Factors contributing to high rates of out-of-field teaching in Iowa's middle school family and consumer sciences programs

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Iowa State University

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Factors contributing to high rates of out-of-field teaching in Iowa's middle school family and consumer sciences programs

by

Gretchen Ann Mosher

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Family and Consumer Sciences Education

Program of Study Committee
Cheryl Hausafus (Major Professor)
Margaret Torrie
Cheryll Reitmeier

Iowa State University
Ames, Iowa
2002

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Graduate College
Iowa State University

This is to certify that the master’s thesis of

Gretchen Ann Mosher

has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy
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ABSTRACT

Out-of-field teaching is a common phenomenon in the K-12 education system in the United States. To determine if Iowa’s middle school family and consumer sciences programs are experiencing high levels of out-of-field teaching, 252 Iowa middle school family and consumer sciences teachers were surveyed, using a mailed questionnaire. One hundred seventy-six usable questionnaires were returned, resulting in a 72% response rate. Respondents were split into 3 groups: those who held a major in FCS education, those who held a minor in FCS education, and those who had neither a major or minor in FCS education. Although Iowa currently has very low rates of out-of-field teaching, several factors were significantly different between the groups. These factors included: the location of teaching, the level of students that teachers are certified to teach, the other non-teaching duties of teachers, the student teaching experience, the number of years teachers had taught, and the future teaching plans of teachers. No differences were found in school characteristics. Based on the number of teachers leaving teaching, the perceived willingness of administrators to employ out-of-field teachers to fill vacancies, and the low number of FCS teachers prepared, Iowa has a high probability to experience high rates of out-of-field teaching in the future.
CHAPTER 1. INTRODUCTION

Rationale

Educational reform in the United States has been one of the most discussed topics among policy makers in recent years, and the quality of our nation’s teachers has been one of the most debated areas of educational reform. High-quality teachers are an important component of a strong educational experience for students. A growing concern over the need for excellent teachers and the state of education in the United States has led to many studies about the quality of our nation’s educators.

Measuring the quality of American teachers is not a simple task. Good teaching is a complex characteristic to measure, and no standardized assessment instrument is available to assist in evaluating teacher quality. When experts discuss educational reform, they often talk about revising certification practices, weakening teacher unions, strengthening teacher education programs, or increasing student testing. However, one area of teacher quality often ignored is the high rate of out-of-field teaching. Out-of-field teaching is one of the least recognized causes of unqualified teachers in this country. Out-of-field teaching is the practice of teaching in a subject or subjects for which the instructor has little training or education or has neither a major or minor in the field they are teaching (Ingersoll, 1999).

Experts in education know out-of-field teaching is not a new problem. James Conant first identified the common practice of out-of-field teaching in his 1963 study *The Education of American Teachers* and Albert Shanker referred to out-of-field teaching as education’s “dirty little secret” in his 1985 opinion column in the *New York Times*.

Out-of-field teaching affects the quality of instruction in several ways. In order for teachers to provide students with the highest quality learning, these teachers must first thoroughly understand and effectively communicate the subject matter (Ingersoll, 1999). Without a basic understanding of the subject area, teachers must spend more time learning the material. A lack of knowledge about a subject can also lead to a stricter approach for following the “rules”, a lack of continuity between topics, and a failure to anticipate student misconceptions (Ross, Cousins, Gadalla, and Hannay, 1999). This forces instructors to teach students only the fundamentals, leaving little time for in-depth exploration or critical
thinking within the subject area (Ingersoll, 1999). Even experienced teachers who are teaching outside of their content area struggle to effectively teach their students (Ross et al., 1999).

In addition, teaching out-of-field is time consuming for teachers, taking away from their preparation time for other classes and cheating students in those courses of further exploration, interest, and critical thinking. Teaching in unfamiliar areas can be very emotionally draining for the teacher, decreasing his or her energy, morale, and commitment to the success of students (Ingersoll, 1999). In addition, by allowing out-of-field teaching to be an accepted practice, the states imply that teaching requires lower skill, lower training, and lower expertise than other professions. This attitude hurts the teaching profession, the teachers who make up this nation’s teaching force, and ultimately, America’s secondary students (Ingersoll, 1999). Iowa law has specific requirements for teachers in each subject area, but the enforcement of these regulations can be difficult. The review of literature will address the Iowa requirements more specifically.

Although out-of-field teaching is a widespread problem across the entire K-12 educational system, much higher rates become apparent beginning at the middle school level, which is when many schools divide classes into academic subjects (Archer, 1999). Middle school students have a greater chance of having a teacher who is not teaching in his or her strongest academic area. Middle school students are almost twice as likely to be taught by an out-of-field teacher than senior high students (Ingersoll, 1999). One cause of the high rates of out-of-field teaching at the middle school level could be attributed to the weak certification requirements for middle school teachers. Fewer than half of the states in the United States expect a middle school teacher to earn a secondary license in the subjects they are assigned to teach (Quality Counts, 2000).

Although out-of-field teaching is surprisingly common in all types of schools, some students are more likely to have an out-of-field teacher in their classroom. Students who attend smaller schools have a greater chance of having an out-of-field teacher. Schools in lower-income areas also have a higher rate of out-of-field teachers, as do classes of low achieving students (Ingersoll, 1998). Teaching shortages exacerbate the problem of out-of-field teaching. Because of shortages in many areas of teaching, schools administrators must
look for alternative methods for filling vacant positions. The three most common strategies for filling vacant positions in the absence of a qualified candidate include: hiring a less-qualified teacher, assigning teachers trained in other fields or grade levels to teach in the unfilled position, or making extensive use of substitute teachers (Ingersoll, 1999). All of these solutions help solve the problem in the short term, but also increase the rates of out-of-field teaching and negatively affect the long term achievement and learning of the students.

Most of the studies on out-of-field teaching have concentrated on core academic subjects. Because of this, little is known on the rates of out-of-field teaching in other subject areas. Based on the current research on out-of-field teaching, the field of family and consumer sciences education has a high probability of an increased rate of out-of-field teaching in Iowa, especially at the middle school level. Based on the current literature on out-of-field teaching, one could hypothesize that middle school family and consumer sciences education programs in Iowa could have high rates of out-of-field teaching because of three major factors.

First, the field of family and consumer sciences education has and will continue to experience teacher shortages. A national study and several state studies have shown the number of new family and consumer sciences teachers to be much lower than what is needed to fill retiring and resigning teachers (Hotta & Meszaros, 1996; Drizou, 1993). In Iowa, Drizou (1993) reported that nearly three-quarters of all family and consumer sciences teachers in Iowa plan to retire or leave teaching by the year 2002. The Iowa Department of Education added 7-12 Family and Consumer Sciences to their list of designated teaching shortage areas in the spring of 2002, lending validity to the claims of shortages that have plagued administrators for several years. A study by the Texas Education Agency and the State Board for Educator Certification indicate 29.6% of the state’s family and consumer sciences teachers will be eligible to retire at the end of the 2001-2002 school year. In five years, 49.7% of the family and consumer sciences teachers in Texas will be able to retire (Texas Education Agency, 2001). Many school administrators, rather than closing programs, will hire out-of-field teachers (Ingersoll, 1999).

Second, Iowa is home to many small school districts. Finding qualified teachers for rural school districts is often a challenge, and administrators may find it easier to hire an
unqualified candidate who is available rather than take a chance at not finding anyone (Ingersoll, 2001). Smaller school districts have a higher rate of out-of-field teaching, on average, than do larger school districts (Ingersoll, 1999). Because of Iowa’s large number of small and rural school districts, a reasonable hypothesis would be that a portion of these school districts currently employ out-of-field teachers to teach family and consumer sciences to middle school students.

Third, because many family and consumer sciences programs serve lower-achieving students, they may have a greater chance of having an out-of-field teacher (Ingersoll, 1999). The field of family and consumer sciences has diminished importance as an elective when compared with core academic subjects in some school districts. Many high-level students preparing for college do not have the time or inclination to take family and consumer sciences at the high school level. At the middle school level, many students experience family and consumer sciences as an encore or exploratory course, but they also have a higher chance of drawing an out-of-field teacher. Ingersoll’s 1999 study of out-of-field teaching shows a much higher rate of out-of-field teaching in grades 7 and 8. If middle school family and consumer sciences classes are taught by instructors who are not educated in family and consumer sciences, they may receive a weaker introduction to the field of family and consumer sciences, which may decrease their chance of taking additional classes in this area in high school.

It is known that out-of-field teaching is common in the United States, especially in the core subjects (Archer, 1999; Ingersoll, 1998 & 1999, & 2001; Ross et al., 1999). Several studies have shown the extent of out-of-field teaching in the core areas (Ingersoll, 1998& 1999). However, very few studies have been conducted on individual core subjects or on any career and technical subjects, including family and consumer sciences. In addition, no studies have focused on out-of-field teaching at the middle school level. In Iowa, no data is collected that might identify teachers in any field who are teaching out-of-field at the middle school level.

Goals of Study

The goals of this study are to answer several questions about out-of-field teaching in Iowa’s middle school family and consumer sciences classes. First, is out-of-field teaching in
middle school family and consumer sciences a frequent occurrence in Iowa? Second, if high rates of out-of-field teaching are apparent, what factors contribute to out-of-field teaching in Iowa’s middle school family and consumer sciences programs? Third, are school characteristics a major contributing factor to the incidence of out-of-field teaching in Iowa’s middle school family and consumer sciences programs? If low rates of out-of-field teaching in middle school family and consumer sciences are found, is there reason to believe the rates could increase in the future? Finally, this study hopes to provide baseline data of middle school family and consumer sciences programs in Iowa for future comparison studies and middle school curriculum development for family and consumer sciences.

Research Questions

This project was guided by the following research questions:

1. Is out-of-field teaching occurring in Iowa’s middle school family and consumer sciences programs?
2. What factors contribute to out-of-field teaching in middle school family and consumer sciences programs in Iowa?
3. What effects do the school district characteristics have on the incidence of out-of-field teaching in Iowa’s middle school family and consumer sciences programs?
4. How likely are Iowa’s middle school family and consumer sciences programs to experience higher levels of out-of-field teaching in the future?

Assumptions and Limitations

Assumptions:

1. The teachers surveyed will answer the questionnaire completely and honestly.
2. The teachers who return the survey have provided researchers accurate and reliable information.
3. The instrument for data collection is valid.

Limitations:

1. This study is limited to teachers who are teaching family and consumer sciences at the middle school level in public schools in Iowa.
2. Responses are only from those teachers who return the questionnaires.
3. Those who are not teaching in their area of certification may not want to identify themselves to researchers because of the risk of compromising their current employment.

4. Course titles may have varied names, such as life skills and career preparation, which may make it more difficult to identify family and consumer sciences programs.

5. Data is from a random sampling of Iowa middle school family and consumer sciences teachers.

Definition of Terms

Out-of-field teaching: teachers assigned to teach in subjects for which they have little training or education, or neither a major or minor in the field they are teaching (Ingersoll, 1999)

Middle school: a school intermediate between elementary school and high school, usually encompassing grades 5 or 6 through 8 or 9

Core subjects: the academic areas of mathematics, science, language arts, and social studies (Hausafus, 1994)

Encore/exploratory subjects: the academic areas of music, art, physical education, family and consumer sciences, business education, and industrial technology (Hausafus, 1994).
CHAPTER 2. REVIEW OF LITERATURE

In this literature review, four topics will be addressed. These topics include: 1) the frequency of out-of-field teaching in the United States and its distribution across the educational system, 2) teacher shortages in family and consumer sciences education, 3) middle school certification and teaching practices, and 4) an overview of middle school family and consumer sciences education programs. Because some of the studies reviewed were completed before the field of “home economics” was named the field of “family and consumer sciences”, the name used by the author or authors of the specific study is the name that will be used in the review of the research.

Out-of-Field Teaching

Ensuring the nation’s classrooms are led by qualified teachers is a perennial problem in the field of education (Ingersoll, 1999). According to Ingersoll (1999), one of the least recognized causes of lower quality instruction results from the practice known as out-of-field teaching. All teachers must have a bachelor’s degree. Out-of-field teaching is the assignment of teachers to teach an academic subject that they have little or no training or education, or have neither a major nor a minor in the subject they are teaching.

Those in education know that out-of-field teaching is not a new problem. Long known as education’s “dirty little secret”, recent forecasts of teacher shortages have brought this issue more attention (Archer, 1999). The practice of out-of-field teaching varies greatly across schools, students, and teachers; however, it isn’t a frequent occurrence until the middle grades, when many schools begin to departmentalize academic subjects (Ingersoll, 1998).

The effect of out-of-field teaching on student achievement has been studied by several researchers. Ross, Cousins, Gadalla, and Hannay (1999) found secondary teachers who teach within their area of expertise have higher teacher efficacy. Instructors with higher teacher efficacy are more willing to use teaching strategies that stretch the student’s and teacher’s abilities and to persist through obstacles, which increases the likelihood of success in the classroom (Ross et al., 1999). Additionally, teachers who teach outside of their area of expertise are more likely to rely on textbooks and standardized examinations, which limits the critical thinking and engagement of students (Ingersoll, 1999). Teaching out-of-field is
draining and stressful for educators as well, decreasing the time they have to prepare for other classes. Preparing to teach classes for which they have no background decreases their time to prepare for classes for which they are qualified and decreases the morale and commitment of the teachers to critical thinking activities and student success (Ingersoll, 1999).

The frequency of out-of-field teaching is astonishing. In any given year, out-of-field teaching is occurring in over half of all secondary schools in the United States (Ingersoll, 1999). Ingersoll (1999) reported one-third of all secondary students of mathematics are taught by a teacher who has neither a major or minor in math, math education, or related disciplines (Table 1). In addition, about 25 % of secondary English students have teachers with neither a major or minor in English or related disciplines (Ingersoll, 1999). In science courses, about 20 % of secondary school students are taught by instructors without at least a minor in any of the sciences or science education. Social studies fares no better, as about one-fifth of students do not have a teacher who has attained even a minor in any of the social sciences (Ingersoll, 1999). Out-of-field totals for specific subject areas of science and social studies are even higher, with approximately one-third of life sciences, one-half of physical sciences and one-half of history students in the United States are taught by out-of-field teachers (Ingersoll, 1999).

<table>
<thead>
<tr>
<th>Academic Subject</th>
<th>% Students Taught Out-of-Field</th>
</tr>
</thead>
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<tr>
<td>English</td>
<td>24.3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>33.1</td>
</tr>
<tr>
<td>Science</td>
<td>20.3</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>33.1</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>56.5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>19.9</td>
</tr>
<tr>
<td>History</td>
<td>53.1</td>
</tr>
</tbody>
</table>
Out-of-field teaching is widespread across the educational system in the United States. However, rates of out-of-field teaching vary between schools, teachers, and classrooms. Low income schools have higher rates of out-of-field teaching than do more affluent school districts (Table 2). In addition, smaller schools have higher rates of out-of-field teaching than larger schools. Junior high or middle level schools are more likely to have teachers without a relevant background than high schools, as are classes serving primarily lower-achieving students (Ingersoll, 2001).

