THE BENEFITS OF INTEGRATING AGRICULTURE EDUCATION INTO THE MIDDLE SCHOOL CLASSROOM

THESIS

Presented in Partial Fulfillment of the Requirements for
The Master of Education Degree in the
College of Education and Human Service Professions

By
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Dedication

This research project and paper is dedicated to my husband, Derrick, for supporting me through this entire journey and for understanding the need to sacrifice some of our time together in order to get this work done. Thank you for being very supportive of my decision to pursue my Master’s Degree and for being there to listen whenever needed. To all of the school teachers, school board members and school administrators that graciously took the time to help me with my thesis and complete my research surveys. These individuals took a great amount of time out of their already busy schedule to help me complete the research needed for this thesis. I appreciate their extra time and effort in order to accomplish this task. To my Blue Earth County Extension Office co-workers: Rachel, Jen and Diane for their listening ears and constant support. To my family and friends for being supportive through this entire journey, understanding a few things needed to be sacrificed and providing encouragement along the way.

To UMD Faculty Members: Sue Damme, Kim Riordan and Diane Rauschenfels for their guidance and support through this program. And to University of Minnesota Duluth, Cohort 14 members for your guidance and constant support and encouragement along our journey which allowed me to remain motivated these entire two years. Without you, I would not have remained focused. It has been a pleasure to work with all of you!
Wright, Stewart, & Birkenholz write, “The knowledge and perception of agriculture held by students and adults, often referred to as agricultural literacy, has received increasing emphasis in the literature. The need for agricultural literacy is evident when examining the changes that have occurred in agriculture in the United States” (1994, p. 55). Integrating Agriculture Education into the classroom is a qualitative research study that involves 27 school teachers, school board members and school administrators in order to address the need to offer agriculture courses in schools in Southern, Minnesota. The results allowed comparisons to be made on the benefits of offering agriculture courses in school.
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CHAPTER ONE

Introduction

Agricultural literacy is at an all time low in the United States, as a majority of citizens no longer live on farms, nor participate in production agriculture (Gibbs, 2005). With many young people in society today not growing up on farms, agriculture knowledge to people today is at an all time low. The agricultural industry provides people with food on their table, clothing on their backs, and shelter above their heads. Furthermore, citizens today have very little knowledge of where and how our food is produced and groups are beginning to raise questions about the safety of the food supply (Wright, Stewart, & Birkenholz, 1994). We need to create an awareness of the agricultural industry by educating our children.

Purpose of the Study

The objective of this qualitative study was to determine what the benefits are of integrating agricultural courses into middle school classes.

Research Questions

Research on Agriculture Education was conducted with cooperating schools in Blue Earth, Nicollet and Waseca counties in Minnesota. Agriculture Education stems from the term agricultural literacy. Agricultural literacy is defined as understanding and possessing knowledge of our food and fiber system. A person possessing such knowledge should be able to synthesize, analyze, and communicate basic information about agriculture (Frick, 1993). The surveys covered four main topics: 1) determining the familiarity of school teachers, school board members and administrators on offering Agriculture Education programs in their schools; 2) if schools currently offer Agriculture
courses in their middle school classroom; 3) their thoughts on the benefits of offering agriculture in the school curriculum; and 4) what are the reasons why Agriculture courses are not currently offered in their schools.

Background

Agriculture Education programs in the classroom are offered to expose young people to the agriculture industry, and increase Agricultural literacy among these young people. Wright, Stewart, and Birkenholz wrote, “The knowledge and perception of agriculture held by students and adults, often referred to as agricultural literacy, has received increasing emphasis in the literature. The need for agricultural literacy is evident when examining the changes that have occurred in agriculture in the United States” (1994, p. 55). Increasing agricultural literacy can be done by beginning to target the audiences at a younger age, where this may spark interest as students continue their education. Gibbs stated (2005), “There is a lack of agricultural literacy in America... This has contributed to the diminishment of agricultural knowledge that has taken place over decades but supports the need for Agriculture Education in today’s schools” (p. 28). Offering Agriculture Education at the middle school level is a starting point to expose students to agriculture while increasing the agricultural literacy level of these students. According to Rossetti, Padilla, and McCaslin, “Agricultural Education at the middle school can help increase the number of individuals in our society that may become more agriculturally literate” (1994, p. 2).

The literature suggests a need to offer agriculture in classrooms because of the changing demographic of farms versus non-farms. According to Frick (1993), “the need for agricultural literacy initiatives has been made evident by demographic changes in our
society. In 1985, 90 percent of the United States population had been nonfarm for over 30 years” (p. 77).

Research does not show what the basic level of agriculture knowledge is among middle school students across Minnesota or nationwide. There is another gap in research as to why not all schools are offering agriculture classes in their buildings. Another gap amongst research is how teachers and administrators in Southern Minnesota feel about offering or not offering agriculture programming in their school districts.

**Setting**

The setting for this research was in cooperating schools in Blue Earth, Nicollet and Waseca Counties located in South Central Minnesota. This research is pertinent for schools in these counties as Blue Earth, Nicollet and Waseca counties are located in rural Minnesota and made up of mostly farming communities. Participants for this survey included a group of school teachers, school board members and school administrators from these area counties. A group of 27 participants completed the research survey and included a representation from all three groups: school teachers, school board members and school administrators.

**Assumptions**

A gap exists in our society today, as many people have no knowledge about the agricultural industry. Growing up in a small, rural town in southeastern Minnesota, the researcher attended college at the University of Minnesota and majored in Agricultural Education to make a difference in the lives of young people in our society. The need to educate youth about where their food comes from, where their shelter comes from, and
where their clothing comes from is important to the researcher. The research in this area has captured her interest.

