Groups	3	21.889	4.771	.006*
		Within Groups	43	4.588		
18.	Supervision Level	Between Groups	3	7.087	2.470	.075
		Within Groups	43	2.869		
19.	Attendance and Punctuality	Between Groups	3	6.092	2.389	.082
		Within Groups	43	2.550		
20.	Conflict Resolution	Between Groups	3	4.786	.384	.765
		Within Groups	43	12.448		

* F-Prob < .05.

Table 11 presents the means of the 20 professional development categories by agricultural education years experience subgroups. For the "Job Knowledge" significant professional development category, the 2 agricultural education subgroups with the highest number of years experience, 15 to 20, and 21 to 32 years, recorded higher means than the 2 subgroups, 1 to 6.9, and 7 to 14 years, with less number of years experience. However, the "Personal Safety and Housekeeping" category subgroup means show that the 1 to 6.9, years experience group had the highest mean (22.00), while the 15 to 20 years experience group had the lowest mean (18.78).

An ANOVA test was also conducted on the Years Experience subgroups for all Family and Consumer Science respondents. The Duncan post hoc procedure was employed to determine which subgroups of significant professional development categories differed significantly. The results of the One-way ANOVA test are reported in Table 12.

ANOVA results produced a statistically significant F Value for the professional development category of "Cost Consciousness". The F Value for "Cost Consciousness" was 4.895 ($p=.005$). This means that there is a significant difference among one or more of the Years Experience subgroups in the professional development category of "Cost Consciousness". The Duncan's and Tukey's Post-Hoc statistical procedures were used to determine where the difference in the means existed among Family and Consumer Science subgroups according to the Years Experience variable. Although the ANOVA test results indicated a significant difference in the mean for the "Cost Consciousness" professional development category, Duncan and Tukey's post hoc procedure was too

conservative to statistically determine where the difference existed among the means of the four Years Experience subgroups for that professional development category.

Table 13 presents the means of the 20 professional development categories by family and consumer science Years Experience subgroups. For the “Cost Consciousness” professional development category, the two subgroups with the middle number of years experience, 15 to 20 (23.79), and 7 to 14 (23.73), years recorded higher means than the 2 highest years experience subgroups, 21 to 32 (21.33), and lowest number of years experience 1 to 6.9 (20.71) years.

Table 11. Four categories of Years of Participants Means for the 20 Professional Development Categories by Agricultural Education Years Experience Subgroups.

No.	Categories and Descriptions	Means of Years of Experience Subgroups ^y			
		n=15 1 to 6.9 Years	n=14 7 to 14 Years	n=9 15 to 20 Years	n=9 21 to 32 Years
1.	Quality of work-Thoroughness and acceptability of work produced or accomplished.	21.26	21.42	20.44	21.66
2.	Quantity of work-Volume of acceptable work.	20.80	20.85	19.55	21.33
3.	Job Knowledge- Knowledge of requirements, methods, techniques, and skills involved in the job.	18.06	18.71	21.33	20.77
4.	Related Work Knowledge- Knowledge of how own work impacts other areas.	18.13	18.92	19.11	20.00
5.	Judgment- Soundness of conclusions, decisions, and actions.	17.66	18.07	19.11	20.22
6.	Initiative- Ability to take effective action without being told.	18.40	19.57	19.67	21.22
7.	Dependability- Reliability in assuming and carrying out commitments, obligations, and assignments.	22.13	21.86	21.11	22.33
8.	Analytical Ability- Effectiveness in thinking through a problem.	18.80	19.07	19.78	20.67
9.	Adaptability to Work Assignments- Ability to learn new knowledge and complete a variety of assignments.	20.53	20.57	20.89	21.44
10.	Ability to Work Under Pressure- Perform under unusual circumstances and in meeting tight schedules.	19.00	19.57	18.78	19.22
11.	Creativity- Ability to generate worthwhile new ideas or techniques with practical applications.	17.67	18.79	20.22	20.89
12.	Planning and Organization- Ability to plan and organize workload to meet priorities.	17.53	19.07	18.11	19.00
13.	Communication Skills- Effectiveness communicating with peers, supervisors, and other contacts.	19.47	18.64	19.11	18.89
14.	Interpersonal Skills- Works effectively with others and in accordance with school district.	20.80	19.79	20.11	20.11
15.	Leadership- Demonstration of leadership characteristics and qualities.	21.67	20.79	21.11	21.56
16.	Cost Consciousness- Effective uses of school supplies, materials and service.	20.80	21.36	20.78	22.22
17.	Personal Safety and Housekeeping- Demonstrates good safety practices and awareness of own personal safety and safety of others. Maintains neat and orderly work area and exhibits care and use of equipment, tools, etc.	22.00	21.14	18.78	20.00
18.	Supervision Level- Amount of supervision needed as compared to the position standard.	21.40	23.00	21.78	22.56
19.	Attendance and Punctuality- Reports to class on a regular basis, ontime and ready to work at start of day and after lunch period; devotes school hours to conduct of school/teaching assignments.	22.93	23.07	21.89	23.89
20.	Conflict Resolution- Ability to handle conflict and disagreements between self and others.	13	17.36	18.22	18.22

^y Mean calculated from a Likert-type response scale ranging from Always (5), to Nearly Always (4), to Often (3), to Occasionally (2), to Rarely (1), to Never (0).

Table 12. Analysis of Variance Test Results for Years Experience Subgroups Composed of Family and Consumer Science Respondents.