Table 2. Percentage of Secondary School Students Taught by Teachers in Each Field without a Major or Minor in That Field by School and Student Characteristic Groups (United States Department of Education, National Center for Educational Statistics, 1996)

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Mathematics</th>
<th>Science</th>
<th>Social Science</th>
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<tr>
<td><strong>School Poverty Level</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low poverty</td>
<td>20.1</td>
<td>26.8</td>
<td>17.5</td>
<td>15.8</td>
</tr>
<tr>
<td>High poverty</td>
<td>25.7</td>
<td>42.8</td>
<td>27.8</td>
<td>25.1</td>
</tr>
<tr>
<td><strong>School Size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>30.4</td>
<td>41.2</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td>Large</td>
<td>22.4</td>
<td>27.5</td>
<td>17.6</td>
<td>17.2</td>
</tr>
<tr>
<td><strong>Grade Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th Grade</td>
<td>32.2</td>
<td>48.8</td>
<td>31.8</td>
<td>23.9</td>
</tr>
<tr>
<td>8th Grade</td>
<td>32.9</td>
<td>37.1</td>
<td>23.8</td>
<td>19.7</td>
</tr>
<tr>
<td>9th Grade</td>
<td>15.7</td>
<td>18.1</td>
<td>10.7</td>
<td>8.7</td>
</tr>
<tr>
<td>10th Grade</td>
<td>11.1</td>
<td>16.8</td>
<td>8.9</td>
<td>8.8</td>
</tr>
<tr>
<td>11th Grade</td>
<td>11.2</td>
<td>15.9</td>
<td>6.4</td>
<td>6.8</td>
</tr>
<tr>
<td>12th Grade</td>
<td>13.9</td>
<td>24.2</td>
<td>13.1</td>
<td>11.3</td>
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<tr>
<td><strong>Track of Class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>24.7</td>
<td>33.5</td>
<td>20.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Middle</td>
<td>11.8</td>
<td>15.7</td>
<td>9.2</td>
<td>8.9</td>
</tr>
<tr>
<td>High</td>
<td>11.2</td>
<td>20.4</td>
<td>7.2</td>
<td>11.2</td>
</tr>
</tbody>
</table>

In addition to the studies conducted about out-of-field teaching rates across the U.S. educational system, a limited number have been completed in individual core academic areas. In the field of science, a study was conducted in 1997 by the American Institute of Physics to determine the percentage of high school physics teachers who had a major or minor in physics. Because physics is college preparatory course for science in high school, the qualifications of those teaching in this area was of interest to the researchers. The data,
supplied by a representative sample of over 3,000 public and private high school physics teachers and principals, indicated only 22% of physics teachers during the 1996-1997 school year had a major in physics (Neuschatz & McFarling, 2000). Eleven percent had majored in physics education (Neuschatz & McFarling, 2000).

This information does not sound good for the quality of physics education in the United States, but the figures are not as negative as they seem. All but 12% of high school physics teachers earned their highest degree in a science or math-related field, including chemistry, biology/life sciences, mathematics/engineering or other science fields. Additionally, 43% of the high school physics teachers who are not certified in physics have taken three to five college level physics courses. Twenty-four percent have taken one to two college level physics courses, 20% have taken six to nine courses in college physics, and only three percent have not taken any college level physics courses (Neuschatz & McFarling, 2000).

In social sciences, the out-of-field crisis appears to center around the field of history. Only 40% of all high school history teachers have a B.A. in history or history-related subjects such as political science, sociology, or American studies (Loewen, 2001). One long-time history educator believes teacher preparation programs for the field of history are bypassing content courses in history to take courses in education theory (Stanley, 2001). In the preparation program Stanley described, future educators take only four courses in history. This coursework includes one semester each of American history, world history, and state history. Although history teachers who were prepared under this program are licensed to teach in history, their background in history is extremely shallow. However, because they are endorsed in history, their teaching would not be considered out-of-field.

The reasons for the frequency of out-of-field teaching are complex and varied. However, one reason is offered by researchers to explain the high rates of out-of-field teaching, and is the shortage of teachers. Because the field of family and consumer sciences has struggled with teacher shortages for several years, the chance that a portion of family and consumer sciences teachers are teaching out-of-field is very high. The next section of the review of literature will address several studies that have been conducted on teacher shortages in family and consumer sciences education.
Teacher Shortages in Family and Consumer Sciences Education

The supply and demand for family and consumer sciences educators has been a major area of concern for the field for many years. Nationally, family and consumer sciences education programs have graduated fewer and fewer students since the late 1960s (Jackson & Rehm, 1995). From the 1968-69 school year through the 1978-79 school year, the number of baccalaureate degrees awarded in family and consumer sciences education (home economics education at that time) decreased by 42% (Harper, 1980). In the ten years from 1973 to 1983, a decrease of 73% was noted (Green, 1989). In 1990-91, only 426 baccalaureate degrees in family and consumer sciences education were awarded in the United States (National Center for Educational Statistics, 1993), which is a decrease from the 7,002 baccalaureate degrees awarded in 1968-69.

Miller and Meszaros (1996) predicted that, by the year 2000, the demand for family and consumer sciences educators would be approximately four times the supply needed to fill the vacant positions. A state-by-state analysis showed only Utah and Washington had a higher supply of family and consumer sciences educators than demand (Miller & Meszaros, 1996). The states with the largest difference between supply and demand of family and consumer sciences teachers were Arkansas, California, Florida, Iowa, Indiana, Kentucky, Louisiana, Minnesota, Missouri, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, and Virginia (Table 3) (Miller & Meszaros, 1996). Alaska, Maine, New Hampshire, Oregon, Rhode Island, and the District of Columbia had no undergraduate program in family and consumer sciences education (Miller & Meszaros, 1996). Connecticut, Hawaii, Indiana, New Jersey, Oregon, and Wyoming reported no family and consumer sciences teacher certification graduates (Stout, Couch, & Fowler, 1998).

When supply and demand is measured across all 50 states, the picture is bleak. For the years 1993 to 1998, a supply of only 2,092 teachers was expected to graduate with an endorsement to teach family and consumer sciences (Miller & Meszaros, 1996). The number of graduates is not nearly enough to fill the 7,149 to 7,903 estimated education vacancies in family and consumer sciences (Miller & Meszaros, 1996).

Stout et al. (1998) called the lack of new family and consumer sciences professionals a “crisis”. A low number of students in the nation’s family and consumer sciences teacher
certification programs as well as a reduction in programs across the United States contribute to the teacher shortages in the field of family and consumer sciences education (Stout et al., 1998).

Table 3. Summary of Supply and Demand of Family and Consumer Sciences Educators (Miller & Meszaros, 1996)

<table>
<thead>
<tr>
<th>State</th>
<th>Undergraduate Enrollment, 1993</th>
<th>Education Forecast (for next 5 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arkansas</td>
<td>70</td>
<td>200-300</td>
</tr>
<tr>
<td>California</td>
<td>121</td>
<td>750</td>
</tr>
<tr>
<td>Florida</td>
<td>22</td>
<td>478</td>
</tr>
<tr>
<td>Iowa</td>
<td>35</td>
<td>250</td>
</tr>
<tr>
<td>Kentucky</td>
<td>99</td>
<td>220</td>
</tr>
<tr>
<td>Louisiana</td>
<td>75</td>
<td>200-500</td>
</tr>
<tr>
<td>Minnesota</td>
<td>20</td>
<td>180</td>
</tr>
<tr>
<td>Missouri</td>
<td>90</td>
<td>225</td>
</tr>
<tr>
<td>North Carolina</td>
<td>69</td>
<td>500</td>
</tr>
<tr>
<td>Ohio</td>
<td>167</td>
<td>1250-2000</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>44</td>
<td>350</td>
</tr>
<tr>
<td>Tennessee</td>
<td>55</td>
<td>250</td>
</tr>
<tr>
<td>Texas</td>
<td>174</td>
<td>300</td>
</tr>
<tr>
<td>Virginia</td>
<td>12</td>
<td>240</td>
</tr>
<tr>
<td>Total for 50 states &amp; District of Columbia</td>
<td>2,092</td>
<td>7,149-7,903</td>
</tr>
</tbody>
</table>

Data from the American Association of Family and Consumer Sciences (AAFCS) support these numbers. Surveys done by AAFCS to determine family and consumer sciences educator supply and demand for the 50 states were reported by 27 states. Of these 27 states, only Utah forecasts an adequate supply (AAFCS, 1999). Many states are forecasting extreme shortages. For example, in Illinois, administrators predict 80 family and consumer sciences teachers will be needed, but only forecasts a supply of 18. The state of Ohio will need 150 to 175 family and consumer sciences teachers, but only anticipates a supply of 35 to 50, and Virginia needs 40 to 50 family and consumer sciences educators, but only predicts a supply of only 10 (AAFCS, 1999). In response to the shortages, Texas has begun to hire family and consumer sciences teachers who have not met degree requirements (Texas Education Agency, 2001). A study done in Texas by the Family and Consumer Sciences Distance Education Alliance, found 33.3% of those teaching family and consumer sciences in Texas are not certified in the area. Although shortages across the country are apparent, this research will look at Iowa teachers, therefore, the most important state forecast for this study is Iowa. The next section will explore the family and consumer sciences teacher shortage in Iowa.

Shortages of Family and Consumer Sciences Teachers in Iowa

The state of Iowa has traditionally had a strong family and consumer sciences education program. In the late 1990s, Iowa State University was the only stand alone family and consumer sciences teacher education department in the nation until 2000. In the year 2000, the department of Family and Consumer Sciences Education and Studies (FCEDS) merged with two other academic areas. Iowa State University’s family and consumer sciences education program is the only one remaining in Iowa. Even with this strong tradition, Iowa still struggles to produce an adequate supply of family and consumer sciences educators.

Drizou’s 1993 study of the supply and demand of home economics teachers in Iowa yielded some good information about Iowa’s home economics teachers during the 1991-1992 school year. In 1991-1992, only 4.3% of teachers were younger than 30. Seventy-two and one-half percent of FCS teachers in 1991-1992 were 40 years of age or older. Of these teachers, only 10.2% had received their teaching degrees after 1981 and 85% had earned
their teaching degrees prior to 1980. The teaching experience of Iowa’s family and consumer sciences teachers in 1991-1992 was extensive, because 73.6% had been in the classroom 11 years or more.

Drizou asked the teachers in 1991-1992 about future plans for the next year (1992-1993), in five years (1996-1997), and in ten years (2001-2002). Although 94% of the teachers said they would remain teaching for the next year, only 63% planned to be teaching in five years, and only 26.6% planned to be teaching in the year 2002 (Drizou, 1993). Between 1992 and 2002, almost 75% of the family and consumer sciences teachers in Iowa were going to leave teaching. Of those not planning to teach in 10 years, only 25.5% were planning to retire. Only 5.5% were unsure of their future plans, however, 42.4% planned to do something else and quit teaching. It is not known whether these 42.4% carried through on their plans from ten years. Iowa does not keep records of this type of information. However, beginning in the 2002-2003 school year, grades 7-12 family and consumer sciences has been declared by the Iowa Department of Education as a teaching shortage area in Iowa (IDOE, 2002). This information confirms what Iowa family and consumer sciences researchers have known for several years. Iowa is not educating enough family and consumer sciences teachers to meet the demand!

The lack of teacher candidates can have a negative impact on secondary family and consumer sciences programs. According to Stout et al (1998), several options are available to administrators who have no qualified candidates to fill vacancies. Program elimination is the worst case scenario, but hiring unqualified teachers, including those with little background in the field or dated degrees is also a common option. According to Ingersoll (1999), schools commonly use one or more of several strategies to fill positions when they have difficulty finding a qualified candidate. These strategies include, but are not limited to: hiring less-qualified candidates, assigning teachers trained in other fields or grade levels, using long term substitutes extensively, expanding the size of classes, adding part-time faculty, or increasing the current teacher load (see Figure 1) (Ingersoll, 1999). Although these strategies may work on a short term basis, they are detrimental to the field of family and consumer sciences education and the educational system.
The difficult transition from child to adult begins during the middle school years. The middle schools in the United States strive to attend to the social, emotional, physical, and intellectual needs of young adolescents (Bradley & Manzo, 2000). Before the middle school movement of the early 1960s, junior high schools were much more common than middle schools. The development of the middle school was a multi-faceted force driven by several factors (McEwin, 1994). School desegregation plans and demographic patterns influenced the development of the middle schools, and often these schools were not established to suit the specific needs of young adolescents. Recently, program design has been more a priority in the development of middle schools (McEwin, 1994). The stronger emphasis on specific programming for young adults has also led to an increase in the number of middle schools (McEwin, 1994). Studies about characteristics of middle schools and middle school students (George & Oldaker, 1985; Alexander & McEwin, 1989; and Epstein & MacIver, 1990) reported students were more likely to experience developmentally responsive curriculum during grades five or six through eight than during any other time in their educational career.
The result is a positive effect on academic behavior, student behavior, school learning climate, faculty morale, and staff development.

Although middle schools are now a standard fixture in the educational system and many have improved the curriculum, but many middle school programs are still not suited to the specialized needs of early adolescents (McEwin, 1994). Identification of age appropriate curriculum and the education and certification of the teachers at this level continue to be two major issues of middle level education. This section will address concerns of middle school teacher preparation.

Middle school students can be a challenging age to educate. Students between the ages of 10 and 15 are going through many intellectual, physical, and emotional changes (Willems & Clifford, 1999). The goal of middle school education, according to Hadley (1996) is:

To provide an affective and cognitive curriculum that will lead students toward productive and rewarding lives. The reorganization of middle grades school is based on the needs of young adolescents. The social, intellectual, and physical needs of adolescents must be understood by well trained competent middle level educators (page 21).

In spite of this goal, many middle school teachers in the United States lack the deep subject matter knowledge needed to help students meet educational goals and standards. When middle level educators do have a strong academic background, they have very few rigorous or stimulating curriculum models at their disposal. Middle school curriculum is often repetitious and superficial, and does little to prepare students for the academic challenges of high school (Bradley & Manzo, 2000).

To make matters worse, more middle school teachers are teaching outside their academic area of expertise than in any other grade level (Bradley & Manzo, 2000). According to Ingersoll (1999), in most fields, 7th graders are much more likely to receive out-of-field instruction than are 12th graders (Table 2). These differences are not apparent between the high school grades (9 through 12), rather, they become obvious when comparing rates of out-of-field teaching in the 7th and 8th grades verses the rates for grades 9 through 12 (Ingersoll, 1999).
The reason many middle school teachers lack the deep subject knowledge is the loose regulation of licensing and hiring and the lax enforcement of the rules that do exist. Although licensing policies and procedures for assigning teachers are poor across the entire secondary education system, the situation is even worse at the middle school level (Bradley, 2000).

Only 24 states require middle school educators to earn secondary licenses in the subject areas they plan to teach. The remaining 26 states allow the teachers to use generic elementary school certificates (Bradley, 2000). Iowa is one of these 26; therefore, elementary certified teachers can earn a middle school endorsement and teach middle school, all while completely following the educational code of the state Iowa (Iowa Board of Educational Examiners, 2002). Only nine states (Iowa is not one of these) require middle school teachers to pass subject area tests in the areas they teach (Quality Counts, 2000).

A 1998 study of the eighteen member states of the Southern Regional Education Board found some of the states had up to four overlapping licenses to cover the middle grades (Bradley, 2000). A third of the middle school teachers in these schools held only elementary licenses, causing researchers to question whether the educators had the appropriate content knowledge or the training to teach older students. The study also found many middle school teachers preferred the flexibility of the elementary licenses rather than the more rigorous course requirement and content knowledge regulations of the middle school licenses (Bradley, 2000).

The issues of middle school licensing, teaching, and curriculum development are complex. Several volumes could be written on middle school regulations and procedures. The next section will look specifically at family and consumer sciences and its role within the middle school curriculum.

