

An examination of the impact of 4-H on  
employability skills

by

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## **ABSTRACT**

4-H is a national non-profit youth organization that was started with the idea of connecting public school education to country life. The motto of the 4-H organization is to make the best better. 4-H programs focus on hands-on, practical methods for young people. Topic areas include health, science, agriculture, and citizenship. These areas are centered around the 4 H's: Head, Heart, Hands, and Health. Creating positive environments where adults serve as mentors to guide youth along their educational journeys is the main design in each of the delivery modes: after-school programming, in-school enrichment programming, clubs, and camps.

Measuring the impact of the 4-H program's ability to increase participants' life skills is one of the biggest challenges. The purpose of this research study is to investigate such impact by surveying past 4-H participants. Did 4-H alumni's participation in 4-H give them the employability skills needed to enter the agriculture sector? An online survey research method is utilized to gather anonymous responses from 4-H alumni.

Results indicate that 4-H participants have gained employability skills through their 4-H experiences to help make them successful in the agriculture industry. These results help validate the efforts being made by the Nebraska 4-H program in regards to providing hands-on learning experiences to gain such employability skills.

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## CHAPTER I: INTRODUCTION

4-H is a national non-profit youth organization that was started with the idea of connecting public school education to country life. In 1914, the Cooperative Extension System was created by the passage of the Smith-Lever Act. This put 4-H under the USDA and nationalized the program. Today, 4-H is a partnership of the National Institute of Food and Agriculture (NIFA) within the United States Department of Agriculture (USDA), land-grant universities, and county offices located in every U.S. state. This allows the Extension system to access resources at the local, state, and federal levels (National 4-H Council 2018).

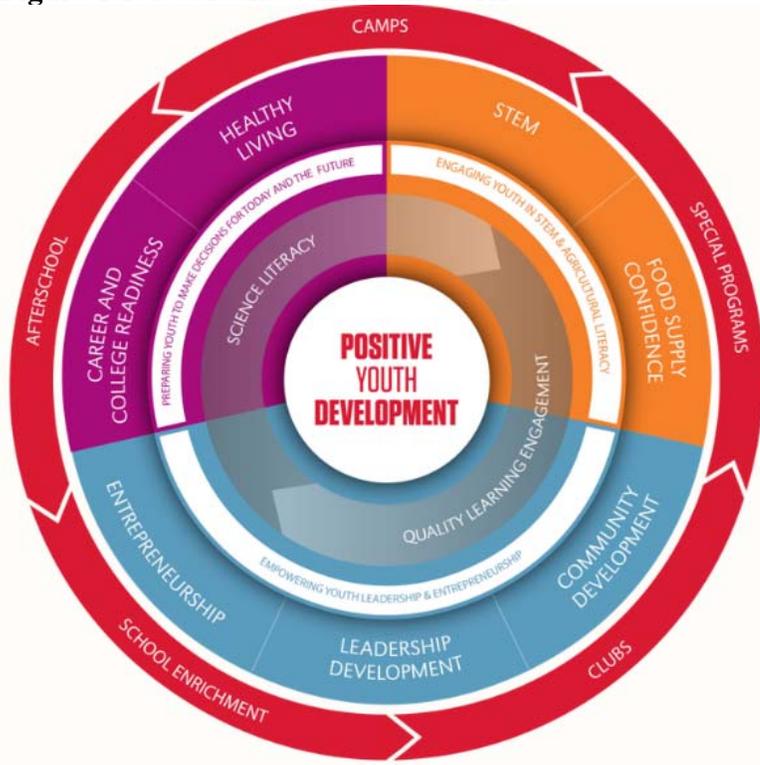
The mission of the 4-H organization is to “provide 10 million kids nationwide with the skills they need to succeed in life today and tomorrow” (Nebraska 4-H 2019). The motto of the organization is to make the best better. 4-H programs focus on hands-on, practical methods for young people. Topic areas include health, science, agriculture, and citizenship. These areas are centered around the 4 H’s: Head, Heart, Hands, and Health. Creating positive environments where adults serve as mentors to guide youth along their educational journeys is the main design in each of the delivery modes: after-school programming, in-school enrichment programming, clubs, and camps. There are nearly 6 million total 4-H participants across the country in urban, suburban, and rural areas (National 4-H Council 2018).