No.	Professional Development Category	df	Mean		Sig.	
			Square	F Value		
1.	Quality of Work	Between Groups	3	6.441	.850	.474
		Within Groups	43	7.573		
2.	Quantity of Work	Between Groups	3	10.785	1.501	.228
		Within Groups	43	7.184		
3.	Job Knowledge	Between Groups	3	17.459	1.742	.173
		Within Groups	43	10.021		
4.	Related Work Knowledge	Between Groups	3	14.960	1.846	.153
		Within Groups	43	8.105		
5.	Judgment	Between Groups	3	18.639	2.339	.087
		Within Groups	43	7.968		
6.	Initiative	Between Groups	3	6.913	.965	.418
		Within Groups	43	6.747		
7.	Dependability	Between Groups	3	4.134	1.221	.314
		Within Groups	43	3.385		
8.	Analytical Ability	Between Groups	3	14.084	1.218	.315
		Within Groups	43	11.562		
9.	Adaptability to Work Assignments	Between Groups	3	3.117	.350	.789
		Within Groups	43	8.909		
10.	Ability to Work Under Pressure	Between Groups	3	14.695	1.672	.187
		Within Groups	43	8.789		
11.	Creativity	Between Groups	3	12.063	.953	.424
		Within Groups	43	12.658		
12.	Planning and Organization	Between Groups	3	20.810	2.192	.103
		Within Groups	43	9.493		
13.	Communication Skills	Between Groups	3	11.053	1.103	.358
		Within Groups	43	10.019		
14.	Interpersonal Skills	Between Groups	3	9.034	1.335	.275
		Within Groups	43	6.765		
15.	Leadership	Between Groups	3	7.558	1.077	.369
		Within Groups	43	7.017		
16.	Cost Consciousness	Between Groups	3	27.467	4.895	.005*
		Within Groups	43	5.612		
17.	Personal Safety and Housekeeping	Between Groups	3	4.789	.749	.529
		Within Groups	43	6.392		
18.	Supervision Level	Between Groups	3	55.478	1.106	.357
		Within Groups	43	50.173		
19.	Attendance and Punctuality	Between Groups	3	4.367	1.241	.307
		Within Groups	43	3.520		
20.	Conflict Resolution	Between Groups	3	11.870	.868	.465
		Within Groups	43	13.676		

* F-Prob < .05

Table 13. Means of 20 Professional Development Categories by Family and Consumer Science Years Experience Subgroups.

No.	Categories and Descriptions	Means of Years of Experience Subgroups ^y			
		n=7 1 to 6.9 Years	n=11 7 to 14 Years	n=14 15 to 20 Years	n=15 21 to 32 Years
1.	Quality of work-Thoroughness and acceptability of work produced or accomplished.	19.71	20.82	21.71	21.13
2.	Quantity of work-Volume of acceptable work.	19.43	20.64	21.93	20.53
3.	Job Knowledge- Knowledge of requirements, methods, techniques, and skills involved in the job.	17.86	19.27	21.07	19.93
4.	Related Work Knowledge- Knowledge of how own work impacts other areas.	17.86	18.09	20.21	18.20
5.	Judgment- Soundness of conclusions, decisions, and actions.	16.71	18.36	20.07	18.47
6.	Initiative-Ability to take effective action without being told.	18.57	18.64	20.07	18.73
7.	Dependability- Reliability in assuming and carrying out commitments, obligations, and assignments.	22.14	22.91	23.71	23.27
8.	Analytical Ability- Effectiveness in thinking through a problem.	18.57	18.91	21.07	19.60
9.	Adaptability to Work Assignments- Ability to learn new knowledge and complete a variety of assignments.	20.57	20.36	20.64	19.60
10.	Ability to Work Under Pressure- Perform under unusual circumstances and in meeting tight schedules.	18.14	19.09	20.36	18.07
11.	Creativity- Ability to generate worthwhile new ideas or techniques with practical applications.	18.29	18.18	20.36	19.00
12.	Planning and Organization- Ability to plan and organize workload to meet priorities.	18.86	18.82	20.86	18.00
13.	Communication Skills- Effectiveness communicating with peers, supervisors, and other contacts.	18.71	18.82	20.00	17.87
14.	Interpersonal Skills- Works effectively with others and in accordance with school district.	19.86	21.45	21.86	20.40
15.	Leadership- Demonstration of leadership characteristics and qualities.	20.00	21.82	21.86	20.80
16.	Cost Consciousness- Effective uses of school supplies, materials and service.	20.71	23.73	23.79	21.33
17.	Personal Safety and Housekeeping- Demonstrates good safety practices and awareness of own personal safety and safety of others. Maintains neat and orderly work area and exhibits care and use of equipment, tools, etc.	22.14	21.73	22.57	21.20
18.	Supervision Level- Amount of supervision needed as compared to the position standard.	20.71	22.73	23.57	26.20
19.	Attendance and punctuality- Reports to class on a regular basis, on time and ready to work at start of day and after lunch period; devotes school hours to conduct of school/teaching assignments.	22.00	22.91	23.29	23.60
20.	Conflict Resolution- Ability to handle conflict and disagreements between self and others.	15.14	16.64	17.86	17.07

^y Mean calculated from a Likert-type response scale ranging from Always (5), to Nearly Always (4), to Often (3), to Occasionally (2), to Rarely (1), to Never (0).