Assumptions brought into this research study included that schools do not have enough funding to offer Agriculture courses into their school districts, and also that administrators do not see the relevance of including these courses into their curriculum. With these assumptions taken into account, the researcher sought to find out if these assumptions held true, while determining if this was an actual reason. There was also an assumption that middle school students today do not carry a very strong knowledge of agriculture. Bias existed that all schools should offer some sort of Agriculture courses in their classrooms, because of the agricultural experience the researcher had growing up on a farm in rural America. This research aimed to find out what prevents schools and students from offering or enrolling in agriculture courses, while hoping to spark some interest in Agriculture Education.

Limitations

This study addressed four main research questions: 1) are school teachers, school board members and administrators familiar with Agriculture Education programs; 2) are schools currently offering Agriculture courses in their middle school classroom; 3) what are the benefits of offering agriculture in the school curriculum; and 4) what are the reasons agriculture courses currently are not offered in their schools. The results of the survey were analyzed and interpretations were made. Generalizations or interpretations of the results were not possible due to surveying a sample number of adults in a limited area in Minnesota. The results may be very different if the survey was conducted in a different location in Minnesota, or across the United States.
Summary

This chapter provided evidence of the need to incorporate Agriculture Education into schools. The purpose of this study was to determine what school teachers, school administrators and school board members perceive to be the benefits of incorporating Agriculture Education into the curriculum. Chapter Two will summarize the literature on Agriculture Education in the public school setting.
CHAPTER TWO

Literature Review

Introduction

Agricultural literacy is at an all time low in the United States, as a majority of citizens no longer live on farms, nor participate in production agriculture (Gibbs, 2005). According to Wright, et al. (1994), with the ever-changing agricultural industry, it is vital to focus on the need for agricultural literate citizens. Renewed efforts are needed to increase the amount of self understanding of agriculture, beginning at an early age (Frick, 1993). This literature review focused on the status of Agriculture Education in the classroom, the need for Agriculture Education to be offered at a middle school level and the benefits it offers to students and society.

Agricultural Literacy

Frick (1993) defined agricultural literacy as, “The understanding and possessing knowledge of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture” (p. 79). According to Gibbs (2005), Americans today are lacking agricultural literacy. This lack of literacy in American citizens has led to a decrease in agricultural knowledge over the past few decades (Gibbs, 2005). Moreover, Wright et al. (1994) stated, “The consuming public has little knowledge of where and how food is produced and consumer groups are raising questions about the safety of the food supply” (p. 55). According to the National Research Council’s report, Understanding Agriculture: New Directions for Education, youth needed to be educated about agriculture for increased agricultural literacy and future career opportunities.
According to Pense, Leising, Portillo, and Igo (2005), the National Council for Agriculture Education has established that “goal three within the national strategic plan for Agricultural Education encourages all students to be conversationally literate in agriculture, food, fiber and natural resources systems” (p. 107). This goal encouraged the concept of integration of agriculture concepts into subject areas. Integrating agriculture curriculum into other subjects presented the need linking agriculture literacy to Dewey’s theory of experiential learning itself.

Frick’s (1993) definition of agricultural literacy stated students should be able to, “synthesize, analyze, and communicate basic information about agriculture” (p. 52). Leising and Zilbert (1994) developed a universal curriculum framework which established five common themes of what students should comprehend, synthesize and communicate about agriculture. These five themes were: understanding agriculture, science & environment, business & economics, history, geography & culture, and food, nutrition & health. This concept was titled the Food and Fiber Systems Literacy Framework’s Role in the Development of Agricultural Literacy. The framework addressed the concepts of Caine and Caine’s Brain-Based Theory (1994) and Dewey’s Experiential Learning Theory (1938). These theories suggested the boundary between context and content provide students with the opportunity to transfer and overlap complementary concepts. (Pense, Leising, Portillo & Igo, 2005).

Agricultural education at the middle school level, increased the level of agricultural literacy of the students as well as the community at large. (Rossetti, Padilla, & McCaslin, 1994). Research has shown that agricultural education at the middle school level promotes students’ fluency with agriculture and prepares students for potential
agricultural careers in the future (Russell, 1993). Offering agriculture in the classroom at an early age becomes increasingly important as today’s agricultural industry is evolving rapidly due to increased technology and research.

**Agricultural Education Statistics**

Agriculture in the classroom dates back many years. In 1915 there were 21 states that required Agriculture Education in their rural schools, and half of them required Agriculture Education in their urban schools (Hillison, 1998).

“By 1915, 4,665 high schools across the United States offered agriculture classes to 90,708 students” (Donnelly, 2008, p. 2). In 1985, 22% of secondary agricultural educators taught one or more middle school agricultural courses (Frick, 1993). In 2005, 4,000 young students in 157 counties were polled to assess their attitudes about Agriculture Education. The results showed that “90 percent of youth felt that agriculture was important, 60 percent have not participated in leadership programs, 67 percent wished there were more after-school activities available, and 60 percent wanted to learn skills needed to start a business” (Gibbs, p. 28). Research showed that there is tremendous opportunity to increase agricultural literacy amongst middle school students by demonstrating to youth, educators, administration, and parents how agriculture is important in the current market.

Agriculture Education teachers across the United States have developed a common goal to increase exposure of Agriculture Education in middle school classes. According to the long-range goal for agricultural education, there will be 10,000 quality agricultural education programs offered to students by 2015. These programs will promote agriculture in the classroom by classroom instruction, supervised agricultural
experience (similar to on-the-job training), and programs through the National FFA Organization (Rayfield & Croom, 2007). The National FFA Organization, previously known as Future Farmers of America, which has been changed to dispel the stereotype that only farmers could be involved. The National FFA Organization has given students in seventh grade through two years past high school, the opportunity to take part in many leadership conferences, livestock judging contests, horticulture and floriculture contests, and more. These opportunities have promoted exposure to agriculture, increase agricultural literacy, and promote agriculture to students who may be considering future careers. Exposure at the middle school levels also have enhanced the chances for these students to participate in high school agriculture as well as consider a potential career in agriculture. Even if students did not pursue careers in agriculture after having completed such an exploratory program, they have an increased knowledge of the vital role that agriculture plays in society, and will be stronger individuals in society as future policy and decision makers of the nation (Gibbs, 2005).