**Middle School Family and Consumer Sciences Curricula**

Early adolescence is an important time in the educational career of students. Between the ages of 10 and 15 and grades 5 or 6 through 9, youth experience many physical, intellectual, and social changes (Hadley, 1996). The influence and effects of experiences of students at this age are long lasting. The students’ perceptions during these years form attitudes which extend well into their adult years (Hadley, 1996). This section will address
the role of family and consumer sciences in the middle school and characteristics and curriculum typical for middle school family and consumer sciences programs.

Many researchers agree that the role of family and consumer sciences in the middle school is one of exploration. According to McFadden and Monroe (1992), exploratory subject such as home economics are important for middle school students because they allow exploration of the needs, interests, talents, and skills of the students in these subjects and allow them to use what they have learned as a basis for their high school education. Exploratory courses also allow students to apply the facts, skills, and information learned in academic classes, such as mathematics and science, to projects and activities (McFadden & Monroe, 1992).

The home economics curriculum easily fits the needs of early adolescents, focusing on the physical, intellectual, and socioemotional needs of the students. Integrating and applying knowledge from the academic subjects allows students the opportunity to solve real problems in all areas of home economics. As a result of being aware of and addressing these issues, students can take responsibility for changing their lives and making positive change in society (Tippett, 1994).

A national study of early adolescent home economics programs was conducted in 1992 (Smith, 1992). Smith reviewed programs in grades 5 through 8 to assist curriculum planners, teachers, and administrators with future planning of early adolescent programs in home economics. Although home economics has traditionally played an exploratory role in the junior high/middle school curriculum, increasing pressures and choices available to students aged 10 to 15 make the life skills taught in home economics classes even more important than before (Smith, 1992).

Smith’s study found the largest percentage of time in all middle school grade levels was spent on food and nutrition and on textiles and clothing. The course length, as measured in weeks, varied by grade level. For fifth grade courses, 6 ½ weeks was the average, in sixth grade, 10 weeks, 16 weeks in seventh grade, and 21 weeks for eighth grade courses (Smith, 1992). The study suggested students spend more time in the areas of family relations and child development. Topics such as human growth and development, values, decision making, and interpersonal relations are important for students who are in the process of
determining new roles for themselves and seeking independence from their parents (Smith, 1992).

The study also suggested that, although units in food and nutrition and in textiles and clothing should remain in the curriculum, the activities and lessons should emphasize other more contemporary topics. Some examples in the food and nutrition area include: the value of a healthy diet, eating out, exercise, and the dangers of illegal drugs, alcohol, and tobacco. In the area of textiles and clothing, possible topics are design, presentation of self, and the family clothing dollar (Smith, 1992). Consumer budgeting and financial decisions also need more emphasis in the middle school home economics curriculum. Smith feels strong home economics programs at the middle school level can positively affect the entire profession. A student’s first exposure to home economics must include relevant and updated curriculum in order to feed the high school courses, which in turn provide college and university with students. Therefore, the lack of a strong base at the middle school hurts the profession of home economics. A curriculum focusing on current issues and offering hands-on activities is vital to sustaining the middle school home economics program, as well as the field as a whole (Smith, 1992).

Middle school programs in family and consumer sciences traditionally have had a heavy emphasis on food preparation and clothing construction. This “stitching and stirring” image has been difficult to shed. However, the development of a new curriculum is not a simple process, as shown in Pauly’s 1996 study. In 1996, a survey was completed of sixth, seventh, and eighth grade students, their parents, and professional, faculty, and community leaders at the Springton Lake Middle School in Media, Pennsylvania (Pauly, 1996). The purpose of this survey was to review and revise the family and consumer sciences curriculum of the school. A questionnaire was developed, asking the three groups which topics were essential to the curriculum, which were nice but not essential, and which were not important (indicated by circling “no”).

The resulting data showed some disagreement among the groups. Students listed their top four choices for curriculum as banking, machine sewing, child care, and cooking. Parents chose their top four topics as family, parenting, communicating, and consumerism. The professionals, faculty, and community group thought communicating, parenting, family,
and child care were most important for middle school students to learn in family and consumer sciences classes (Pauly, 1996). The four lowest curriculum choices for students included parenting, family, self care, and geriatrics, while parents listed cooking, community service, hand sewing, and machine sewing as their lowest curriculum priorities (Pauly, 1996). The professionals, faculty, and community group chose banking, hand sewing, machine sewing, and community service as the least important curriculum topics (Pauly, 1996).

Of the top four topics chosen by the parent and the professional, faculty, and community groups, only consumerism and child care were in the current curriculum. The current curriculum did include three of the four students’ choices, banking, machine sewing, and child care (Pauly, 1996). The sample size of this study included 70% of the total student population in grades six, seven, and eight. The response rate for all students was 51%, with responses from 82 sixth grade responses, 122 seventh grade responses, and 113 eighth grade responses. Nearly one-third (34%) of the parents responded to the questionnaire. From the professional, faculty, and community group, 86 responses were collected, but because the number of the sample size is not given in the literature, an overall response rate cannot be calculated (Pauly, 1996). This study illustrates the difficulty of meeting the needs and wants of students, parents, and the community.

The next few paragraphs will address the development of middle school curriculum. The considerations and needs of the students at this age level are an important factor when revising or creating middle school curriculum. Because of the serious and sometimes traumatic changes middle schoolers face, the curriculum must be designed to meet the specialized needs of students this age.

The needs of middle school students can be divided into four areas. These areas are: intellectual, emotional, physical, and social. To meet intellectual needs, the curriculum must be activity-based and concentrate on the student’s environment at the moment. In addition, providing many opportunities for interaction, role-playing, and problem solving by using basic skills learned in other subjects helps stimulate intellectual growth. Finally, to develop intellectually, students need to be able to explore a wide variety of interests (Mays, 1981). Emotional development can be encouraged by allowing open discussion and expression, providing a tolerant environment, and including many forms of evaluation to encourage
success (Mays, 1981). A middle school curriculum can promote physical growth by providing information on physical traits and changes typical of preadolescents encourage acceptance of these changes, explore values, roles, and consumer viewpoints on clothing selection and grooming (Mays, 1981). To meet social needs of middle school students, the curriculum should emphasize decision making, peer pressure regarding food, clothing, consumer purchases, and behavior, sorting values, and setting goals (Mays, 1981).

For a developmentally appropriate home economics program, as many concepts as possible should be presented. Successful middle school home economics programs often include one or more of the following characteristics: provide experience in all areas of home economics, use short units to accommodate short attention spans, provide culminating activities at the end of each unit, encourage students to be responsible for their own learning, provide community-based learning, and use frequent activity-based lessons (Mays, 1981).

The last suggestion of using activities with the lessons cannot be emphasized enough. Using activities with teaching allows for the promotion of critical thinking skills, values, cooperation, and communication skills (Mays, 1981). Although these suggestions are over 20 years old, they are still very appropriate advice for the middle school educator in all areas, but especially family and consumer sciences. Students of this age are curious, critical, insecure, experimental, and judgmental. Hands-on activities provide them a way to test information and value systems for themselves (Mays, 1981).

Idelle Fauske echoes these same ideas in her 1994 article “An Ideal Middle School Home Economics Program.” In this writing, she outlines several factors describing an ideal middle school home economics program. The first component of an ideal middle school home economics program is a curriculum which allows students to address and solve practical or perennial problems using practical reasoning. Using this process allows students to focus on problems in an immediate, everyday context as well as in the larger societal arena (Fauske, 1994). “Learning and using practical reasoning is both a family and school responsibility and is the basis of good citizenship and the foundation of democracy.” (Fauske, 1994 page 206)

A second component of an ideal middle school home economics program is the presence of many learning activities (Fauske, 1994). Educational activities in the classroom
allow for later group and individual reflection. The interpretation of each activity may vary among students, and this provides for a diverse dialogue among students, allowing for opportunities to encourage complex thinking, practical reasoning, and interpersonal communication among students (Fauske, 1994).

A third major component is an important part of an ideal middle school home economics program. Connecting the classroom to the community allows students to use their practical reasoning to start positive programs within their immediate area (Fauske, 1994). These programs may address perennial problems within the community, help meet the unmet needs of a community, or provide service to current community programs.

In order to fit all of the above components into a middle school home economics programs, three things must be in place to support the curriculum. First, the program must have plentiful materials and equipment. This provides opportunities for students to explore and experience many different ideas while developing competence in multiple areas. Integrating home economics with other curriculum areas is essential in an ideal middle school home economics program. In this way, the connection between the family and education can be emphasized, illustrating the integrative nature of the family and society (Fauske, 1994). Finally, in order to meet all of the above points, home economics programs for middle school courses must be held for an appropriate length of time. The author suggests every day for one semester. This allows the students to know and understand the other students and the teacher more fully and allows the teacher to provide a more individualized and relevant curriculum for each student (Fauske, 1994).

McFadden and Monroe evaluated two state-wide middle school home economics programs (Utah and New York) in 1992 based on the middle school home economics section of the National Study of School Evaluation (NSSE). The general goals of “practical courses” including, business, technical education, and home economics at the middle school are to provide problem solving, career orientation, and learning for tomorrow’s environment. These areas should be “planned, integrated, and taught through interactive experiences and/or a laboratory environment.” (McFadden & Monroe, 1992, page 75)

The section of the NSSE document on home economics states the objectives of middle school programs. These programs must include content in:
• Personal and family responsibilities
• Health lifestyles/hygiene
• Child care and guidance
• Relationships and communications
• Self-esteem
• Decision making
• Resource management, time, money
• Skills for selection and care of clothing
• Skills for the selection and preparation of nutritious foods
• Skills for organization and care of personal space
• The influence of changing technology on the home and workplace
• Sewing

These objectives must also include skills in measurement, be appropriate for both male and female students, and have input from parents, teachers, school counselors, administrators, and business representatives (McFadden & Monroe, 1992).

In 1986, the state of New York re-vamped their middle school home economics curriculum. This curriculum was developed as four independent units for sixth, seventh, and eighth graders, each lasting 7 ½ to 10 weeks. The four units included self, money management, decision making, and careers. The orientation of the curriculum changed its focus from product to process. Emphasizing the process allows for activities which provide students opportunities to learn how to make decisions, solve problems, and manage personal and family resources (McFadden & Monroe, 1992). Major changes from the former curriculum included:

• A broadened integrated approach
• An emphasis on the process of decision making to manage personal life, work, social relationships, and the environment
• Avoiding gender bias
• Focus on units of instruction rather than a whole course
• Moving from an elective to a required course for all students.
The state of Utah developed a middle school/junior high school home economics curriculum as part of the larger vocational curriculum known as Technology, Life, and Careers (TLC) Vocational Core Curriculum. The TLC program, which began in 1990, is an exploratory vocational program which includes six areas of study. These areas are: agriculture, business, marketing, health occupations, home economics, and industrial arts (McFadden & Monroe, 1992). This curriculum is designed to be the first exposure of vocational education programs for the sixth or seventh grader. Major objectives of the TLC program include:

- Introduce students to vocational programs
- Explore related careers
- Use hands-on, relevant, and practical application activities
- Utilize the latest technology in each field
- Encourage future enrollment in vocational courses

The TLC home economics curriculum focuses on "advanced technology, activity-centered group work, and individualized challenge projects." (McFadden & Monroe, 1992). The curriculum is activity- and process-oriented and emphasizes the following areas: independent living skills, families, child care, textiles technology, foods and nutrition, free enterprise, and health occupations (McFadden & Monroe, 1992).

Although the program ideas and curricula highlighted in this section are not the only models of middle school family and consumer sciences education, they represent prominent ideas on family and consumer sciences education at the middle school level at this time.
CHAPTER 3. METHODOLOGY

Purpose of the Study

The purpose of this study was two-fold. First, the data from the project should provide a base of information about Iowa’s family and consumer sciences programs at the middle school level in Iowa’s public schools. Second, using the data gathered, the study will help determine if out-of-field teaching is occurring in Iowa’s middle school family and consumer sciences programs, and if so, the factors that cause this phenomenon. With this data, appropriate curriculum and programs can be developed for Iowa’s middle school family and consumer sciences teachers. Specific research objectives were to determine the following:

1. Is out-of-field teaching occurring in Iowa’s public middle school family and consumer sciences programs?
2. What factors contribute to out-of-field teaching in middle school family and consumer sciences programs in Iowa’s public schools?
3. What effects do the school district’s characteristics have on the frequency of out-of-field teaching in Iowa’s middle school family and consumer science programs?
4. How likely are Iowa’s middle school family and consumer sciences programs to experience higher levels of out-of-field teaching in the future?

Research Design

In the state of Iowa, middle school and high school family and consumer sciences teacher certification is slightly different than high school certification requirements, particularly with respect to who the state allows to teach family and consumer sciences at each level. According to the Iowa Board of Educational Examiners (Iowa BOEE), 24 semester hours of family and consumer sciences related content must be completed before one can teach at the high school level. This content must include course work in foods and nutrition, consumer education, family living and parenthood education, child development, housing, home and resource management, and clothing and textiles. In addition, four hundred hours of work experience in one or more family and consumer sciences related occupations is required. Courses in family and consumer sciences must also include methods and techniques of instruction, foundations of career and technical education, course and
curriculum development, and evaluation procedures for programs and students (Iowa BOEE, 2002). All of this is required by the state to teach family and consumer sciences in grades 9 through 12. Certified teachers may earn a provisional endorsement by completing 15 credit hours in the discipline, but must complete courses in all areas to earn a full endorsement (Iowa BOEE, 2002).

At the middle school level, an endorsement in family and consumer sciences is not required to teach in the field. The introduction of the middle school endorsement in 1996 allowed middle school educators much more flexibility regarding subjects that can be taught by the licensed teacher. The middle school endorsement allows the holder to teach all subjects in grades five through eight, except art, music, industrial arts, physical education, reading, and special education (Iowa BOEE, 2002). Because family and consumer sciences is not included on the list of exceptions, educators who are endorsed to teach at the middle school level are free to teach in any subject area at the middle school level, except for the subject areas listed above.

To be eligible for a middle school endorsement, a teacher must hold a grade 7 to 12 or elementary level certificate (K to 6). To earn a middle school endorsement, the teacher must complete two courses of three credits each. The first of the two courses must contain coursework on the growth and development of the middle school child and must be taken in addition to any growth and development course needed for the general education professional core. The second course must include curriculum design and instruction methods used in middle school education. This course must be in addition to the methods course taken by the teacher in his or her original area of endorsement. In addition to these two courses, teachers must have completed 24 hours in four curriculum areas which are commonly taught at the middle school level. Six credits must be obtained in social studies and must include course work in American history, world history, and geography. In the field of science, six credits must be completed in both life science and physical science. The mathematics background includes six credits and must include algebra. The final component of the middle school endorsement is six credits in language arts. These six credits must include subject matter in grammar, composition, and speech. No course work in FCS is required of teachers who wish to pursue a middle school endorsement. With a middle school endorsement, a teacher could
be teaching family and consumer sciences to middle schoolers and have no coursework in family and consumer sciences. This would all be fully compliant with both the state of Iowa and the Iowa Board of Educational Examiners (Iowa BOEE, 2002).

In Iowa, no data is kept about the educational background or preparation of middle school teachers who lead family and consumer sciences classes. Without this information, it is difficult to know how to serve this population of teachers. The Department of Education also has very little data about middle school family and consumer sciences programs in Iowa, and this lack of information makes it difficult to develop curriculum units and informational workshops which would benefit the current population of middle school family and consumer sciences educators teaching in Iowa’s public school districts.

To gather the data needed to meet the research objectives of this study, a mailed questionnaire was chosen as the test instrument. A mailed questionnaire was determined to be the most efficient, most accurate, and most cost effective method of collecting the information needed.