Nebraska 4-H is active in all 93 counties across the state. It is a division of the Institute of Agriculture and Natural Resources at the University of Nebraska – Lincoln. “Educational programs place a strong emphasis on life skills such as critical thinking, problem-solving, social skills, communication, responsibility, citizenship, and leadership

(University of Nebraska - Lincoln 2018).” Across Nebraska, there are over 12,000 volunteers that help the 4-H program reach 1 in 3 youth, ages 5-18 (University of Nebraska - Lincoln 2018).

Furthermore, Nebraska 4-H follows a framework and an experiential learning model as the foundation for program development. The framework and experiential learning model can be seen in Figures 1.1 and 1.2, respectively. The framework was developed based on priorities that the citizens of Nebraska suggested (Figure 1.1). Those priorities include the topic areas of STEM (Science, Technology, Engineering, Math), Food Supply Confidence, Community Development, Leadership Development, Entrepreneurship, Career and College Readiness, and Healthy Living with the objectives of engaging youth in STEM and agriculture literacy, empowering youth leadership and entrepreneurship, and preparing youth to make decisions for today and the future. This is carried out through delivery modes including camps, special programs, clubs, school enrichment programs, and after school programs (University of Nebraska - Lincoln 2018).

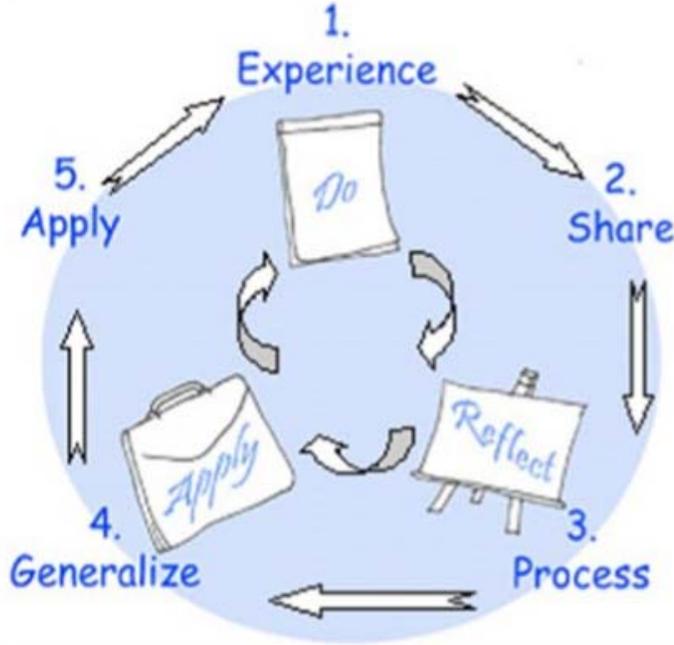
**Figure 1.1: Nebraska 4-H Framework**



Source: University of Nebraska – Lincoln 2018

The experiential learning model is used to help structure all programming done through the 4-H program (Figure 1.2). This model includes five steps: experience, share, process, generalize, and apply. The first step occurs when the youth actually does the activity. Once they reflect upon what they are learning through their experience, they have accomplished the Share and Process steps. Normally engaging discussion questions are asked of the youth to help them process their experience. Sharing ideas with their peers falls into this step as well. Finally, the last two steps, generalize and apply, occur when youth understand the key take-aways from an activity and can think of other ways that they can use skills gained in another, completely separate activity (4-H National Headquarters 2011).

**Figure 1.2: Experiential Learning Model**



Source: 4-H National Headquarters 2011

### **1.1 Problem Definition**

As mentioned previously, one of the main goals of Nebraska 4-H programming is to increase youth participants' life skills. Measuring such impact is one of the biggest challenges facing such youth organizations. Learning models are utilized along with strategies and frameworks. But, how can impact truly be measured? Are these skills gained for the long-term? Does 4-H create an experience for youth that will benefit them over their lifetime? This study investigated the impact 4-H has had by surveying past 4-H participants. Did 4-H help its participants gain employability skills that are needed in the workforce today? Are 4-H alumni better off in their lives because of their experience in 4-H as a youth? More specifically, this project will be focusing on the impact 4-H has had on the agriculture sector in Nebraska since agriculture is the main industry for the state. Therefore,

a better suited question for this research project would be: Did 4-H alumni's participation in 4-H give them the employability skills needed to enter the agriculture sector?