**Agriculture Educators**

Approximately 2,000 middle school agriculture educators, spread throughout the United States, are educating youth in today’s school systems. From these educators, nearly 600 of these have taught solely in the middle schools (Rayfield & Croom, 2007). If students were interested in pursuing a career in agriculture, there are currently 12 Colleges and Universities throughout the State of Minnesota that offer agriculture courses and programs to undergraduate students. There was only one college in the State of Minnesota that offers licensing for Agriculture Education teachers and that is the University of Minnesota. Students could also utilize the Crookston location of the
University of Minnesota to get their Agriculture Education teaching license.

According to Rossetti et al. (1994), teachers of agriculture served to influence students enrollment in agriculture classes. Gibbs credited agricultural educators for their philosophy of, “We don’t just teach agriculture, we teach students” (2005, p. 30). The strength of the Agriculture Education program lay in teacher flexibility and dedication to the program and students. Teachers potentially have made or broken students’ experience in the agriculture program through extracurricular activities in such as the National FFA Organization. These extracurricular programs have provided opportunities for the agricultural educator to develop a well rounded program and offer more leadership opportunities for students.

Gibbs wrote, “Teachers of agriculture have always stressed the problem solving and decision-making approach to teaching. Through this approach students are better equipped to cope with changes that are constantly occurring, not only in agriculture industry but also in life in general” (2005, p. 30). These problem-solving and decision-making skills learned through the agriculture program are irreplaceable life skills that students will use throughout the rest of their lives.

However, there have been problems associated with agriculture literacy. According to Rossetti, et al. (1994), many middle school students have assumed agriculture classes are all about farming. Agricultural educators need to be creative in their recruitment strategies and inform students that Agriculture Education was no longer just about cows, plows and sows, but has an extended array of curricular options.

Offering a variety of curriculum has also increased student awareness about the potential careers available to them from the Agri-Science industry. Terry Heiman, the
director of Agriculture Education for Illinois’ state education department observed, “Students who might not have been attracted by ‘cows and plows’ are intrigued by the idea of careers in food science, urban forestry or conservation” (as cited by Aguilar, 2005, p. 1). It is vital that agriculture educators expose students to the variety of careers at a young age because pressures on farm families and the rural economy have made (Russell, 1993). Agriculture educators play a vital role in the exposure of students to agriculture and the potential careers that agriculture offers.

**Agriculture Education Curriculum**

Middle school agriculture educators have recommended that middle school curriculum focus on two key concepts: agricultural literacy and the exploration of agricultural topics (Frick, 1993). According to Rossetti, et al. (1994),

If middle school agricultural education programs are to be productive, curriculum designers and instructors need to understand a new educational concept that incorporates agricultural literacy programs, courses for a semester or less, interdisciplinary approaches, and personal development. Course content should not be production agriculture oriented, rather activities such as vegetable and house plant propagation, care and identification; companion animal care; and agribusiness career shadowing must be emphasized, (p. 3)

In order to keep Agriculture Education successful in the middle school classroom, a wide variety of subjects and a wide variety of activities must be incorporated into the curriculum. Research by middle school educators has provided a wide variety of potential middle school agriculture subjects: food safety, leadership, careers and future of agriculture, agriculture science and experimentation, agricultural
vocabulary, agricultural benefits to the world, fish farms, vineyards, greenhouses, veterinary programs, gardening, biotechnology, and much more (Aguilar, 2005; Frick, 1993).

A research study was conducted among middle school educators regarding potential subjects that were important to be included into middle school agriculture curriculum. One curriculum career cluster included topics such as: the future of agriculture, preparation for an agriculture career, occupational opportunities for agr-science in the 21st century, diversity of agriculture careers, and on-farm and off-farm careers (Frick, 1993).

Conclusion

Agricultural education in the classroom has played a vital role in increasing agricultural literacy among middle school-aged youth in our communities. Agricultural educators have played an important role in educating youth at the middle school level, yet they face challenges in recruiting students to the program. They must work to overcome the misconception that agriculture classes only focus on farming, while in reality agriculture classes focus on a wide variety of topics. By enrolling in agricultural education courses at the middle school level, youth are exposed to many agricultural related concepts, which will translate into well rounded, more agriculturally literate students in the 21st century.

This chapter showed that there is a need for Agriculture Education in middle schools. The literature showed the need to teach agriculture to students, especially at a younger age. Chapter Three discusses the methodology that was used to complete the research study.
CHAPTER THREE

Methodology

This chapter first describes the research setting and population, the development and design of the survey instrument. Data collection and analysis will also be described.

Setting and Participants

The research population for this study included hand-selected school teachers, school administrators and school board members from a three-county area in Southern Minnesota. These participants were all affiliated with school districts in the South Central Region of Minnesota, located in Blue Earth, Nicollet, or Waseca counties.

In order to gain an ideal number of participants, a mixed method of sampling was used. Random selection and purposive sampling were used. A total of 50 potential educators were invited to participate. Thirty-four agreed to participate in the study. This sample of participants included educators that had no experience with agriculture as well as participants that had experience with agriculture. A large portion of the participants were familiar with agriculture as South Central Minnesota is a very large agriculture community, although agriculture is not offered at all local schools. Some of the participants were also selected randomly. This mixed method of sampling enabled educators from various backgrounds to participate in the survey: teachers with varying number of years of experience, teachers from different sized school districts, and teachers with varied experience of the agriculture industry.

The research subjects lived in South Central Minnesota and had a familiarity with agriculture because of their location in rural communities. They were either known to the researcher or suggested by another participant for this research study. Participants that
were chosen were school personnel from South Central Minnesota because they were known to the researcher or identified by another participant. Participants were chosen from a four county area to identify a relative sample of the population in Southern Minnesota.