Population and Sample

The population for this study consisted of all middle school family and consumer sciences teachers in Iowa’s public schools. An electronic list of the 534 middle schools was provided by the Iowa Department of Education for the 2001-2002 school year. Parochial, Amish, and other private schools and academies were eliminated from the list, leaving a population of 395 middle schools. A random sample of 241 schools (61%) was identified. For each school, a teacher contact was located whenever possible. In larger schools, all of the middle school family and consumer sciences instructors were identified. For those schools without a current teacher contact, surveys were addressed to the middle school family and consumer sciences teacher. Teacher names, schools, and school addresses were taken from a computer file provided by the Iowa Department of Education, with additional information from school websites, Families, Career, and Community Leaders of America (FCCLA) membership lists, and the Iowa Family and Consumer Sciences Directory of Personnel.
Instrument Development

Instruments used in related studies (Drizou, 1993 and Lei, 1999) were reviewed. However, neither instrument could be used to meet the research objectives of this study. For this reason, a new questionnaire was developed, using the research questions on page 25 as a guide. The survey consisted of seven sections. These sections included: family and consumer sciences programs at the middle schools, educational backgrounds of the teachers, teaching assignments, college preparation, school district characteristics, teaching history and future plans, and teacher demographics. The instrument is shown in Appendix A.

The first eight items focused on the status of family and consumer sciences programs in Iowa’s public middle schools during the 2001-2002 school year. The first question asked if the instructor had taught middle school family and consumer sciences in the last year. If the answer was no, the teachers were instructed to either return the survey or forward it to the appropriate faculty member. If the teacher answered yes, they were directed to move forward to other questions. These questions addressed the percentage of time spent with middle school students, the students are required to take family and consumer sciences, the forms family and consumer sciences are offered (i.e. required, elective), and the organization of the instruction at the middle school. Items 6, 7, and 8 were designed to describe the middle school in relation to the high school and the school district as a whole.

The second section was developed to identify the educational background of the teacher. Educational background described the license major and minor and the department or departments where the teacher taught during the 2001-2002 school year. The next three items addressed the student grade level that the educator was certified to teach and the grade level he or she felt best matched his or her teaching philosophy and style of instruction. The last two items were to identify any additional endorsements the teacher held in addition to her teaching license.

The next section requested information regarding the teaching assignment of the instructor for the 2001-2002 school year. The item inquired about the percentage of time spent teaching family and consumer sciences to all levels of students. Additional duties of teachers were addressed in the next two items. The next items asked how satisfied the teachers were with their current assignment. An open-ended area was provided for them to
explain the reason for their level of happiness. The last three items in this section were to
determine the reason for the teaching assignment and to identify others in the school who
could teach middle school family and consumer sciences, if any.

The fourth section explored the college preparation of the teachers. This section
differed from educational background because it concentrated on how well the college
courses prepared the teacher as opposed to the type of educational qualifications the teacher
held. Two items addressed how well the subject matter, pedagogy, and methods prepared the
teachers for their current positions. The second part of this section inquired about the student
teaching experience of the teacher, if the teachers had had a family and consumer sciences or
home economics student teaching experience and, if so, how long the experience was.

The fifth section concentrated on the school district. The first two items addressed
the classification (rural, urban, etc.) and number of students, while the third and fourth items
asked about the ease of recruiting teachers to the district and the options the administration
explores to deal with unfilled vacancies.

The sixth section was designed to determine how long the teachers have been
 teaching and how long the instruction has been in the field of family and consumer sciences.
The next two items asked how long the teachers planned to remain in the teaching field and
the area of family and consumer sciences education. The final two items in the section
addressed professional development in the past year and planned professional development
for the next year and beyond.

The last section was to identify personal characteristics of each teacher. The six
items asked about gender, ethnicity, age, education, where the original teaching certificate
was earned, and what state granted the original teaching license.

Validating the Instrument

The instrument was reviewed continually throughout the development by three
professors who offered advice on evaluation, research design, and surveying secondary
teachers. The initial draft of the instrument was reviewed item by item by these three. Their
comments were noted and the revisions were incorporated into the instrument design. Many
of the revisions concerned the length of the questionnaire, the ambiguity of the questions, and
the fit of the questions with the research objectives.
Human Subjects Review

Because human subjects were used in this study, the Iowa State University Committee on the Use of Human Subjects in Research reviewed the questionnaire and the data collection procedures used in this study. The committee concluded no risks to participants were expected and the rights of the subjects were protected. The researcher has completed the training needed to work with human subjects at Iowa State University. Both the human subjects approval and verification of the training are shown in Appendices B and C.

Data Collection

Data for this project were collected by mailed questionnaires during April, May, and June 2002. On April 15, a postcard was mailed to the sampled teachers, informing them of the impending arrival of the questionnaire (Appendix D). According to Salant and Dillman (1994), this method reaches the people who are being sampled, increases their interest in responding to the questionnaire before it arrives, and increases the response rate.

Questionnaires were mailed to 253 middle school family and consumer sciences educators on April 22. Personalized (when possible) and signed cover letters (Appendix E) on original letterhead of the Department of Apparel, Educational Studies, and Hospitality Management explained the purpose of the study, stressed the importance of participation, and assured confidentiality of responses. All questionnaires were coded for identification purposes and to avoid sending reminders to those who had already responded (Salant and Dillman, 1994). By May 17, 2002, 164 questionnaires had been returned.

Following procedures outlined by Salant and Dillman, (1994), follow-up postcards were sent on May 20 to the 88 non-respondents (Appendix F). This resulted in 20 additional responses. One questionnaire was sent to a high school teacher and was dropped from the sample. A total 252 teachers were sampled. With 184 of 252 teachers responding, a response rate of 73% was achieved. Eight had no middle school program or were not teaching middle school family and consumer sciences and were dropped from the sample. This left 176 valid responses out of 244 sampled, resulting in a 72% response rate.
Data Analysis

Questionnaires from teachers whose schools had no middle school family and consumer sciences programs and the questionnaire which had been sent to the incorrect person were eliminated from the data set. The remaining questionnaires were coded in a manner appropriate for data analysis and entered into a spreadsheet program. Using Statistical Analysis Software (SAS) version 8.2, descriptive and inferential statistics were calculated. Frequency distributions were calculated for all items.

Three groups of teachers were compared using analysis of variance (ANOVA) F-test. These three groups included the teachers who had a major in family and consumer sciences education, the teachers who held a minor in family and consumer sciences education, and those who did not hold either a major or minor in family and consumer sciences education. The null hypothesis was that the difference between the means of the three groups would equal zero. Tukey's test for multiple comparisons was performed to compare the differences between the means and to construct confidence intervals for these differences. When the confidence intervals for the mean differences for each group did not contain the value zero, the null hypothesis was rejected.

In addition, a profile of each group was constructed using the variables which showed differences between groups of teachers. The frequency of responses for the three groups were compiled for these variables and displayed in a table (see Appendix G).
CHAPTER 4. RESULTS AND DISCUSSION

The purpose of this study was to determine the rate of out-of-field teaching among Iowa’s middle school family and consumer sciences teachers and the factors affecting this rate. In addition, the likelihood of increased rates of out-of-field teaching was also examined. To obtain this data, 253 middle school family and consumer sciences (FCS) teachers from 241 schools were surveyed. Completed and usable questionnaires were received from 176 teachers. After removing the surveys from schools with no middle school programs and the one sent to a person who was not teaching middle school, the final response rate was 72%.

The data findings will be presented in two parts. The first section will report the frequencies and percentages of each questionnaire item. The second section will show the results from the inferential statistic tests. These tests were performed to examine the differences, if any, in the responses between the teachers who have a major in FCS education, those who have a minor in FCS education and those who have neither a major or minor in FCS education. The questionnaire sent to the teachers included seven sections. These sections addressed information regarding the family and consumer sciences programs at the teacher’s middle school, the educational background of the teacher, the current teaching assignment, college preparation of the teacher, school district characteristics, teaching history and future plans, and teacher demographics.

Middle School Family and Consumer Sciences Program Information

In this part of the survey, teachers were asked the percentage of their time spent teaching middle school students, the requirements for family and consumer sciences at the middle school, the form of family and consumer sciences courses offered at the middle school, and the organization of middle school teaching in the teacher’s school district.

All 176 teachers included in the data set taught family and consumer sciences to middle school students. The amount of time spent with middle school students varied among teachers (Table 4). Sixty-six teachers spent 81 to 100% of their time with middle school students. Smaller numbers of teachers taught middle school students between 26 and 80% of the time. Most teachers surveyed taught middle school students either for a small amount of
time (one or two classes) or for most of the day, as 75% of the teachers surveyed taught middle school students either over 81% of the time or less than 25% of the time.

Table 4. Amount of Time Teachers Spend With Middle School Students

<table>
<thead>
<tr>
<th>Percent of Time</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 percent or less</td>
<td>66</td>
<td>38</td>
</tr>
<tr>
<td>26 – 33 percent</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>35 – 50 percent</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>51 – 66 percent</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>67 – 80 percent</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>81 – 100 percent</td>
<td>66</td>
<td>38</td>
</tr>
</tbody>
</table>

\(^a\) N = 176

The requirements for family and consumer sciences at the middle school varied among respondents (Table 5). Only 53 (30%) had programs requiring all middle school students to take family and consumer sciences classes. Twenty (11%) required family and consumer sciences courses only for 7th graders and 24 (14%) required only 8th graders to take family and consumer sciences. No program in this sample required family and consumer sciences of only 6th or 9th grade students, although 11 (6%) required family and consumer sciences for 6th and 7th graders and 10 (6%) required family and consumer sciences for 6th, 7th, and 8th graders. Fifty-one (29%) required family and consumer sciences courses for 7th and 8th graders only and only 5 (3%) required only 6th and 8th graders to take family and consumer sciences. Six respondents (3%) had no requirement for family and consumer sciences in the middle school. Percentage totals do not equal 100 because of multiple responses.

Table 5. Requirements for Middle School Family and Consumer Sciences Programs

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>7th Grade</td>
<td>92</td>
<td>52</td>
</tr>
<tr>
<td>8th Grade</td>
<td>90</td>
<td>51</td>
</tr>
<tr>
<td>9th Grade</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>All students</td>
<td>53</td>
<td>30</td>
</tr>
<tr>
<td>No requirement</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^aN = 176\)
Most of the middle school family and consumer sciences classes in the sample are offered to students as an exploratory (short-term introductory classes) requirement, as 161 (91%) taught middle school family and consumer sciences in this context. Only 8 (5%) offered middle school family and consumer sciences courses as an exploratory option and only 9 (5%) classified middle school FCS courses as electives, multi-disciplinary units, or as part of a life skills or health unit. Some schools varied the offering by year, with 7th graders having different requirements than 8th graders. Twenty-two (13%) reported that FCS at their middle school was offered this way.

Team teaching is becoming more common in the secondary education system. In the Iowa middle schools sampled, 81 (47%) teach in some form of team, with 22 (12%) separated into discipline-based teams, 21 (11%) in multi-disciplinary teams, 8 (5%) in core/encore teams, and 30 (17%) in academic and vocational or exploratory teams. Ninety-three (53%) teach as part of an academic or discipline-based department with no team teaching (Figure 2).

The number of middle schools in each school district surveyed reflected Iowa’s rural population base. Out of the 176 in this sample, 147 (84%) reported only one middle school in their school district. Table 6 shows the remaining distribution.

The location of these middle schools in relation to the high school has a more varied distribution. Seventy-one (40%) of the teachers reported that the high school and middle school was in the same building, while 23 (13%) of the middle schools were in a building adjacent to the high school. Of those adjacent, 16 (9%) were in an attached building and 7 (4%) were in a detached building. Of those in adjacent or separate buildings, about one-fifth, 20 teachers, taught in both buildings, while the remaining 85 (81%) did not teach in both buildings.

Educational Background of the Teachers

Table 7 illustrates the varied backgrounds middle school FCS teachers bring to the classroom. Ninety percent of teachers (158 teachers) have at least one endorsement in FCS or home economics, and 131 (74%) have only a FCS or home economics major. Fourteen (7%) have neither a FCS or home economics major or endorsement. This 7% can be classified as teaching out-of-field. Of the 27 who have more than one endorsement, 13
Table 6. Number of Middle Schools in the School District\textsuperscript{a}

<table>
<thead>
<tr>
<th>Number of Middle Schools</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>147</td>
<td>84</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>More than 6</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

\textsuperscript{aN = 176}

Figure 2. Teaching Organization\textsuperscript{a}

\textsuperscript{aN = 176}
classified their major as other and 6 listed health as their second major. A sample of the majors classified as "other" includes counseling, coaching, elementary education, and middle school education. Some teachers marked more than one major so percentages in Table 7 are greater than 100.

Table 7. License Certification Major of Teachers

<table>
<thead>
<tr>
<th>License Major</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family &amp; Consumer Sciences</td>
<td>58</td>
<td>33</td>
</tr>
<tr>
<td>Home Economics</td>
<td>115</td>
<td>65</td>
</tr>
<tr>
<td>Art</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Social Studies</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Special Education</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>11</td>
</tr>
</tbody>
</table>

aN = 176

The item about certificate minors had few respondents and some of these listed the same academic area as their major. When these respondents were eliminated, the pool of teachers with minors was considerably smaller. Only one person reported a minor in FCS, while only three reported a minor in home economics. The most popular response for a minor was "other", with 48 people falling into this category (51% of the adjusted sample for this item). "Other" in this case most often was specified as "none" or no minor. Those who specified a minor often listed content areas of FCS, such as foods and nutrition, child development, housing, or interior design. Others listed coaching, talented and gifted, and elementary education as their minor.

Although 90% of the teachers surveyed had FCS or home economics endorsements, many of them still teach at least part time in other departments. From the previous two items, it is known that 131 of the 176 (74%) had only a FCS or home economics endorsement. However, when asked which department or departments the teachers taught in, only 122 of the 176 (69%) were only teaching in the FCS or home economics department. Forty others were teaching in FCS or home economics plus one other department. Of these, half (20 teachers) were teaching in the health department. Other common responses for the one other department were business, science, and art. Ten teachers were teaching in FCS or
home economics plus two additional departments. Only 4 (2%) did not consider themselves to be a part of a FCS or home economics department (Table 8). Many teachers listed more than one department so percentages will be greater than 100.

Table 8. Departments Where Teachers Are Teaching*

<table>
<thead>
<tr>
<th>Department</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family &amp; Consumer Sciences</td>
<td>164</td>
<td>93</td>
</tr>
<tr>
<td>Home Economics</td>
<td>33</td>
<td>19</td>
</tr>
<tr>
<td>FCS/ Home Economics</td>
<td>172</td>
<td>98</td>
</tr>
<tr>
<td>Art</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Health</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>Math</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Social Studies</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

*N = 176

Almost all the teachers surveyed were certified to teach at the middle school. As Table 9 shows, most were certified to teach middle school by the way of a 7-12 or K-12 certificate. Those who listed “other” as their certificate level usually had either a K-8 or a 7-14 (enabling them to teach at a community college) certificate. Some teachers had certificates for more than one age group so the totals of Table 9 are greater than the sample number.