## **1.2 Objectives**

The overall objective for this research was to determine the Nebraska 4-H program's success in developing the needed employability skills in youth to prepare them for their future careers in the agriculture industry. The specific research objectives were to:

- 1) Identify employability skills designated by previous research as important for individuals to possess in order to excel in the agriculture industry;
- 2) Gather feedback from 4-H alumni in regards to the effectiveness of the Nebraska 4-H program to provide such needed employability skills;
- 3) Determine if 4-H alumni attribute their current success in the agriculture industry to their participation in 4-H;
- 4) Create suggestions based on survey results and 4-H alumni's responses in regards to what, if anything, can be done differently to make sure the Nebraska 4-H program is helping youth develop employability skills in an effective way.

## **1.3 Significance of Study**

Meeting these objectives will be useful in determining the impact of the 4-H program and its positive youth development mentality. It will bring to light whether 4-H participants have gained employability skills through their 4-H experiences to help make them successful in the agriculture industry. With positive results, this study could validate the efforts being made by the Nebraska 4-H program in regards to providing hands-on learning experiences to gain such employability skills.

### *1.3.1 Importance of Employability Skills*

Why employability skills? Why should individuals obtain such skills? Research says that “those who have high [employability skill] development are twice as likely to have high work quality compared to those who had low skill development” (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 4). Furthermore, “employers of agricultural graduates have increased their emphasis on computer-, people-, and teamwork-related skills” (Barkley, Stock and Sylvius 1999, 785). Business leaders are looking for effective communication, managing conflict, organizing, and collaboration skills. They see these skills as keys to their workforce seeing success (Calderon and Hodges 2016). Even though these skills are suggested by employers for college graduates, it seems as if it is never too early to start building these skills.

### *1.3.2 Importance of Extracurricular Activities*

4-H is considered an extracurricular activity or an organization that provides learning experiences that occur outside of the traditional school classroom. So, why would it be important for youth to gain employability skills outside of the school classroom? Shouldn't that be something they gain while in school? According to research, the majority claim that they gained most of the skills they use in their current career outside of the classroom walls (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 4). It was also found that the more frequently youth use these skills, the more impact they will have on the quality of their work in the future (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 13). Furthermore, for youth, “they need exposure to varied examples before their understanding of a concept becomes more abstract and they can

successfully apply that understanding to novel situations” (Rotherham and Willingham 2010, 18-19). Rotherham and Willingham also claim that practice, not just experience, is needed to solidify such learning. This practice requires feedback from someone who is more skilled (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013). Therefore, activities that occur outside of the classroom can become a vehicle for further skill application. The 4-H program provides hands-on experiences for youth to practice such skills as well as adult mentors who can provide feedback.

4-H programs work with youth ages 8-18, which is significant. A 2015 Gallup Student Poll found that real-world experience is needed for students to become successful. Gallup suggests that those experiences are needed in high school if not even before youth enter high school (Calderon and Hodges 2016). This is an opportunity for 4-H since the program is designed to start reaching youth at age 8 in Nebraska.

#### **1.4 Thesis Outline**

A review of the literature is provided in the following chapter. Chapters III and IV explain how the theories and research methods are used to analyze the research question. The research methodologies can be utilized for other similar research questions for other organizations looking to validate the impact they make on their participants. Chapter IV also explains the data from the electronic survey. Chapter V provides discussion on the survey results. The final chapter provides conclusions from the study and what might be suggested to improve such impact attributed to the 4-H program in regards to providing its participants with the employability skills needed to be successful in the agriculture industry. It also includes the assumptions and limitations of this particular study.