Participation in this survey was completely voluntary. Participants were contacted by a personalized email or mailed letter inviting their participation in this study. Invitees indicated their willingness to participate by return email or by phone call.

There were no risks to research subjects for participating in this survey. Survey responses and any personal information collected were kept confidential. Participants completed an informed consent document prior to participation in the study. These documents along with survey responses were kept confidential and responses were only analyzed by the researcher. All documents were kept in a locked file cabinet in order to keep all information private.

Participants were informed of the purpose of this research project and the goals and objectives set by the researcher. They were told that the information gathered would be analyzed and used as part of a research study conducted for a Master’s of Education thesis that would be on file at the University of Minnesota, Duluth campus.

In November of 2009, the IRB: Human Subjects Committee at the University of Minnesota Duluth determined that this study was exempt from review under federal guidelines. The letter containing that information, as well as a copy of a letter and consent form sent to participants, is included in Appendix A.
Research Design

A survey was developed as it provided the best method for obtaining more honest responses from participants than interviews.

The survey included a total of 10 questions developed by the researcher including open ended questions and selected response questions in order to give respondents adequate latitude for response. It was developed to cover four main research questions: 1) to determine the familiarity of school teachers, school board members and administrators on Agriculture Education programs in their schools; 2) whether schools currently offer Agriculture courses in their middle school classroom; 3) school personnel's thoughts on the benefits of offering agriculture in the school curriculum; and 4) the reasons why Agriculture courses are not being currently offered in their schools.

Surveys were piloted among a small group of five individuals that had varied experience levels with agriculture and some that had no experience with agriculture. This proved to be a useful strategy as these individuals provided useful feedback, enabling the researcher to make appropriate adjustments to the survey. The pilot also enabled the researcher to assess the extent to which the survey questions made sense to participants.

Surveys were conducted between December 2009 and March 2010. Surveys took anywhere from 10 to 30 minutes for participants to complete. Participants completed the surveys at various locations including school buildings and participant’s homes.

Data Analysis

Survey questions were organized according to four main themes aligned with the research questions for the study: determining participants’ their prior knowledge of Agriculture Education programs, their knowledge of offering agriculture classes in their
schools, their knowledge of the benefits of offering agriculture classes in their schools, and reasons schools are not currently offering agriculture in their classrooms.

Participants also provided more specific details about their program if they are already offering agriculture in their school buildings. Participants commented on their experience with Agriculture in the Classroom programs, current offerings of agriculture in their schools, current grade levels being offered agriculture courses, thoughts on benefits to students of offering agriculture in the classroom, how agriculture literacy will affect students in the 21st century, reasons for not offering agriculture in the classroom (if applicable), and determining the perceived receptiveness of students to enroll in agriculture courses if courses were offered at their school.

Data was organized by question enabling the researcher to more accurately account for themes and patterns in the research gathered. Survey data analysis was conducted by determining themes from the survey responses provided by participants and frequency of similar responses.

Summary

Surveys were distributed to participants of this research study to determine the perceived benefits of integrating Agriculture Education courses into their classrooms, while determining the barriers behind why schools are not offering Agriculture courses in their school buildings. Review of data collected through surveys, as well as follow up conversation, revealed general themes regarding offering agriculture in the middle school classroom. These themes will be presented and discussed in chapter four.
CHAPTER FOUR

Results

This study was conducted with school teachers, school administrators and school board members across three southern Minnesota counties. Participants completed a ten question hard-copy survey in which they were asked the following questions: 1) Are you familiar with the Agriculture in the Classroom Program sponsored by the Minnesota Department of Agriculture and the Minnesota Agriculture in the Classroom Foundation; 2) do you currently offer Agriculture classes in your school system; 3) what classes do you currently offer; 4) which grade levels of students are being offered Agriculture classes; 5) what do you feel is the most opportune level for students to be offered Agriculture courses; 6) what do you see as benefits to your students for having Agriculture classes in your school; 7) how do you see the lack of Agriculture literacy affecting all students in the 21st century; 8) what are some of the reasons for not offering Agriculture classes in your school; 9) do you foresee your school offering Agriculture courses in the future; and 10) do you think students in your school would be receptive to Agriculture courses if they were offered in your school building? The responses to these questions enabled the researcher to gather data about the current status of agriculture courses in schools, reasons behind not offering agriculture courses in their schools, and benefits of offering agriculture in their school buildings.

In this chapter the data obtained from the survey are presented and analyzed. The results of this analysis have been summarized.
Results

This study was conducted with school teachers, school administrators and school board members across southern Minnesota. Returned responses included 27 of 34 participants or 76 percent of those agreeing to participate. The surveys covered four main topics: 1) determining the familiarity of school teachers, school board members and administrators with Agriculture Education programs; 2) if schools currently offer Agriculture courses in their middle school classroom; 3) school personnel’s thoughts on the benefits of offering agriculture in the school curriculum; and 4) the reasons Agriculture courses are not currently being offered in their schools.

Background Information

Participants were asked to provide basic background information about themselves at the beginning of the survey. With 27 participants responding to this question, the data showed 14 males (51.8 percent) and 13 females (48.15 percent) completed the survey. The results also show that 22 participants (81.48 percent) were teachers, 1 participant (3.7 percent) was a school administrator and 4 participants (14.8 percent) were school board members.

Research Question 1

The first research question was to determine the familiarity of school teachers, school board members and administrators with the Agriculture in the Classroom program sponsored by the Minnesota Department of Agriculture and the Minnesota Agriculture in the Classroom Foundation. Question one of the survey asked each participant about their familiarity with the Minnesota Agriculture in the Classroom sponsored by the Minnesota Department of Agriculture and the Minnesota Agriculture in the Classroom Foundation.
With a 100% response rate to this question, it was found that 17 participants were familiar with the program, while six were not familiar with the program and four were somewhat familiar with the program. Figure 1 shows that 62.96 percent of participants were familiar with the Agriculture in the Classroom program, while 14.81 percent are somewhat familiar and 22.22 percent are not familiar with the program.