Table 9. Age Level of Student on Teachers’ Certificates*

<table>
<thead>
<tr>
<th>Level of Students</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 – 12</td>
<td>149</td>
<td>85</td>
</tr>
<tr>
<td>K – 12</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>K – 6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Licensed to Teach Middle School</td>
<td>175</td>
<td>99</td>
</tr>
</tbody>
</table>

*N = 176

The next two items of the survey inquired about the age of students the teachers felt most complemented their philosophy and style of teaching. The philosophy of many of the teachers most closely matched middle school students, with 75 teachers (43%) indicating only middle school students as their choice. Forty teachers (23%) reported they felt only upper high school students (grades 11 and 12) fit their philosophy of teaching, while 16 (9%)
reported the same for lower level high school students (grades 9 and 10). Several teachers thought more than one age group complemented their teaching philosophy. Twenty-three (13%) believed both high school and middle school students fit well with their philosophy of teaching, while 8 (5%) preferred only high school, and 5 (3%) liked middle school and lower high school. One person felt middle school and upper elementary level students most suited her teaching philosophy. Finally, one person felt most comfortable with middle school and upper high school students. When combining those who felt comfortable with one age group and those who felt comfortable with more than one age group, 105 (60%) felt middle school students suited their philosophy, with upper high school at 72 (41%) and lower high school at 52 (30%).

The survey item regarding style of teaching followed a pattern similar to the teaching philosophy item. Again, middle school aged students were the most preferred age to fit with the style of teaching, with 67 (38%) choosing only middle school. Forty-eight (27%) thought upper level high school students fit the best with their style of teaching and 14 (8%) felt lower high school students best suited their style of teaching. Twenty teachers (11%) believed their teaching style worked well for both middle school and high school students. Eleven (7%) preferred only high school students, while 7 (4%) felt they worked best with middle school and lower high school. One person preferred to teach to middle school and upper elementary aged students. When combining those who liked only one group and those who liked more than one group, a total of 97 teachers (55%) thought middle school students were the age that best suited their style of teaching. Eighty-nine (46%) felt upper high school best complemented their teaching style, and 52 (30%) felt their style of teaching was suited to lower high school.

Next, teachers were asked if they held any additional endorsements besides those on their teaching license. Ninety-two (52%) reported holding an additional endorsement or endorsements. The remaining 82 (47%) had no other endorsement. The additional endorsements held by the teachers varied. Twenty teachers (22%) of those holding another endorsement held a middle school endorsement. As stated in the methodology section, this endorsement allows them to teach in all middle school areas except for art, music, industrial arts, physical education, reading, and special education. Coaching was another popular
endorsement, with 18 (20%) teachers eligible to coach athletics. Seven teachers (8%) held an administrative endorsement, seven teachers held a multi-occupational endorsement, and seven teachers held a special education endorsement. Five teachers reported they held an instructional technology endorsement, while 2 held a talented and gifted endorsement (TAG) and one held a media specialist endorsement.

Teaching Assignments

The next portion of the survey addressed teaching assignments, other non-teaching duties, and general happiness with the current teaching assignment. Teachers were asked to indicate the amount of time spent teaching FCS classes. As Table 10 illustrates, many of the teachers spend the majority of their time teaching FCS courses. However, 32 (18%) spent less than 50% of their time teaching FCS classes, and 44 (25%) spent less than two-thirds (less than 66%) of their time with FCS courses. The remaining 75% (130 teachers) spent at least two-thirds of their time teaching FCS classes.

Table 10. Percentage of Time Teachers Spend Teaching FCS Courses

<table>
<thead>
<tr>
<th>Time Spent</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 percent or less</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>26 - 33 percent</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>34 - 50 percent</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>51 - 66 percent</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>67 - 80 percent</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>81 - 100 percent</td>
<td>109</td>
<td>62</td>
</tr>
</tbody>
</table>

*\(N = 174\)

Teachers frequently have other duties in addition to their classroom teaching. Table 11 shows the distribution of these duties. When asked if they had any duties besides teaching, 127 (73%) said yes. The remaining 48 (27%) did not report any duties other than teaching. Although only 127 indicated they had extra duties, 138 completed the follow-up question. The reason for this is unknown, but the extra responses were included in the final count. Of those who had duties, the most popular was extra-curricular jobs, usually advising Family, Career, and Community Leaders of America (FCCLA) or other clubs or coaching athletics. Other common tasks included study hall monitoring, curriculum writing, lunchroom duty, and other duties. Duties classified as “other” encompassed many areas. Some of these were hall duty, detention monitor, class sponsor, bus duty, homeroom duty, and limited recess duty. Many teachers checked several duties so the totals will be greater than 138.
Table 11. Duties in Addition to Teaching

<table>
<thead>
<tr>
<th>Duty</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Curriculum writing</td>
<td>45</td>
<td>33</td>
</tr>
<tr>
<td>Study hall</td>
<td>54</td>
<td>39</td>
</tr>
<tr>
<td>Technology</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Extra curricular</td>
<td>63</td>
<td>46</td>
</tr>
<tr>
<td>Lunch</td>
<td>40</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>49</td>
<td>35.5</td>
</tr>
</tbody>
</table>

aN = 138

Fifty-eight (42%) teachers had only one duty in addition to their teaching responsibilities, while 45 (33%) had two duties. Twenty five percent (35 teachers) had three or more duties, with 18 having three and 17 having four or more in addition to classroom teaching.

The next survey item asked the teachers about their happiness with their current teaching assignment. Seventy-three (42%) were extremely happy and 60 (34%) were moderately happy with their current teaching assignment. Thirty-one teachers (18%) reported that they were fairly happy. Those who were at least fairly happy were in the great majority, as 164 teachers (94%) reported they were fairly happy or above. Only 11 teachers (6%) indicated they were fairly unhappy, moderately unhappy, or very unhappy. Most of these were fairly unhappy, with six feeling this way. Three were moderately unhappy, and two were very unhappy. Teachers were asked to elaborate on the reason for their answer and many of them did. Some reasons for higher levels of happiness were 1) meaningful content for students 2) the variety of classes 3) plenty of preparation time 4) a good administration 5) a great schedule and 6) good kids and colleagues. Common reasons for unhappiness include: 1) too many classes to prepare for 2) discipline problems 3) having to travel between 2 towns or schools 4) dislike middle school age students 5) large classes 6) special needs students with no assistance and 7) too little instructional and general support from the administration.

When asked for the reason they were teaching middle school FCS, most indicated they either taught high school FCS or had been educated to teach FCS. As Table 12 shows, very few teachers were assigned to teach FCS if they weren't qualified. Four teachers did not respond to this question, but several gave more than one response so Table 12 totals are greater than the sample size.
Table 12. Reasons for Middle School FCS Teaching Assignment

<table>
<thead>
<tr>
<th>Reason for Assignment</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach high school FCS</td>
<td>89</td>
<td>52</td>
</tr>
<tr>
<td>Trained/educated to teach FCS</td>
<td>117</td>
<td>68</td>
</tr>
<tr>
<td>Middle school endorsement</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Coursework in FCS (but no endorsement)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

*N = 172

The next two items asked the teachers if anyone else in the school district could teach middle school FCS in their place, and, if so, the teachers were asked to identify this person using the categories given in the next question. The majority of teachers, 104 (60%) reported they knew of no one within the district who could replace them; however, 70 (40%) teachers could identify a possible replacement within their school district. Some teachers could provide more than one possibility. The data from this question are shown below in Table 13. Although only 70 felt they knew of someone within the district who could replace them, 80 answered the question. Once again, all responses were included in the calculation.

Table 13. Others in the School District Who Could Teach Middle School FCS

<table>
<thead>
<tr>
<th>Person who Could Teach</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current full time faculty teaching in another area</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>Current full time faculty in family &amp; consumer sciences</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Current part time faculty in family &amp; consumer sciences</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Current faculty with FCS background teaching in another area</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Current part time faculty in another area</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>13</td>
</tr>
</tbody>
</table>

*N = 80

As reported in Table 13, the most common responses were current full time faculty in other areas, current full time faculty in FCS, and current full time faculty with a FCS background who are teaching in other areas. Although several teachers were aware of the education code which allows middle school FCS teachers to have other academic backgrounds, many were unsure of who will take their positions when they resign or retire.
In some areas of the state, a pool of unemployed FCS teachers are apparently substituting or teaching in other academic areas (most likely out-of-field) while waiting for impending retirements or openings, while in other areas of the state, teachers are worried about severe program cuts and possible closures because of a lack of program support and qualified candidates available for employment.

**College Preparation of Teachers**

The next section of the survey questioned teachers about how well they felt their college coursework prepared them for their current teaching assignment and the type of student teaching experience they completed, if any. The teachers felt their preparation in subject matter was good. Many teachers, even after many years out of college, felt very positively about the relevance of the subject area courses in the FCS curriculum. Nearly all, 166 teachers (95%), rated the subject matter preparation fairly well or higher. Forty-six (26%) rated the preparation extremely well, 78 (45%) rated the preparation moderately well, and 42 (24%) rated the content area preparation fairly well. Only 9 teachers (5%) rated the preparation in content areas as fairly poorly or below.

Methods and pedagogy preparation were not as positively perceived as subject area preparation, but still showed strong approval. Most teachers (139 or 79%) felt their methods and pedagogy preparation had prepared them at least fairly well, with 20 (11%) rating the preparation extremely well, 62 (35%) rating the preparation moderately well, and 57 (32%) rating the preparation fairly well. Twenty-one percent (37 teachers) rated the preparation in methods and pedagogy fairly poorly or below. Of these, over half rated the preparation only fairly poorly, while the remainder rated methods and pedagogy as moderately poorly (9 teachers or 5%) or extremely poorly (6 teachers or 3%).

When the teachers were asked if they had had a supervised student teaching experience in FCS, nearly three-quarters indicated they had. Of the 176 teachers surveyed, 131 (74%) had completed student teaching in FCS. However, 45 teachers (26%) reported no FCS student teaching experience. This percentage was higher than the percentages who reported no FCS background or FCS certificate. Of those who did complete student teaching in FCS, a large number reported having one 8-week experience, and very few had less than 4 weeks. Table 14 illustrates the distribution.
Table 14. Length of FCS Student Teaching Experience\(^a\)

<table>
<thead>
<tr>
<th>Length of Time</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 weeks</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>8 weeks</td>
<td>60</td>
<td>43</td>
</tr>
<tr>
<td>Two 8 week sessions</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>12 weeks</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>16 weeks</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>14</td>
</tr>
</tbody>
</table>

\(^a\) N = 140

Iowa State University's current requirement for students earning a Bachelor of Science in family and consumer sciences education is two 8-week sessions. From the distribution, it can be observed that very few teachers who have been through this curriculum are currently teaching in Iowa. This does not consider those who have returned to earn only the endorsement or the license, as these new educators would have completed a 12-week session of student teaching rather than two 8-week sessions. Most of the “other” responses were for a 9-week or “one quarter” sessions.

School District Characteristics

The next part of the questionnaire concerned the size, setting, and hiring practices of the school district. The size of the student body for the districts reflected Iowa’s heavy rural population. Although only 6 teachers (3%) reported a student body population of less than 200, 124 teachers (72%) estimated their K-12 student population to be less than 1500 students. Average class size for a school with fewer than 200 students is approximately 15, while class size of a student body of 1500 would average around 115. Class size can be defined as the total number of students at each grade level. Only 26 (15%) had schools with more than 2500 students. Figure 3 illustrates the specific distribution of the data.

The next item asked for the teacher’s opinion regarding the hiring practices of their school district. Of the 176 surveyed, 105 (60%) thought hiring qualified teachers was difficult. Seventy-one teachers did not believe their school district had any major problems filling vacancies with qualified individuals (Figure 4).

For those districts that have difficulty in finding qualified teachers, administrators find themselves scrambling to for acceptable alternatives. The survey’s next item asked
Figure 3. Size of K-12 Student Body
\[^aN = 173\]

Figure 4. Level of Difficulty in Recruiting Qualified Teachers
\[^aN = 176\]
teachers the options they thought their administration might explore to fill vacancies. Several options were common, and many teachers listed more than one. The most common options given by teachers included: shifting faculty class schedules to accommodate the vacancy, hiring someone without an endorsement to teach in the vacant area, sharing with adjacent districts, dropping the class or program, and exploring opportunities with distance education and the Iowa Communications Network (ICN).

Fifty of the 144 who answered this question were unsure about their administration’s action in this case. Not all teachers responded to this question because many school districts did not have problems filling vacancies. The specific data distribution is presented below in Table 15.

Table 15. Options for Filling Vacant Teaching Positions

<table>
<thead>
<tr>
<th>Options</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shifting faculty class schedules</td>
<td>58</td>
<td>40</td>
</tr>
<tr>
<td>Hiring someone without the proper endorsement</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Hire existing part time faculty</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Share with adjacent districts</td>
<td>38</td>
<td>26</td>
</tr>
<tr>
<td>Explore distance education or ICN opportunities</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Pay for existing teachers to earn endorsement</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Drop the class or program</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>Unsure</td>
<td>50</td>
<td>35</td>
</tr>
</tbody>
</table>

aN = 144

Teaching History and Future Plans

The next portion of the questionnaire addressed the teachers’ pasts and their future plans. The teachers were asked how long they had been teaching and how long they had been teaching FCS. These two questions were posed to determine if the teacher had spent his or her entire career teaching FCS or if he or she had taught in other areas. As Figure 5 shows, most of the teachers surveyed had spent their entire teaching career in FCS. Another point that can be drawn from this figure is the large number of teachers with more than 20 years in the classroom. The data (109 teachers or 62 %) echo Drizou (1993), with large numbers of
Figure 5. Teaching Experience in Years
\(^{a}\)N = 176

Figure 6. Future Teaching Plans in Years
\(^{a}\)N = 176
very experienced teachers in the classroom. The number of newer (and most likely, younger) teachers who have been in the classroom for 10 years or less has remained nearly the same in both number and percentile. In 1993, 37 teachers (22.1%) had been teaching less than 10 years. In 2002, 38 teachers (21.5%) have been in the classroom for less than 10 years.

The next two survey items addressed the future career plans of the teachers. These questions were set up the same way as the teaching history questions to see how many planned to stay in the field of FCS for the remainder of their careers. The data from Figure 6 also show the huge number of impending retirements. While 110 (63%) plan to teach for another 10 years or less, only 16 (9%) plan to still be teaching in 20 years. Of the teachers surveyed, 118 (68%) plan to teach less than 10 years more and only 12 (7%) plan to be in the classroom 20 years from now.

For the present, teachers who are in the classroom are very busy with professional development and most plan additional professional development for the future. For the 2001-2002 school year, only 2 out of 176 (1%) listed absolutely no professional development and another 13 (7%) listed none in addition to one other option. Almost all of the teachers (165 or 94%) attended in-service workshops during the 2001-2002 school year and 78 (44%) attended Area Education Agency (AEA) meetings or other professional workshops. A fair number of teachers also attended professional meetings (32 teachers or 18%). Thirty-three (19%) of the teachers were seeking additional endorsements or taking graduate courses (44 teachers or 25%). Only 12 (7%) reported working toward an advanced degree.

The data were similar for future professional development. Nearly three-fourths, (128 teachers or 73%) planned to attend in-service meetings in the future. Eighty-two teachers (47%) were planning to attend AEA or professional workshops. Forty teachers (23%) were planning to attend professional meetings in the future. A decrease from the previous year in the number seeking an additional endorsement was noted, with only 18 (10%) planning that activity for the future. However, a large increase in the number from the previous year reported plans to take graduate courses (63 teachers or 36%) and working on an advanced degree (24 teachers or 14%) was reported. Six teachers (3%) planned no professional development for the future.
Teacher Demographics

The last section of the survey asked teachers to provide demographic information. The sex, ethnicity, age, and educational information of the teachers were reported. The sex of the teachers showed 99% or 175 of the 176 surveyed to be female. The remaining one was male. This was not a surprise because females still hold a huge majority over males in FCS education. All of the teachers (100%) described themselves as Caucasian or white. While not a surprise, these data highlight the need for more diversity represented by classroom teachers to relate to Iowa's increasingly diverse student population.