## CHAPTER II: LITERATURE REVIEW

### 2.1 Employability Skills

Employability skills are the “basic skills necessary for getting, keeping, and doing well on the job” (Alabama Cooperative Extension System 2000, 1). They are useful in any industry, business, and job. Some may refer to them as soft or transferable skills. For the basis of this research project, Gallup’s 21<sup>st</sup> Century Skills and the employability skills highlighted by Alabama Extension are used. “Twenty-first century skills are advanced skills that prepare and equip youth for the challenges and demands of work in the 21<sup>st</sup> century” (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 4).

The Gallup skills are based on the Innovative Teaching and Learning Research project and include: collaboration, knowledge construction, skilled communication, global awareness, self-regulation, real world problem solving, and use of technology for learning. More specifically, the definitions of each skill according to the Gallup research are:

- *Collaboration* - worked together with others on a project for which you had to share responsibility;
- *Knowledge construction* - spent time analyzing information or ideas to draw conclusions and/or applied a concept you learned to a different context or problem;
- *Skilled communication* - developed communication such as an essay or presentation that included facts, information, or numbers to support your ideas;
- *Global awareness* - studied information about other countries or cultures that made you aware of how the world is connected;
- *Self-regulation* - used feedback from adults or peers to revise your work and/or gave feedback to others to help them improve their work;

- *Real-world problem-solving* - using what you were learning to develop solutions to real world problems in your community or in the world and/or worked on a long-term project that took several weeks/months to complete;
- *Technology in learning* - using computers or technology to complete activities (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 8).

Alabama Extension breaks employability skills into three categories: basic academic skills, higher-order thinking skills, and personal qualities. The skills listed in the basic academic skills category are primarily taught in the traditional education system. Therefore, the other two categories (higher-order thinking skills and personal qualities) are highlighted for the basis of this study:

- *Higher-order Thinking Skills are the following:*
  - Learning
  - Reasoning
  - Thinking Creatively
  - Decision Making
  - Problem Solving
- *Personal Qualities are the following:*
  - Responsible
  - Self-Confident
  - Self-Control
  - Social Skills
  - Honest

- Have Integrity
- Adaptable and Flexible
- Team Spirit
- Punctual and Efficient
- Self-Directed
- Good Work Attitude
- Well-Groomed
- Cooperative
- Self-Motivated
- Self-Management (Alabama Cooperative Extension System 2000, 2).

Alabama Extension suggests that these higher-order thinking skills are necessary when using technology, instruments, tools and information systems. Personal qualities are needed because for most jobs, it is difficult to be effective if one is lacking personal qualities. Those with personal qualities showed respect for themselves and others, were able to deal with things in an open and honest way, had confidence, viewed themselves as part of the team, and were willing to work with diverse audiences. These skills put those employees “a leg up” from the rest and they were able to work more independently (Alabama Cooperative Extension System 2000, 1-3).

Using these definitions of employability skills does not lead to an end-all conclusion. Since the definitions and classifications of employability skills vary from study to study, it is impossible to incorporate all of the employability skills that exist. There are several models and lists that describe different employability skills. Since this research

project is focused on how individuals fit into and contribute to the agriculture industry, the term “employability skills” is used. Additionally, this is why the Gallup list and the Alabama Extension list of employability skills are used. The same Gallup and Microsoft study identified the skills from their study by studying youth in America and what they were able to learn both inside and outside the classroom to prepare them for life and work (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 1-19). Alabama Extension’s list is based on the Secretary’s Commission on Achieving Necessary Skills (SCANS) report conducted by the U.S. Department of Labor (Alabama Cooperative Extension System 2000, 1-3). With the focus of these studies on identifying skills in youth, it was fitting to use these lists as well for this project as it explores a person’s employability after their experience in 4-H as a youth.

According to research, employability skills are important to life and career success. Those with employability skills “are twice as likely to have higher work quality compared to those who have low [skill] development” (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 4). Age is important as well. Higher levels of skill development were seen in younger respondents. Perhaps this shows that more 21<sup>st</sup> century skills are being incorporated into teaching strategies (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 8).

Furthermore, extracurricular activities can be an important vehicle for youth to gain these employability skills. Respondents of the Gallup and Microsoft study were “nearly four times more likely to credit the skills they use for their work to outside activities rather than to the classroom” (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 7).