Figure 1: Familiarity of the Minnesota Agriculture in the Classroom Program

Research Question 2

The second research question was to determine if schools currently offered agriculture courses as part of their middle school curriculum. All participants responded to this question. The data show that 24 participants indicated their schools did offer
agriculture classes in the middle school, while 3 participants indicated that agriculture was not offered in their schools. Figure 2 shows that 88.89 percent (24) of participants surveyed offer Agriculture courses while the remaining 11.1 percent (3) of participants do not have Agriculture classes offered in their schools.

Figure 2. Number of Schools Offering Agriculture Courses in their Schools

Participants who answered yes to offering Agriculture in their schools were then asked to answer question three, which asked what agriculture classes are currently offered in the local school. A wide variety of answers were given to this question. The data show that eleven courses: Agriculture Business, Agricultural Work Experience, Animal Science, Exploring Agriculture, Horticulture, Leadership Development, Mechanics, Metals, Natural Resource Science, Welding and Wildlife Management and
Animals are being offered the most in local schools. Figure 3 displayed the wide variety of courses that are being offered in the schools who participated in the research study.

*Figure 3: Agriculture Courses Offered in Schools*

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Participants Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Business</td>
<td>10</td>
</tr>
<tr>
<td>Agriculture Economics</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture Issues</td>
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<tr>
<td>Agriculture Technology</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture Work Experience</td>
<td>10</td>
</tr>
<tr>
<td>Agricultural Science</td>
<td>2</td>
</tr>
<tr>
<td>Animal Science</td>
<td>21</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>2</td>
</tr>
<tr>
<td>Career Exploration</td>
<td>1</td>
</tr>
<tr>
<td>Carpentry</td>
<td>4</td>
</tr>
<tr>
<td>Companion &amp; Small Animal Care</td>
<td>9</td>
</tr>
<tr>
<td>Computer Aided Drafting</td>
<td>2</td>
</tr>
<tr>
<td>Dairy &amp; Livestock Production</td>
<td>1</td>
</tr>
<tr>
<td>Exploring Agriculture</td>
<td>27</td>
</tr>
<tr>
<td>Fish &amp; Wildlife Management</td>
<td>4</td>
</tr>
<tr>
<td>Floriculture</td>
<td>4</td>
</tr>
<tr>
<td>Forest Resources</td>
<td>1</td>
</tr>
<tr>
<td>Home &amp; Auto Maintenance</td>
<td>6</td>
</tr>
<tr>
<td>Horticulture</td>
<td>12</td>
</tr>
<tr>
<td>Landscape Design</td>
<td>9</td>
</tr>
<tr>
<td>Leadership Development</td>
<td>10</td>
</tr>
<tr>
<td>Mechanics</td>
<td>10</td>
</tr>
<tr>
<td>Metals</td>
<td>10</td>
</tr>
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<td>Natural Resource Science</td>
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<tr>
<td>Nursery Landscape</td>
<td>1</td>
</tr>
<tr>
<td>Plant Science</td>
<td>7</td>
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<tr>
<td>Recreational Animals</td>
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<tr>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Shop &amp; Building Science</td>
<td>4</td>
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<tr>
<td>Small Engines</td>
<td>9</td>
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<tr>
<td>Summer Agriculture</td>
<td>5</td>
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<tr>
<td>Veterinary Science</td>
<td>6</td>
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<tr>
<td>Welding</td>
<td>11</td>
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<tr>
<td>Wildlife Management &amp; Animals</td>
<td>14</td>
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</tbody>
</table>
Question number four asked participants to identify any of the grade levels in their schools agriculture courses are being offered. Participants’ responses showed that four schools are currently offering agriculture courses in Grade 7, that 11 schools are offering agriculture to Grade 8, and that 20 schools are offering agriculture to Grades 9, 10, 11 and 12. The most popular grade levels to be offered agriculture courses are grades 9, 10, 11 and 12. Three participants answered that students in their school are receiving agriculture courses in different ways; a mini week-long agriculture lesson in the 3rd grade, participating in the National FFA Organization, and participating in agriculture courses offered by a different school district. See results on Figure 4.

*Figure 4: Grade Levels of Agriculture Courses Being Offered*

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th</td>
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</tr>
<tr>
<td>8th</td>
<td>10</td>
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<td>9th</td>
<td>25</td>
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<tr>
<td>10th</td>
<td>20</td>
</tr>
<tr>
<td>11th</td>
<td>20</td>
</tr>
<tr>
<td>12th</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
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</tbody>
</table>

Question five asked participants to identify what they felt was the most opportune grade level for students to be offered Agriculture courses. The data showed a wide array of responses from participants. One participant said, “I see every 7th grader in our school
system and get to introduce them to the world of agriculture! This is an excellent time to start to reinforce why agriculture is so important to us and for them to learn to identify agriculture around them.” Another response from a participant was to offer agriculture in the “intermediate elementary (Grades 3-5) and the middle school (Grades 6-8) because they are finding their interests.” One school teacher wrote, “I believe that Grades 8-12 are very important, as we move to a more off-farm population, it is very important for students to learn where and how their food was made, and the effects of Agriculture on the local and state economy.” When asked when was the most opportune time to offer agriculture classes to students, a teacher wrote, “ALL grade levels! Agricultural Education can offer innovative and unique science based curriculum at all levels. FFA members conduct Ag in the Classroom lessons at the elementary level and more formal training is provided at the secondary schools. Additionally, agriculture can provide a context to teach science, math, reading and writing to students.”