The age of the teachers followed the same pattern of other age-related items in this survey. Only 10% of teachers are under the age of 35 and 64% are older than 45. The distribution of ages is shown in Table 16. One person declined to answer this item.

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>26 – 35</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>36 – 45</td>
<td>46</td>
<td>26</td>
</tr>
<tr>
<td>46 – 55</td>
<td>76</td>
<td>43</td>
</tr>
<tr>
<td>Over 55</td>
<td>36</td>
<td>21</td>
</tr>
</tbody>
</table>

aN = 175

The last three questions of the survey addressed the education of the teachers. Specifically, the survey asked the highest educational attainment of the teachers, where the teachers received their licensing coursework (many checked more than one) and in what state they were originally licensed to teach in.

As reported in Table 17, 128 teachers (74%) earned a Bachelor of Arts (BA) or Bachelor of Science (BS), although 25% (43 teachers) have earned a Master of Arts (MA), Master of Education (M.Ed), Master of Science (MS), or Master of Family and Consumer Science (MFCS). Only one person earned a Doctor of Education and two classified their educational attainment as other.

When asked where they earned their teaching license, many teachers listed more than one place. For this reason, totals may be greater than 175. One person did not answer the question. A large number had taken at least some of the coursework at Iowa State University.
Table 17. Educational Attainment of Teachersa

<table>
<thead>
<tr>
<th>Education</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>38</td>
<td>22</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>90</td>
<td>52</td>
</tr>
<tr>
<td>Master of Arts</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Master of Education</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Master of Science</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Master of Family &amp; Consumer Science</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Doctor of Education</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

aN = 176

(77 teachers or 44%), but many had also completed at least a portion of their license coursework out of state (53 teachers or 30%) or at the University of Northern Iowa (35 teachers or 20%). A smaller number completed their degrees at the University of Iowa, Drake, or other Iowa college (Table 18).

Table 18. Institutions Where Teachers Earned Their Teaching Licensea

<table>
<thead>
<tr>
<th>School</th>
<th>Number of Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa State University</td>
<td>77</td>
<td>44</td>
</tr>
<tr>
<td>University of Northern Iowa</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>University of Iowa</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Drake University</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Other Iowa Colleges</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>College Outside Iowa</td>
<td>53</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>4.5</td>
</tr>
</tbody>
</table>

aN = 175

Most of the teachers were granted their original certificate in Iowa. One hundred thirty-six (77%) were originally licensed to teach in Iowa. Sixteen (19%) had a Missouri license, 6 had a Nebraska license, 6 had a South Dakota license, 5 had a Minnesota license, 2 were licensed in Illinois, and 1 in Wisconsin. Twelve were licensed for the first time in other states. Some of these states included Washington, Kansas, Mississippi, and California. The frequency data from this section was used to answer the first research question about the frequency of out-of-field teaching in Iowa’s middle school FCS programs. Inferential statistics were used to answer the remaining research questions.
Analysis of Responses

Because the rates of out-of-field teaching in Iowa’s middle school programs were found to be very low, the importance of the remaining three research questions increased. These three questions were: 1) What factors contribute to out-of-field teaching in middle school FCS programs in Iowa? 2) What effects do school district characteristics have on the incidence of out-of-field teaching in Iowa’s middle school FCS programs? 3) What is the likelihood that rates of out-of-field teaching rates for middle school FCS programs in Iowa will increase in the future?

As mentioned above, the rates of out-of-field teaching occurring in Iowa’s middle school FCS programs were very low. Of 176 teachers, only 13 reported they held neither a major or minor in FCS or home economics, which was only 7% of the teachers surveyed. Another 4 teachers had only a minor in FCS or home economics, but the remaining 159 indicated they held a major in FCS or home economics.

The teachers’ responses were split into three groups. Group one, which will be referred to as the major group, had a major in FCS or home economics. Group two, which will be referred to as the minor group held a minor in FCS or home economics. The third group, which will be referred to as the neither group, held neither a major or minor in FCS or home economics. The third group meets Ingersoll’s (1999) definition of out-of-field teachers.

The factors which contributed to out-of-field teaching in middle school FCS in Iowa were measured using an analysis of variance (ANOVA) F-test. The purpose of the F-test was to determine if the null hypothesis (no difference between the groups) was true. Thirty-nine variables were examined using the F-test, which is a ratio of the estimate of the difference between the groups over the estimate of difference within the group. When the estimated difference between the groups is larger than the estimated difference within the group, the F statistic tends to be larger. When the F statistic is larger, the p-value (the probability that the F-test statistic is at least as large as the observed F value) is smaller. Small p-values (below 0.05) indicate the evidence is strong enough to reject the null hypothesis of equality between the groups at an alpha level of 0.05. Table 19 presents the variables which had p-values low enough to reject the null hypothesis.
Three variables were very close to showing significance at an alpha level of 0.05. These variables were organization of teaching at the middle school, percentage of time spent teaching FCS classes, and the types of duties in addition to teaching. If a less restrictive test was used, these variables might show significant differences between groups.

Table 19. Analysis of Variance F-Test Results for Significant Items

<table>
<thead>
<tr>
<th>Variable</th>
<th>F statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of middle school in relation to the high school</td>
<td>3.45</td>
<td>0.0338*</td>
</tr>
<tr>
<td>Teacher is teaching in both locations?</td>
<td>3.74</td>
<td>0.0256*</td>
</tr>
<tr>
<td>Level of instruction certified to teach</td>
<td>12.09</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Duties in addition to teaching?</td>
<td>4.69</td>
<td>0.0104**</td>
</tr>
<tr>
<td>Student teaching in FCS or home economics?</td>
<td>14.74</td>
<td>0.001**</td>
</tr>
<tr>
<td>Length of student teaching in FCS or home economics</td>
<td>8.76</td>
<td>0.002**</td>
</tr>
<tr>
<td>Length of time teaching in years</td>
<td>4.69</td>
<td>0.0104**</td>
</tr>
<tr>
<td>Length of time teaching FCS in years</td>
<td>11.92</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Anticipated length of future teaching</td>
<td>5.52</td>
<td>0.0047**</td>
</tr>
</tbody>
</table>

*N = 176
*p-value less than 0.05
**p-value less than 0.01

From the F-tests, differences are apparent in nine variables (Table 19). The data show a difference between the three groups in the location of the middle school as related to the high school and in which teachers teach in both facilities. A large difference is noted between groups for the level of student the teachers in each group are licensed to teach. Another difference between groups is apparent in whether teachers perform duties in addition to their teaching loads. Differences are also present in both the length of the student teaching experiences and if the teachers have had a student teaching experience in FCS or home economics. The history and future teaching plans, the length of time teaching, the length of time teaching FCS, and the anticipated length of future teaching variables were different.
When using an F-test, the conclusion can be made that a difference exists in the responses between groups, but this is all that is known. To determine which groups showed a difference, a multiple comparison test was performed. The multiple comparison method uses a higher confidence level for each separate interval to ensure simultaneous confidence levels (Agresti & Findlay, 1999). In this case, Tukey’s test of multiple comparisons was employed. The Tukey method was chosen because of the stringent nature of its confidence level and its suitability as a good follow-up to an ANOVA F-test (Agresti & Findlay, 1999). Tukey’s method was used to compare all of the pairs of means, figure the differences between these means, and construct a 95% confidence interval for the mean differences. To determine if a difference existed between the groups at an alpha level of 0.05, the confidence intervals for each group’s mean difference were examined. If the interval did not contain zero, then a significant difference was noted between the two groups.

Table 20. Tukey’s Multiple Comparison of Means

<table>
<thead>
<tr>
<th>Variable</th>
<th>Groups Compared</th>
<th>Difference Between Means</th>
<th>Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of time teaching FCS</td>
<td>Major &amp; Neither</td>
<td>+/- 2.331</td>
<td>+/- 1.112 +/- 3.551</td>
</tr>
<tr>
<td>Have student taught in FCS</td>
<td>Major &amp; Neither</td>
<td>+/- 0.568</td>
<td>+/- 0.290 +/- 0.845</td>
</tr>
<tr>
<td>Have student taught in FCS</td>
<td>Neither &amp; Minor</td>
<td>+/- 0.548</td>
<td>+/- 0.061 +/- 1.035</td>
</tr>
<tr>
<td>Length of Student Teaching</td>
<td>Major &amp; Neither</td>
<td>+/- 1.753</td>
<td>+/- 0.487 +/- 3.019</td>
</tr>
<tr>
<td>Length of Student Teaching</td>
<td>Major &amp; Minor</td>
<td>+/- 2.580</td>
<td>+/- 0.359 +/- 4.801</td>
</tr>
<tr>
<td>Additional Duties</td>
<td>Minor &amp; Neither</td>
<td>+/- 0.750</td>
<td>+/- 0.145 +/- 1.354</td>
</tr>
<tr>
<td>Level of Student Certification</td>
<td>Major &amp; Minor</td>
<td>+/- 2.789</td>
<td>+/- 0.156 +/- 5.421</td>
</tr>
<tr>
<td>Level of Student Certification</td>
<td>Major &amp; Neither</td>
<td>+/- 2.750</td>
<td>+/- 1.250 +/- 4.250</td>
</tr>
<tr>
<td>Length of Future Teaching</td>
<td>Major &amp; Neither</td>
<td>+/- 1.925</td>
<td>+/- 0.554 +/- 3.296</td>
</tr>
<tr>
<td>Teach in both middle and high school</td>
<td>Major &amp; Neither</td>
<td>+/- 0.648</td>
<td>+/- 0.016 +/- 1.280</td>
</tr>
</tbody>
</table>
In Table 20, each variable different by way of the Tukey method is displayed, with each confidence interval. There are fewer differences between groups than with the F-test because the Tukey test is more sensitive than the ANOVA F-test, making the confidence intervals narrower.

The Tukey’s test found only seven variables which showed a significant difference between the groups. This was expected because of the narrower confidence intervals. The Tukey test can show which groups are different from each other but does not show what the nature of the differences are. To help interpret what the differences might be, a profile of the response frequencies of the seven variables which the Tukey method found to be different was constructed (Appendix G).

From Table 20, the data show the major group and the neither group differ in the length of time the teachers have been teaching FCS. The data from the profile in Appendix G show the neither group has a fewer number of teachers who have been in the profession longer than 11 years. Additionally, in the major group, 21% have been in the classroom for less than 10 years, while in the neither group, 81% of the teachers have been in the classroom for less than 10 years. This leads to the conclusion that younger teachers are more likely to be assigned to an out-of-field position than older, more experienced teachers. The major and minor groups showed no significant difference.

The major and minor groups as well as the major and neither groups showed differences in the variables measuring if the teachers had had a student teaching experience in FCS or home economics and the length of these experiences. In the major group, only 20% of the teachers reported they had not student taught in FCS or home economics, while for the minor and neither group, 75% and 77% of the teachers, respectively, had completed a FCS or home economics student teaching experience. The length of the student teaching sessions varied. In the major group, only 4% had student taught for less than 4 weeks, while in the minor group, 75% had taught less than 4 weeks and 100% had taught 8 weeks or less. In the neither group, two teachers had taught for 8 weeks and one taught for 12 weeks. Only the minor and neither group showed no difference in the length variable.

The item asking teachers if they had duties in addition to teaching showed a difference in only one set of groups. The minor and neither group showed significant
differences under the Tukey method. In the minor group, only 25% had extra duties, while the neither group, 91% held duties in addition to their teaching. No difference was noted between the major and minor or major and neither groups.

One of the largest differences according to Tukey’s test was in the level of students the teachers were certified to teach. Both the major and minor and major and neither groups showed a significant difference. In the minor and neither groups, larger percentages of teachers had certificates for age groups other than 7-12 were evident. For the minor group, 25% of the teachers indicated they held a certificate for an age group other than 7-12 and in the neither group, 15% reported the same. Because the choice of “other” in this item included certificates that were for both the 7-12 age and other ages, the percentage of those teachers marking “other” are not part of this calculation. The major group had only one teacher (0%) who reported having a certificate for students that did not include 7-12. The comparison between the minor and neither groups showed no significant difference.

The future plans of teachers showed differences between only one set of groups, the major and neither. In the major group, only 15% planned to be in the classroom in 20 years or more, while the remaining 85% planned to either retire or leave teaching during this same period. In the neither group, 61% still planned to be teaching 20 years in the future or even longer. Thirty-one percent of the neither group planned to be out of the classroom within the next 20 years. No significant difference was noted between the major and minor or the minor and neither group.

The last variable showing a significant difference with Tukey’s test was the question asking the teachers if they taught in both the middle school and high school facilities, if these facilities were in separate buildings. The major and neither groups exhibited a significant difference, with the major group reporting 22% teaching in both buildings and the neither group indicating that no one (0%) teaching in both buildings.

Discussion

The data from both the ANOVA F-test and Tukey’s multiple comparison method provided an answer for the research questions: 1) What factors contribute to out-of-field teaching in middle school FCS programs in Iowa and 2) What effects do school district
characteristics have on the incidence of out-of-field teaching in Iowa’s middle school FCS programs?

The factors for both the ANOVA F-tests and the Tukey tests were found to differ between the three groups of teachers. Although these variables were different among the groups, one cannot conclude with any degree of certainty that these factors cause out-of-field teaching in Iowa’s middle school FCS programs.

To answer the question about school characteristics, the variables testing school characteristics must be identified. In this study, variables that were developed to identify school characteristics included the size of the student body in K-12, the classification of the school district (rural, urban, etc.), and the ease of recruiting qualified teachers to the school district. The data from this project showed no connection between the any of these variables and the rates of out-of-field teaching in middle school FCS programs. Out-of-field teaching is occurring equally across all school sizes, school classifications, and recruiting situations. This contradicts the review of literature which states that teacher shortages are responsible for out-of-field teaching and that school size is a predictor of out-of-field teaching.

The final research question which addresses the future likelihood of out-of-field teaching in Iowa’s middle school FCS programs can be partially answered with the data collected. Because no data of this type exists from the past, it is difficult to predict the future using a statistical model, particularly in the field of education, where the most influential variable is the people. However, using the frequency data, one can see the high numbers of retirements anticipated in the next ten years and the low number of teachers planning to spend more than 20 additional years in the classroom. With this information, high numbers of teachers reported that recruiting is becoming more difficult and that the top two choices for administrations having difficulty finding qualified candidates to fill vacancies were to shift faculty schedules and to hire someone without the proper endorsement. Both of these options for filling vacancies would result in more out-of-field teaching, not only in middle school FCS, but across all curricula in grades 7 through 12 in Iowa. With this information, one can hypothesize with some degree of certainty that higher rates of out-of-field teaching are destined to be a part of Iowa’s future educational system.
CHAPTER 5. CONCLUSIONS

Summary

The goals of this project were to answer several questions about the middle school family and consumer sciences (FCS) programs in Iowa. Because the literature reports high frequencies of out-of-field teaching nationwide and across several academic subject areas, the first goal was to determine if out-of-field teaching is occurring in Iowa’s middle school FCS programs, and if so, at what levels? Second, if out-of-field teaching is found, what factors contribute to out-of-field teaching in the middle school FCS area? A third goal was to determine what role school characteristics play in the frequency of out-of-field teaching in Iowa’s middle school FCS programs? If current rates of out-of-field teaching are low in Iowa, would there be reason to believe the rates could increase in the future? The final goal of this project was to provide a baseline of data on Iowa’s middle school FCS programs for future comparison and curriculum development for middle school FCS teachers.