**Research Question 3**

The third research question was to determine school administrators, school teachers and school board member’s thoughts on the benefits to students of offering agriculture in the school curriculum. The data show that out of 27 participants surveyed, 24 participants felt there would be an increase in the general knowledge among students regarding the agriculture industry, 23 felt students would see experience an increase in self-knowledge of agriculture practices, 23 felt students would experience an increase in leadership skills and personal growth, 19 said students would experience an increased knowledge of environmental issues, 18 said students would experience an increased awareness of global issues related to agriculture, 18 felt students would experience an
increase in self-awareness, and 16 said students would have an increased knowledge of our self-inflicted impact on the environment and land surrounding us. Three participants added that students would experience an increase in consumer awareness, awareness of agriculture on our economy and help with career guidance. Two participants did not answer this question. Figure 5 shows the results.

*Figure 5: Benefits to Students who are Enrolled in Agriculture Courses*

Participants were asked to identify how they see the lack of Agriculture Literacy affecting all students in the 21st century. They were given the following definition to reference when answering this question. Frick (1993) defines agricultural literacy as, “The understanding and possessing knowledge of our food and fiber system. An
individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture” (p. 79).

Research participants provided a variety of answers to this question. One participant stated, “If students in the 21st century are not going to be able to recognize, appreciate and know the truth about agriculture and agricultural practices they are going to be consumed by the media and false acquisitions about the industry that provides for us. In this century, media and technology have such an impact on people that if the incorrect information is portrayed, wrong beliefs are formed therefore hurting the agricultural industry!” Another participant wrote, “Educating all students in and about agriculture helps the general public to become educated consumers and decision makers in their communities.” Another response from a school teacher was, “Many of my students have no idea where their food comes from. They just think the grocery store has it all. They are amazed to learn where food comes from and especially to learn about the local agriculture industry and farming.” A school board member wrote, “In the United States, we are starting to see the potentially negative results for the Agriculture Industry and the United States as a whole, as each generation gets further and further removed from food and fiber production on our farms and ranches.” One teacher said, “As more and more people are not familiar with agricultural practices, laws and regulations will be set into motion that will hinder the production of Agriculture products.” Another teacher wrote, “Kids and adults don’t understand how agriculture really impacts them on a daily basis. If the students are not educated, you will hear more and more that the milk comes from the store, not from the cow.” An additional response was that, “Everyone should have an understanding of where their food, fiber, and fuel come from. They need to be
informed consumers. I see more and more people that are one or two generations removed from the farm and have very little knowledge of basic agriculture.”

Research Question 4

Question number eight asked the participants' thoughts on what reasons were for agriculture courses not currently being offered in their schools. The data show that some reasons why schools are not offering agriculture courses are because of:

- lack of time;
- lack of resources and space;
- pressure to include core subjects because of state and federal funding which is tied to school testing;
- lack of funding;
- lack of staffing;
- lack of relevance to students in an urban setting;
- the amount of funding needed to keep an effective agriculture program running;
- lack of community interest;
- diversity in student population

Question nine asked research participants who currently do not offer agriculture courses in their school to explain if they foresee their school district offering these courses in the future. A school teacher wrote, “Yes...Students are involved in the community and strive to create a positive image as they develop their leadership potential.” One school teacher stated, “No, due to budget cuts we are barely getting in the basics anymore. Special areas (music, art, physical education, agriculture, etc) are being cut year after year.” A school teacher writes, “No, because we offer limited
courses and funding this program would not fit into the school budget. Lack of space and student interest would also affect the success of such a program.” Lastly, a teacher wrote, “Probably not, as it’s not in their cultural background.”

Question ten asked participants whose schools currently do not offer agriculture courses to determine if they think students in their schools would be receptive to these courses if they were offered in their school buildings. One teacher wrote, “Yes, we have great support from our community and have continually worked to stay on the fore-front of things to come (working on online courses, teaching the required careers courses, etc.).” A teacher from an urban school wrote, “Yes, because agriculture courses provide new information and an opportunity for students to learn about their local community.” A teacher wrote, “No, because it is not relevant to their lives. I really think they would benefit from agriculture courses but my students are focused on graduating fast and not caring about important things. It would be to their benefit to learn about agriculture and not always focusing on the basic, core courses.”

Summary

This study set out to examine the school personnel’s perceived benefits of integrating agriculture courses into the Middle School classroom, while determining reasons schools are not offering agriculture courses in their curriculum. Research participants included 23 school teachers, school administrators and school board members across southern Minnesota.

Results of the survey provided data that supported the observation of Wright, et al. (1994), that the agricultural industry provides people with food on their table, clothing on their backs, and shelter above their heads. Furthermore, citizens today have very little
knowledge of where and how our food is produced and groups are beginning to raise
questions about the safety of the food supply. A summary of the results, discussion and
recommendations for further study will be highlighted in Chapter Five.
CHAPTER FIVE

Discussion, Summary and Conclusions

This study examined the perceived benefits of integrating agriculture courses into the middle school classroom, while determining reasons schools are not offering Agriculture courses in their curriculum. Research participants included 27 school teachers, school administrators and school board members across southern Minnesota. Participants completed a ten question hard-copy survey in which they were asked questions related to agriculture courses, benefits of offering these courses to students, and reasons why their schools are not offering agriculture courses.

Discussion

The goal of this research survey was to determine familiarity of school teachers, school board members and administrators with Agriculture in the Classroom programs; determine if schools currently offer Agriculture courses in their middle school classroom; discover their thoughts on the benefits of offering agriculture in the school curriculum; and discover what are the reasons why Agriculture courses are not currently offered in their schools.

The results of this research study supported what Gibbs (2005) said about agricultural literacy, where he stated the concept about the need for Agricultural literacy. The agricultural industry has provided people with food on their table, clothing on their backs, and shelter above their heads. A research participant wrote, “Students . . . have no idea where their food comes from. They just think the grocery store has it all. They are amazed to learn where food comes from and especially about the local agriculture industry and farms.” This statement illustrated the importance of beginning to educate
youth at an earlier age to expose youth to agriculture in a proper way. It is in agreement with Wright, et al. (1994) confirming that citizens today have little knowledge of where and how our food is produced. We need to create an awareness of the agriculture industry by educating our children at a younger age.

Research participants observed that starting to educate our youth about agriculture at an earlier age proves to be more beneficial to our youth. One participant stated, “The benefits of having an agriculture class at an early age is the chance of opening eyes to all the career possibilities that are out there.” Another participant answered, “The seventh and eighth grades. This is the time that they are most influential and developing a plan for a future career”. Another teacher wrote, “ALL grade levels! Agriculture Education can offer innovative and unique science based curriculum at all levels.” The results are consistent with the writing of Rossetti, et al. (1994), where they stated, “Agricultural Education at the middle school can help increase the number of individuals in our society that may become more agriculturally literate” (p. 2).

The results also confirmed what Rossetti, et al. (1994), wrote about agricultural education being offered at the middle school level, and how it increases the level of agricultural literacy of the students as well as the community at large. Research showed that agricultural literacy needs to be offered at the middle school level in order for students to become more fluent with agriculture and prepare for potential agricultural careers in the future (Russell, 1993). Offering agriculture in the classroom at an early age has become increasingly important as today’s agricultural industry is evolving rapidly due to increased technology and research. This agrees with a statement made by one teacher, “I do see the types of classes being taught changing. The farm kid is a thing of
the past in most areas and therefore Agriculture Education programs have adapted to teach more urbanized materials”. Exposing youth to agricultural education at an earlier age provides them with a more developed sense of consumer awareness, compared to if they have never gained the knowledge of the agriculture industry.

School teachers, school board members and school administrators surveyed provided responses that showed that there are obvious benefits to offering agriculture courses to their students. The data show that out of 27 participants surveyed, 24 participants felt there would be an increase in the general knowledge among students regarding the agriculture industry, 23 felt students would see experience an increase in self-knowledge of agriculture practices, 23 said students would experience an increase in leadership skills and personal growth, 19 said students would experience an increased knowledge of environmental issues, 18 said students would experience an increased awareness of global issues related to agriculture, 18 felt students would experience an increase in self-awareness, and 16 said students would have an increased knowledge of our self-inflicted impact on the environment and land surrounding us. Three participants added that students would experience an increase in consumer awareness, awareness of agriculture on our economy and help with career guidance. Two participants did not answer this question.

Respondents indicated that several schools have barriers that explain why they are not offering agriculture in their schools. These barriers included: lack of time, lack of resources and space, pressure to include core subjects because of state and federal funding which is tied to school funding, lack of funding support, staffing shortages, lack
of relevance to students in an urban setting, lack of community interest, and diversity in student population.

How can schools offer agriculture courses in their schools while battling these barriers? Agriculture courses can now be offered for science credit for schools in Minnesota. If schools are lacking funding to offer agriculture courses in their schools, quite possibly they could combine with their science teachers to offer the programming. Responses showed that schools lack space, staffing and resources to offer agriculture in the classroom. There is potential for these schools to offer a week-long unit on agriculture in their classrooms. Many local livestock organizations would be willing to come in and offer programming to these classes for a week. One research participant wrote, “Our third graders get a week of mini lessons about agriculture. It is sponsored by area groups such as Dairy Farmers of America, Cattleman’s Club, etc. It is run by volunteers who work in the agriculture industry.”

This would be a very effective way to expose youth to agriculture. The results of this research also showed the perception of school personnel for the need to offer Agriculture Education to students in the middle school level and eventually to the agriculture industry.

**Educational Implications**

The purpose of this study was to determine the familiarity of school teachers, school board members and school administrators with Agriculture Education programs, while determining who is offering agriculture courses in their school, determining the benefits to students who are enrolled in agriculture courses, and determining what the barriers are to some schools not offering agriculture in their school buildings. The results
of this study show that agriculture classes are perceived to be valuable by school personnel in the system. However, while agriculture courses are effective, there are some barriers preventing some schools from offering these courses in their school building.

Further research is needed to determine how to overcome these barriers to offer agriculture in more schools throughout the state of Minnesota. Alternate approaches might include: offering agriculture concepts in science courses or offering mini agriculture lessons in classes by bringing in volunteer agriculture leaders from the community. These opportunities would not increase the cost for the schools, but would provide some exposure to students of key agriculture concepts.

Technology could be utilized in schools. Schools can collaborate to offer agriculture courses via TV System (ITV). One research participant wrote, “Online learning and podcasting could be immediate technologies used to provide instruction.” This participant’s school district currently shares agriculture programming with a neighboring school, which proves to be quite effective to these districts. Both districts alone could not afford to offer the program, so they are now combined, and through the use of technology this is a definite option.

**Recommendations for Future Research**

The results of this research survey showed that educators feel there is a need for schools to offer agriculture courses in their classes, that there are benefits to students who are enrolled in agriculture courses, but there are limitations as to why some schools cannot offer these courses. One of the purposes of this research study was to set out to identify what those barriers were that were hindering schools from offering agriculture programs. There needs to be further research done in the future to strategize what those
barriers were that hinder schools from offering agriculture programming in their schools. This research should expand to include participants from across the state of Minnesota to provide more positions on this issue. This research study only conducted surveys in a limited cell size amongst participants in Southern Minnesota so more research in a greater area would be beneficial.

**Summary**

It is vital to continue to push for Agriculture Education to be offered at a middle school level. As shown by the research, school teachers, school board members and school administrators feel that the earlier a student can be exposed to Agriculture in school, the better. Work needs to be done to implement more agriculture programs across the state, especially beginning at a younger age. One of the purposes of this research study was to identify barriers to offering agriculture programs in the schools. Research is needed to determine how to overcome these barriers.
References


of student agricultural literacy in selected agriculture in the classroom programs. 

*Journal of Agricultural Education, 46*(3), 107-118.