Because of the way middle school teacher licensing is regulated in Iowa, it is possible for teachers to have no coursework in FCS, no background in FCS, or even a 7-12 grade teaching certificate, and still legally teach middle school FCS. Middle school FCS can be identified as high risk for out-of-field teaching for three major reasons. First, the fact that the program is in the middle school gives it a higher likelihood of having an out-of-field teacher. Second, the small size of many of Iowa’s schools put them at higher risk of having an out-of-field teacher. Finally, because FCS is not considered an academic class, it often serves lower ability students. These lower ability students have a greater chance of drawing an out-of-field teacher as opposed to their higher ability classmates (Ingersoll, 1999).

A sample of Iowa’s middle school FCS teachers was surveyed using a mailed questionnaire. A total of 252 teachers from 241 schools were sent the surveys on April 22, 2002. Pre-contact postcards were mailed a week before in hopes of increasing the response rate. Follow-up postcards were sent on May 20. When responses with no programs were eliminated from the sample, a total of 176 usable questionnaires were collected, resulting in a response rate of 72%.

Data were analyzed using Statistical Analysis Software (SAS), version 8.2. Frequency distributions and percentages were calculated for all items. Next, the teachers
were sorted into three groups by their major. The groups were teachers with a FCS or home economics major, teachers with a FCS or home economics minor, and those with neither a FCS or home economics major or minor. These groups were compared using analysis of variance (ANOVA) F-test and Tukey’s method for multiple comparisons.

The ANOVA F-tests found nine factors which differed between the three groups. The variables which had p-values low enough to reject the null hypothesis of no difference included: the location of the middle school in relation to the high school, whether the teachers taught in both the high school and middle school building (if they were separate), the level of students the teachers were certified to teach, if the teacher had duties in addition to classroom teaching, whether the teachers have had a student teaching experience in FCS or home economics, the length of the student teaching experience, how long the teachers had been teaching, how long the teachers had taught FCS, and the anticipated length of time the teacher would continue to teach in the future.

The more sensitive Tukey’s test was performed next and found seven variables which were different between the groups. These variables included: the level of student the teacher was certified to teach, if the teacher had duties in addition to classroom teaching, if the teacher had completed a student teaching experience in FCS or home economics, the length of the student teaching experience, if the teacher teaches in both the high school and middle school buildings, the length of time the teacher had been teaching FCS, and the anticipated length of time the teacher would continue to teach in the future.

To assist with the interpretation of the data from Tukey’s test, a profile of the three groups was created using the seven variables identified by the Tukey method as showing a difference between groups. This profile is shown in Appendix G. Some of the major points evident in the profile are discussed below.

When comparing the three groups, they are referred to as major, minor, and neither. The major group includes teachers with a major in FCS or home economics, the minor group is comprised of teachers with a minor in FCS or home economics, and the neither group consists of teachers with neither a major or minor in FCS or home economics. The neither group fits Ingersoll’s (1999) definition of out-of-field teachers.
The profile of the three teaching groups showed several patterns. The major group had the largest percentage of teachers who had completed a student teaching experience in FCS or home economics, with 80%. Only 25% of the minor group and 23% of the neither group reported completing a student teaching experience in FCS or home economics. The length of the student teaching experience also differed among the groups. All but 4% of the major group completed at least 8 weeks of student teaching in FCS or home economics, but in the minor group 75% reported less than 4 weeks of student teaching in FCS or home economics and 100% reported 8 weeks or less. The neither group had only three people answer the question and two of these had student taught for 8 weeks. The remaining person in the neither group reported a 12 week experience.

Differences were also found between the groups on the length of teaching and future plans of the teachers. In the major group, 21% have been in the classroom for less than 10 years, while in the minor group and the neither group, 75% and 81% of teachers, respectively, have been teaching for less than 10 years. Regarding future plans, 15% of teachers in the major group plan to be teaching 20 years from now. Twenty-five percent of the minor group planned to be in the classroom in 20 years. The biggest difference is in the neither group, where 61% of the teachers plan to continue to teach 20 years from now.

Although a statistical model could not be used to predict future likelihood of out-of-field teaching in Iowa's middle school FCS programs, the frequency data gave a good look at the future of middle school FCS education in Iowa. The data gathered showed large numbers of teachers leaving education or retiring in the next 10 years, with very few young teachers currently in the field. In addition, over half of the teachers surveyed feel that recruiting qualified teachers to their school district has become more difficult. To fill vacancies, the top two choices the teachers believe their administration would use are shifting faculty schedules and hiring a teacher without the proper endorsement. Both of these options would increase the number of out-of-field teachers.

Because of the severely unequal group sizes and the uncertainty of the weight of each of the means, interpretations of the data should be done with caution. Nevertheless, information generated from this study revealed some surprising data and some data which were not so surprising. The unexpected findings came more from what was not found. From
the review of literature, it is known that out-of-field teaching is more common in smaller schools, in the middle grades, in classes with low-level students, and in high-poverty schools. This study did not look at either the level of students in the FCS classes or the poverty level of the school districts. However, the size of school and the middle school were both closely examined in this project. The review of literature also stated that teachers who teach outside of their area of expertise feel less prepared and feel less positive about their teaching assignment.

Based on the information from the review of literature, it was expected that higher rates of out-of-field teaching in smaller schools and in the field of middle school FCS would be evident. In addition, because of the shortages of FCS, the prediction was that schools that had difficulty recruiting qualified teachers would also have higher rates of out-of-field teaching. The opinions of the teachers on their preparation in subject area knowledge as well as teaching methods and pedagogy were expected to be different between the groups of teachers. The expectation was that out-of-field teachers might feel less happiness with their current assignment and less prepared, especially in the subject area knowledge area, for their current teaching assignment. None of these variables showed a significant difference between the three groups of teachers. This finding was surprising.

Several findings were expected. The teachers who were teaching out-of-field showed significant differences from those who had a major in FCS or home economics education in several areas. The length of time teaching, the student teaching experience, the length of the student teaching experience, the level of certification, and the location of teaching were all found to be significantly different between the teachers who had neither a major nor a minor in FCS or home economics education and those who had a major in FCS education. These findings were not a surprise. The expected conclusion was that teachers who had been teaching less time were more likely to be teaching out-of-field, and the data show this. Another prediction was that fewer out-of-field teachers had completed a FCS or home economics student teaching experience and if they had, the experience would have been shorter. The data also showed this to be true for this sample. The level of teaching certificate and location of the teaching were both expected to be different between the groups. Because out-of-field teachers may not be certified in grades 7-12, a higher rate of teachers with
certificates other than 7-12 was expected, and this data confirmed this assumption. In addition, the assumption was that those who are in a separate building from the high school FCS teacher may be teaching out-of-field to fill the need for a FCS teacher in the middle school building. This data showed a significant difference in the location of teaching between those teaching in-field and out-of-field. Using the information found during this study, several recommendations can be made.

Recommendations

This study illustrates three points regarding Iowa’s middle school FCS programs. First, it presently appears as though most of Iowa’s middle school FCS teachers are certified in FCS. This is good news for now, but from the information given by teachers about future plans and their administrations’ perceived willingness to shift faculty schedules and hire teachers without the correct endorsement; out-of-field teaching in Iowa may increase in the future.

In addition, many teachers are certified in FCS, but reported teaching in other areas. These teachers were noted with the question asking the teachers who else could teach FCS in their school district. Of those who listed an alternative, many listed a current FCS faculty member teaching in another area. With a shortage of FCS continuing to plague Iowa, the state needs every one of the FCS certified teachers leading FCS classes. Using FCS teachers in other areas is not a wise use of the already small number.

To assist in meeting the demand for FCS teachers, current teachers should continue to promote FCS education to secondary students as a challenging and rewarding career. To help those teachers currently working with middle school students, teacher educators and other administrators of regional and state FCS programs should work to develop middle school curriculum for FCS. This curriculum should be relevant, current, and give students a positive introduction to the field. Continuing education workshops and short courses emphasizing middle school students and middle school curriculum would also be helpful. Because a large number of teachers indicated they attended in-service and area education agency (AEA) meetings, this arena would provide a good method of getting the information out to a maximum number of current teachers.
Future Research

This research was largely exploratory in nature, leaving the door open for many other projects. Some possible ideas include:

- Using a portion of the questionnaire for this study to perform a more in-depth look at factors which lead to or are more frequent in out-of-field teachers.
- A qualitative study of teachers to learn more about individual middle school programs and how they might vary from school to school or by region.
- A study examining teachers who have an FCS certificate but are teaching in other areas.
- Complete a duplicate or similar study in 5 or 10 years to determine if out-of-field teaching has increased, decreased, or remained stable.
APPENDIX A. SURVEY INSTRUMENT

Please answer questions about your middle school for the current school year by circling the letter of the most appropriate response.

1. Do you teach family and consumer sciences courses to middle school students (students aged 10 to 14 or in grades 5 to 9)?
   A. Yes (continue with the rest of the survey)
   B. No (please return the survey or forward to the appropriate faculty member)

2. How much of your time is spent teaching middle school students?
   A. Less than 25 percent
   B. 26 to 33 percent
   C. 34 to 50 percent
   D. 51 to 66 percent
   E. 67 to 80 percent
   F. 81 to 100 percent

3. Is family and consumer sciences required for middle school students at your school?
   A. Yes, for all students
   B. For 6th grade only
   C. For 7th grade only
   D. For 8th grade only
   E. For 9th grade only
   F. For 6th & 7th grades only
   G. For 7th & 8th grades only
   H. For 8th & 9th grades only
   I. For 6th through 8th only
   J. For 7th through 9th grades only
   K. Not required at any level

4. How are family and consumer sciences courses offered at the middle school where you teach?
   A. Exploratory requirement
   B. Exploratory option
   C. An elective option
   D. As an inter-disciplinary unit
   E. As a multi-disciplinary unit
   F. As a life skills/health class

5. How is middle school teaching organized where you teach?
   A. Teaching teams separated by discipline
   B. Multi-disciplinary teaching teams
   C. Core and encore teaching teams
   D. Academic and vocational/exploratory teams
   E. Discipline specific departments with no team teaching
6. What is the number of middle school(s) in your school district?

   A. One       B. Two       C. Three
   D. Four      E. Five      F. More than six

7. Where is the middle school located in relation to the high school where you teach?

   A. In the same building
   B. Adjacent attached buildings
   C. Adjacent detached buildings
   D. Separate buildings

8. If your middle schools are in a separate facility from your high school, do you teach in both facilities?

   A. Yes
   B. No

Please answer questions about your educational background for the current school year by circling the letter next to the most appropriate response.

9. What was your license certification major?

   A. Family & Consumer Sciences       B. Home Economics
   C. Art                                D. Agriculture
   E. Business                           F. English/Language Arts
   G. English as a Second Language       H. Foreign Language
   I. Health                             J. Industrial technology
   K. Mathematics                        L. Music
   M. Physical Education                 N. Science
   O. Social Sciences                    P. Special Education
   Q. Other (please specify) ____________

10. What was your license certification minor?

    A. Family & Consumer Sciences        B. Home Economics
    C. Art                                D. Agriculture
    E. Business                           F. English/Language Arts
    G. English as a Second Language       H. Foreign Language
    I. Health                             J. Industrial technology
    K. Mathematics                        L. Music
    M. Physical Education                 N. Science
    O. Social Sciences                    P. Special Education
    Q. Other (please specify) ____________
11. What is the best description of the department(s) in which you teach? (circle all that apply)

A. Family & Consumer Sciences  
B. Home Economics  
C. Art  
D. Agriculture  
E. Business  
F. English/Language Arts  
G. English as a Second Language  
H. Foreign Language  
I. Health  
J. Industrial technology  
K. Mathematics  
L. Music  
M. Physical Education  
N. Science  
O. Social Sciences  
P. Special Education  
Q. Other (please specify) ____________________

12. What level of students are you certified to teach? (circle all that apply)

A. 7 to 12  
B. K to 12  
C. PK to 6  
D. K to 6  
E. PK to 3  
F. Other (please specify) ____________________

13. Which level of students do you feel most complements your philosophy of teaching?

A. Pre-kindergarten/pre-school  
B. Middle school (6 to 8)  
C. Lower elementary (K to 3)  
D. Lower high school (9 and 10)  
E. Upper elementary (4 to 5)  
F. Upper high school (11 and 12)

14. Which level of students do you feel most complements your style of teaching?

A. Pre-kindergarten/pre-school  
B. Middle school (6 to 8)  
C. Lower elementary (K to 3)  
D. Lower high school (9 and 10)  
E. Upper elementary (4 to 5)  
F. Upper high school (11 and 12)

15. Do you hold any additional endorsements?

A. Yes (please answer question 15A)  
B. No (please skip to question 16)
15A. Which additional endorsements do you hold? (Circle all that apply)

A. Middle school endorsement  
B. Counseling endorsement  
C. Administrative endorsement  
D. ESL endorsement  
E. Multi-occupational endorsement  
F. Instructional technology endorsement  
G. Special education endorsement  
H. Coaching endorsement  
I. Media specialist endorsement  
J. Talented and gifted endorsement  
K. Other (please specify) __________________

Please answer the following questions about your teaching assignment for the current year by circling the letter next to the most appropriate response.

16. What percentage of your time do you teach family and consumer sciences classes?

A. Less than 25 percent  
B. 26 to 33 percent  
C. 34 to 50 percent  
D. 67 to 80 percent  
E. 81 to 100 percent

17. Do you have any other duties besides teaching?

A. Yes (please answer question 17A)  
B. No (please skip to question 18)

17A. What other duties do you have in addition to teaching during the course of the school year? (circle all that apply)

A. Administrative duties  
B. Technology duties  
C. Curriculum writing duties  
D. Extra curricular duties  
E. Study hall duties  
F. Lunch room duties  
G. Other duties (please specify) ______________

18. How happy are you with your teaching assignment for this school year?

A. Extremely happy  
B. Moderately happy  
C. Fairly happy  
D. Fairly unhappy  
E. Moderately unhappy  
F. Extremely unhappy

Please explain the reason(s) for your answer:
19. Why were you assigned to teach family and consumer sciences at the middle school level? (Circle all that apply)

A. I teach high school family and consumer sciences
B. I am trained to teach FCS/home economics
C. I have a part time contract in another area
D. I have a middle school endorsement
E. I have course work in FCS (but not an endorsement)
F. Other (please specify) ____________________________

20. If you didn’t teach FCS at the middle school level, is there anyone else in the school that could?

A. Yes (please answer question 20A)
B. No (please skip to question 21)

20A. Who else could teach FCS in the school where you teach?

A. A current full time faculty member in another area
B. A current full time faculty member in FCS
C. A current part time faculty member in another area
D. A current part time faculty member in FCS
E. A current faculty member with a FCS background who is teaching in another area
F. Other (please specify) ____________________________

Please answer the following questions on your college preparation by circling the letter next to the appropriate response.

21. How well do you feel your college subject matter course work prepared you for your current teaching assignment?

A. Extremely well
B. Moderately well
C. Fairly well
D. Fairly poorly
E. Moderately poorly
F. Extremely poorly

22. How well do you feel your college pedagogy and methods course work prepared you for your current teaching assignment?

A. Extremely well  B. Moderately well
C. Fairly well  D. Fairly poorly
E. Moderately poorly  F. Extremely poorly
23. Have you had a supervised family and consumer sciences or home economics student teaching experience?

A. Yes (please answer question 23A)
B. No (please skip to question 24)

23A. How long was your supervised student teaching experience in FCS/home economics?

A. Less than 4 weeks  B. One 8 week session
C. Two 8 week sessions  D. One 12 week session
E. One 16 week session  F. Other (please specify) ________________

Please answer the following questions about your school district by circling the letter next to the most appropriate response.

24. What is the approximate size of the student body (K-12) in your district?

A. Under 200 students  B. 2501 to 5000 students
C. 201 to 750 students  D. 5001 to 7500 students
E. 751 to 1500 students  F. 7501 to 10,000 students
G. 1501 to 2500 students  H. Over 10,000 students

25. How would you classify your school district?

A. Rural  B. One small community
C. Consolidated small communities  D. One medium size community
E. Consolidated larger communities  F. Suburban
G. Urban  H. Other (please specify) ________________

26. In your opinion, how difficult has it been in the last three to five years to recruit qualified teachers to your school district?

A. Very easy (many applicants, no problems filling vacancies)
B. Fairly easy (several applicants, no major problems filling vacancies)
C. More difficult than previously (less applicants, but have filled vacancies)
D. Fairly difficult (few applicants, minor problems filling vacancies)
E. Very difficult (very few applicants, don’t always fill vacancies)
27. In the last few years, if your administration couldn’t fill a vacancy what options do they explore for hiring?

A. Shift existing faculty schedules to accommodate vacancy
B. Hire someone without an endorsement to teach in the vacant area
C. Hire an existing part time faculty member as a full time instructor
D. Explore options with adjacent districts
E. Explore options with distance education and the ICN
F. Pay for current teachers to get endorsements in needed areas
G. Drop the classes or program of the vacant position
H. I am unsure what my administration does in this situation

**Please answer the following questions about your teaching history and future plans by circling the letter next to the most appropriate response.**

28. How long have you been teaching?

A. First year
B. 2 to 5 years
C. 6 to 10 years
D. 11 to 15 years
E. 16 to 20 years
F. 21 to 25 years
G. 26 to 30 years
H. Over 30 years

29. How long have you been teaching Family and Consumer Sciences?

A. First year
B. 2 to 5 years
C. 6 to 10 years
D. 11 to 15 years
E. 16 to 20 years
F. 21 to 25 years
G. 26 to 30 years
H. Over 30 years

30. How many more years do you plan to teach?

A. One year
B. 2 to 5 years
C. 6 to 10 years
D. 11 to 15 years
E. 16 to 20 years
F. 21 to 25 years
G. 26 to 30 years
H. Over 30 years
31. How many more years do you plan to teach Family and Consumer Sciences?

A. One year  
B. 2 to 5 years  
C. 6 to 10 years  
D. 11 to 15 years  
E. 16 to 20 years  
F. 21 to 25 years  
G. 26 to 30 years  
H. Over 30 years

32. What professional development have you been or will you be involved with during this school year? (Circle all that apply)

A. In-service workshops  
B. AEA or other professional workshops  
C. Participation in professional meetings  
D. Seeking an additional endorsement  
   In what area? _____________  
E. Taking graduate courses  
F. Working on an advanced degree  
   1. Masters  
   2. Specialist  
   3. Doctorate  
G. No professional development completed or planned for this school year

33. What professional development are you planning for your future? (Circle all that apply)

A. In-service workshops  
B. AEA or other professional workshops  
C. Participation in professional meetings  
D. Seeking an additional endorsement  
   In what area? _____________  
E. Taking graduate courses  
F. Working on an advanced degree  
   1. Masters  
   2. Specialist  
   3. Doctorate  
G. No professional development completed or planned for this school year
Please answer the following demographic questions about yourself by circling the letter next the most appropriate response.

34. What is your gender?
   A. Female
   B. Male

35. How would you describe your racial background?
   A. African American
   B. Asian American
   C. Caucasian/White
   D. Native American
   E. Hispanic/Latino
   F. Pacific Islander
   G. Other (please specify) ________________

36. What is your age?
   A. Under 25
   B. 26 to 35
   C. 36 to 45
   D. 46 to 55
   E. Over 55

37. What was your highest educational attainment at the beginning of this school year?
   A. Bachelor of Arts
   B. Master of Family and Consumer Sciences
   C. Bachelor of Science
   D. Doctor of Philosophy
   E. Master of Arts
   F. Doctor of Education
   G. Master of Education
   H. Specialist (please specify) ________________
   I. Master of Science
   J. Other (please specify) ________________

38. Where did you earn your teaching certificate? (Circle all that apply)
   A. Iowa State University
   B. University of Northern Iowa
   C. University of Iowa
   D. Drake University
   E. Other Iowa College (please specify) ________________
   F. College outside Iowa (please specify) ________________
   G. Other (please specify) ________________
39. What state was your original teaching license from?

A. Iowa  
B. Wisconsin  
C. Missouri  
D. Nebraska  
E. South Dakota  
F. Minnesota  
G. Illinois  
H. Other (please specify) ____________________

Please add any additional comments regarding family and consumer sciences education and/or middle school family and consumer sciences here:
APPENDIX B. HUMAN SUBJECTS APPROVAL FORM

OFFICE USE ONLY
EXPEDITED X FULL COMMITTEE ID: +2-2-777

Last Name Hausafus Title of Project Rates of Out-of-Field Teaching in Iowa's Middle School Family & Consumer Sciences Classes

Checklist for Attachments

The following are attached (please check):

3. ☑ Letter or written statement to subjects indicating clearly:
   a) the purpose of the research
   b) the use of any identifier codes (names, ID's), how they will be used, and when they will be removed (see item 18)
   c) an estimate of time needed for participation in the research
   d) if applicable, the location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, when and how you will contact subjects later
   g) that participation is voluntary: nonparticipation will not affect evaluations of the subject

4. ☑ A copy of the consent form (if applicable)

5. ☑ Letter of approval for research from cooperating organizations or institutions (if applicable)

6. ☑ Data-gathering instruments

7. Anticipated dates for contact with subjects:
   
   First contact
   September 15, 2001
   Last contact
   December 31, 2001
   Month/Day/Year
   Month/Day/Year

8. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:
   
   August 2002
   Month/Day/Year

9. Signature of Departmental Executive Officer
   
   Date 7/10/01
   Department or Administrative Unit
   FEES

0. Initial action by the Institutional Review Board (IRB):

   ☑ Project approved  ☐ Pending Further Review  ☐ Project not approved
   ☐ No action required

   Date Date Date

1. Follow-up action by the IRB:

   ☑ Project approved  ☐ Project not approved  ☐ Project not resubmitted
   ☐ No action required

   Date Date Date

   Rick Sharp
   Name of IRB Chairperson

   Signature of IRB Chairperson
   Approval Date 7/19/01
This is to certify that GRETCHEN MOSHER attended an Iowa State University workshop on July 20, 2000 regarding the protection of human subjects in research.

The workshop covered the following topics:

- the historical perspectives of human subjects research
- The Belmont Report
- the federal regulations (45 CFR 46 and 21 CFR 50&56)
- assurances of compliance
- IRB composition and duties
- elements of informed consent
- types of IRB review
- modification of research activities and unanticipated problems
- Iowa State University policies and procedures

In addition, attendees were provided a copy of The Belmont Report and the Iowa State University Multiple Project Assurance filed with the Office for Human Research Protections. They were also given information on the resources available on the World Wide Web.

Patricia M. Keith
IRB Chair

Prem S. Paul
Associate Vice Provost for Research & Institutional Official Responsible for Human Subjects Research
Dear Middle School FCS Teacher,

Iowa State University and the Family and Consumer Sciences Education Program are working to develop better programs for middle school FCS educators in Iowa. Your input is critical for the success of these programs. **Please watch your mailbox.** A questionnaire asking for your input will arrive in approximately one week, and we will appreciate your prompt response. Thank you.

Sincerely,

Dr. Cheryl Hausman
Associate Professor

Gretchen Mosher
Graduate Student
April 22, 2002

Teacher’s Name
School Address
City, State Zip

Dear Middle School FCS Teacher,

Iowa State University and the Family and Consumer Sciences Education Program are working to determine how to better serve middle school family and consumer sciences teachers in Iowa. To accomplish this, we need accurate information about middle school FCS programs, the middle school FCS curriculum, and characteristics of FCS teachers and the schools where they teach.

We feel the best information comes from those who are teaching FCS in a middle school environment. You have been chosen in a random sampling of Iowa FCS middle school teachers; therefore, your response is very important to the success of this project. The more responses we receive, the better we can develop FCS programs especially suited for FCS middle school curriculum and programs.

Each survey is coded for mailing purposes only and the codes will be removed from the completed questionnaire as soon as we receive it. All information will be treated confidentially and all responses will remain completely anonymous. The survey should only take about 15 to 20 minutes of your time.

Please complete the survey and return it by May 20. Thank you for your cooperation with this project. Your assistance is appreciated as we work to improve the quality of FCS education at the middle school level in Iowa.

Sincerely,

Cheryl Hausafus
Associate Professor
Family & Consumer Sciences Education

Gretchen Mosher
Graduate Student
Family & Consumer Science Education
Dear FCS Instructor,

Three weeks ago, a questionnaire about middle school FCS was mailed to you. If you have completed and returned the survey, thank you. If not, could you please return it today? Your response is very important to us because the questionnaires were sent to only a small sample of middle school FCS teachers. If you did not receive a questionnaire or have misplaced the original, please email us at gamosher@iastate.edu or call us at (515) 294-4134 and we will send you another one immediately.

Sincerely,

Gretchen Mosher  
FCS Graduate Student

Dr. Cheryl Hausafus  
Associate Professor AESHM
## APPENDIX G. PROFILE OF THREE GROUPS

Frequency of Responses of the Three Groups to Selected Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Major Group</th>
<th>Minor Group</th>
<th>Neither Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do teachers work in both the middle school and the high school</td>
<td>Yes 20 22%</td>
<td>Yes 0 0%</td>
<td>Yes 0 0%</td>
</tr>
<tr>
<td></td>
<td>No 73 78%</td>
<td>No 1 100%</td>
<td>No 11 100%</td>
</tr>
<tr>
<td>Level of students teachers are certified to teach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-12 141 87%</td>
<td>7-12 3 60%</td>
<td>7-12 5 38%</td>
<td></td>
</tr>
<tr>
<td>K-12 10 6%</td>
<td>K-12 0 0%</td>
<td>K-12 2 15%</td>
<td></td>
</tr>
<tr>
<td>K-6 1 0%</td>
<td>K-6 1 20%</td>
<td>K-6 2 15%</td>
<td></td>
</tr>
<tr>
<td>Other 14 9%</td>
<td>Other 1 20%</td>
<td>Other 6 46%</td>
<td></td>
</tr>
<tr>
<td>Do teachers have duties in addition to classroom teaching</td>
<td>Yes 115 72%</td>
<td>Yes 1 25%</td>
<td>Yes 11 85%</td>
</tr>
<tr>
<td></td>
<td>No 44 28%</td>
<td>No 3 75%</td>
<td>No 2 15%</td>
</tr>
<tr>
<td>Was a student teaching experience completed in FCS or home economics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;4 wks 6 4%</td>
<td>&lt;4 wks 3 75%</td>
<td>&lt;4 wks 0 0%</td>
<td></td>
</tr>
<tr>
<td>8 wks 57 36%</td>
<td>8 wks 1 25%</td>
<td>8 wks 2 15%</td>
<td></td>
</tr>
<tr>
<td>2-8 wks 12 8%</td>
<td>2-8 wks 0 0%</td>
<td>2-8 wks 0 0%</td>
<td></td>
</tr>
<tr>
<td>12 wks 24 15%</td>
<td>12 wks 0 0%</td>
<td>12 wks 1 1%</td>
<td></td>
</tr>
<tr>
<td>16 wks 18 11%</td>
<td>16 wks 0 0%</td>
<td>16 wks 0 0%</td>
<td></td>
</tr>
<tr>
<td>Other 18 11%</td>
<td>Other 0 0%</td>
<td>Other 0 0%</td>
<td></td>
</tr>
<tr>
<td>Length of student teaching in FCS or home economics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st yr 3 2%</td>
<td>1st yr 0 0%</td>
<td>1st yr 1 8%</td>
<td></td>
</tr>
<tr>
<td>2-5 10 6%</td>
<td>2-5 1 25%</td>
<td>2-5 8 62%</td>
<td></td>
</tr>
<tr>
<td>6-10 20 13%</td>
<td>6-10 2 50%</td>
<td>6-10 2 15%</td>
<td></td>
</tr>
<tr>
<td>11-15 26 16%</td>
<td>11-15 0 0%</td>
<td>11-15 0 0%</td>
<td></td>
</tr>
<tr>
<td>16-20 30 19%</td>
<td>16-20 1 25%</td>
<td>16-20 1 8%</td>
<td></td>
</tr>
<tr>
<td>21-25 33 21%</td>
<td>21-25 0 0%</td>
<td>21-25 0 0%</td>
<td></td>
</tr>
<tr>
<td>26-30 20 13%</td>
<td>26-30 0 0%</td>
<td>26-30 0 0%</td>
<td></td>
</tr>
<tr>
<td>30 + 17 11%</td>
<td>30 + 0 0%</td>
<td>30 + 1 8%</td>
<td></td>
</tr>
<tr>
<td>Number of years taught FCS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 yr 14 9%</td>
<td>1 yr 0 0%</td>
<td>1 yr 1 8%</td>
<td></td>
</tr>
<tr>
<td>2-5 44 28%</td>
<td>2-5 0 0%</td>
<td>2-5 0 0%</td>
<td></td>
</tr>
<tr>
<td>6-10 47 30%</td>
<td>6-10 2 50%</td>
<td>6-10 2 15%</td>
<td></td>
</tr>
<tr>
<td>11-15 30 19%</td>
<td>11-15 1 25%</td>
<td>11-15 1 8%</td>
<td></td>
</tr>
<tr>
<td>16-20 14 9%</td>
<td>16-20 1 25%</td>
<td>16-20 3 23%</td>
<td></td>
</tr>
<tr>
<td>21-25 8 5%</td>
<td>21-25 0 0%</td>
<td>21-25 3 23%</td>
<td></td>
</tr>
<tr>
<td>26-30 1 0%</td>
<td>26-30 0 0%</td>
<td>26-30 2 15%</td>
<td></td>
</tr>
<tr>
<td>30 + 1 0%</td>
<td>30 + 0 0%</td>
<td>30 + 0 0%</td>
<td></td>
</tr>
<tr>
<td>Future teaching plans in years</td>
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</tr>
<tr>
<td>1 yr 14 9%</td>
<td>1 yr 0 0%</td>
<td>1 yr 1 8%</td>
<td></td>
</tr>
<tr>
<td>2-5 44 28%</td>
<td>2-5 0 0%</td>
<td>2-5 0 0%</td>
<td></td>
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<tr>
<td>6-10 47 30%</td>
<td>6-10 2 50%</td>
<td>6-10 2 15%</td>
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<tr>
<td>11-15 30 19%</td>
<td>11-15 1 25%</td>
<td>11-15 1 8%</td>
<td></td>
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<tr>
<td>16-20 14 9%</td>
<td>16-20 1 25%</td>
<td>16-20 3 23%</td>
<td></td>
</tr>
<tr>
<td>21-25 8 5%</td>
<td>21-25 0 0%</td>
<td>21-25 3 23%</td>
<td></td>
</tr>
<tr>
<td>26-30 1 0%</td>
<td>26-30 0 0%</td>
<td>26-30 2 15%</td>
<td></td>
</tr>
<tr>
<td>30 + 1 0%</td>
<td>30 + 0 0%</td>
<td>30 + 0 0%</td>
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</table>
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