Appendix A

From: irb@umn.edu
To: kriordan@umn.edu, eppe0018@umn.edu
Date: 12/4/2009
Subject: 0911E74223 - PI Sommers - IRB - Exempt Study Notification

The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #2 SURVEYS/INTERVIEWS; STANDARDIZED EDUCATIONAL TESTS; OBSERVATION OF PUBLIC BEHAVIOR.

Study Number: 0911E74223

Principal Investigator: Amanda Sommers

Title(s): The Importance of Integrating Agriculture Education into the Middle School Classroom

This e-mail confirmation is your official University of Minnesota RSPP notification of exemption from full committee review. You will not receive a hard copy or letter.

This secure electronic notification between password protected authentications has been deemed by the University of Minnesota to constitute a legal signature.

The study number above is assigned to your research. That number and the title of your study must be used in all communication with the IRB office.

Research that involves observation can be approved under this category without obtaining consent.

SURVEY OR INTERVIEW RESEARCH APPROVED AS EXEMPT UNDER THIS CATEGORY IS LIMITED TO ADULT SUBJECTS.

This exemption is valid for five years from the date of this correspondence and will be filed inactive at that time. You will receive a notification prior to inactivation. If this research will extend beyond five years, you must submit a new application to the IRB before the study’s expiration date.

Upon receipt of this email, you may begin your research. If you have questions, please call the IRB office at (612) 626-5654.

You may go to the View Completed section of eResearch Central at http://eresearch.umn.edu/ to view further details on your study.

The IRB wishes you success with this research.
CONSENT FORM
The Importance of Integrating Agriculture Education into the Middle School Classroom

You are invited to be in a research study on offering Agriculture Education in the Middle School Classroom. You were selected as a possible participant because of your role in Education in South Central, Minnesota. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amanda Sommers, Blue Earth County 4-H Program Coordinator with the University of Minnesota.

Background Information

The purpose of this study is: to determine what the benefits are of integrating agriculture courses into the Middle School classroom, why schools are currently offering Agriculture in the Classroom or why schools are not currently offering any Agriculture courses in their schools.

Procedures:

If you agree to be in this study, I would ask you to do the following things: Complete a very brief survey - either via email or hard copy. This survey will take approximately ten minutes of your time.

Risks and Benefits of being in the Study

The study has no risks in participating. All responses will be used anonymously.

The benefits to participation are the potential to increase the awareness of Agriculture in the Classroom amongst school personal in South Central, Minnesota.

Compensation:

There will be no compensation given.

Confidentiality:
The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amanda Sommers. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at (507) 461-2214 or eppe0018@umn.edu. If you need to contact Amanda's advisor, you may do so. Kim Riordan may be contacted at (218)726-7251 or by email at kriordan@d.umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects’ Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

*You will be given a copy of this information to keep for your records.*

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: ____________________________________________ Date: ______________

Signature of parent or guardian: __________________________ Date: ______________
(If minors are involved)

Signature of Investigator: ________________________________ Date: ______________
Email/Letter to Potential Participants:

November 9, 2009

Dear John Doe,

My name is Amanda Sommers and I am the Blue Earth County 4-H Program Coordinator in Mankato, which is a division of the University of Minnesota. I’m currently pursuing my Master’s Degree in Education through the University of Minnesota at Duluth.

As students in the Master’s Program we are required to conduct a research study. You are being contacted to participate in this very brief survey, as you meet the population criteria for my study and are located in South Central Minnesota.

You are invited to be a part of a research study I am conducting on offering Agricultural Education in the Middle School Classroom. You were selected as a possible participant because of your role in Education in South Central, Minnesota.

The purpose of this study is to determine (1) what the benefits are of integrating agricultural courses into the Middle School classroom, (2) why schools are currently offering Agriculture in their schools and (3) what are some reasons behind why schools aren’t currently offering Agriculture in their schools.

The attached survey and consent form are all I will need from you in order to participate in this research study. The survey is very brief (10 questions) and will only take approximately ten minutes of your time.

I would be grateful if you would agree to participate in this research study. There are no risks involved with the survey, and all responses will be kept anonymous and stored in private.

If you choose to participate in this research study, please complete the attached survey and consent form and return it to me at your earliest convenience. You can return to me via email at eppe0018@umn.edu or by mail to: Amanda Sommers, 10297 310th Avenue, Waseca, MN 56093.

Thank you again for your consideration!

Amanda Sommers
Appendix D

SURVEY
The Importance of Integrating Agriculture into the Middle School Classroom

Background Information:
Gender: _____ Male _____ Female
I am a: _____ Teacher _____ Administrator _____ School Board Member

Survey Questions:
1. Are you familiar with the Agriculture in the Classroom Program sponsored by the Minnesota Department of Agriculture?
   _____ Yes _____ No _____ Sort of

2. Do you currently offer Agriculture classes in your school system?
   *(If answering no, skip to question 7).*

3. What classes do you currently offer?

4. Which grade levels of students are being offered Agriculture classes?
   _____ 7th _____ 8th _____ 9th _____ 10th _____ 11th _____ 12th
   _____ other?

5. What do you feel is the most opportune grade level for students to be offered Agriculture courses?
6. What do you see as benefits to your students for having Agriculture classes in your school?

_____ Increased general knowledge of agriculture industry
_____ Increased awareness of global issues related to agriculture
_____ Increased knowledge of our self-inflicted impact on the environment
_____ Increased knowledge of environmental issues
_____ Increased self-knowledge of agriculture practices
_____ Increased sense of self awareness
_____ Increase in leadership skills and personal growth
_____ Other?

7. How do you see the lack of Agriculture Literacy affecting all students in the 21st century?
Note: Agriculture Literacy is defined as “The understanding and possessing knowledge of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture” (Frick, 1993, Pg. 79).

8. What are some of the reasons why you do not offer Agriculture classes in your school?

9. Do you foresee your school offering Agriculture courses in the future? Why / Why not?

10. Do you think students in your school would be receptive to Agriculture courses if they were offered in your school building? Why?

Thank you for your time in completing this survey! It is much appreciated!