## **2.2 Growth in the Agriculture Industry**

According to Noel and Qenani (2013), processes like globalization and technological advances have caused the context of work for those in the agriculture industry to change dramatically. Therefore, agricultural businesses have new demands and complex situations that require creativity to solve them. The industry needs people that can perform those complex, ever-changing tasks. The research found that employers want graduates that have skills in critical thinking, good communication, creative thinking, and good teamwork. The work demands people to adapt, think on a global scale, and be innovative with their approaches (Noel and Qenani 2013, 17-36). Tying back to the Gallup study that identifies the employability skills used in this research project, the skills from that research study were identified because they were found to be critical for individuals to be successful in an environment where global activity is becoming the norm, technological advances are taking place almost daily, and knowledge is needed in almost every transaction (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013, 1-19).

## **2.3 Teaching Employability Skills**

Research shows that employability skills are important for youth to gain to be successful in life and, more specifically, in the agriculture industry. They are needed to help the agriculture industry meet the demands of the world. But, how can such employability skills be taught?

Grover J. (Russ) Whitehurst (2016) indicates there are six aspects educators can focus on to implement curriculum and methods to teach employability skills: focus on behavior, provide learning opportunities and consequences in social interactions, use

measurement tools that naturally occur to help youth better understand the skills being taught, prioritize students (in a way) to make sure no one is left behind when it comes to social and emotional skills, make sure all educators are on the same page when trying to teach the same employability skills, and both educators and youth need to be willing to learn from their mistakes throughout the process. The idea of employability skills is not new. But, effective ways to teach such skills are being further developed and fine-tuned. This takes time and practice as well as a large amount of research and measurement tools to understand the effectiveness of teaching methods.

### CHAPTER III: THEORY

Economist Joseph Schumpeter's work in his books, *The Theory of Economic Development* (1949) and *Capitalism, Socialism, and Democracy* (1947), introduced the ideas of circular flow and creative destruction into the world of economics. He theorized that disruptions are needed in order to provide economic growth. These disruptions are caused by new innovations, new theories, or even new methods (Becker, Knudsen and Swedberg 2012, 917-933). New methods and innovations are needed to make sure that our youth of today are prepared to be successful in the agriculture industry of tomorrow. Beyond that, they need to be equipped with the skills to disrupt the industry in order to establish new growth in the industry to keep it progressing forward. As Schumpeter pointed out, if all systems remained unchanged and stagnant, that also means the world wouldn't change. This is part of his idea of circular flow – production and consumption do not change and the economy becomes stagnant (Greiner and Hanusch 1994, 261-271). We need innovations to change our world (i.e., decrease crime, increase food supply, decrease homelessness, increase employability, etc.). As Schumpeter phrases it, we need “creative destruction.”

In the beginning of the research process, four motivations of study were identified:

1. Youth are not aware of the employability skills needed in order to be successful in the agriculture industry.
  - a. Strategic teaching methods to help youth understand the needed employability skills could help them determine which skills they have and which they need to improve upon.

2. Nebraska Extension does not know if their efforts to help youth develop employability skills have been successful.
  - a. The mission of the 4-H program is to “provide 10 million kids nationwide with the skills they need to succeed in life today and tomorrow” (Nebraska 4-H 2019).
  - b. By understanding the validity of their efforts, Nebraska Extension can further their “creative destruction” practices to better the youth of today to create a better world for tomorrow.
3. 4-H is a vessel for youth to explore their interests while gaining skills that aren’t always worked on in the classroom.
  - a. To further this mission, the 4-H program needs to be evaluated to make sure it is doing what it is setting out to accomplish. From there, new goals can be set to improve its effectiveness even more or to expand its reach when it comes to helping youth build employability skills outside of the classroom setting. The world is constantly changing. 4-H could potentially be that organization that changes along with the world to keep programs and skills for youth development current.
4. The 4-H program in Nebraska is viewed as a premier opportunity for youth to gain the skills and experience needed to become successful in the agriculture industry. Such experiences and opportunities for exploration will help the agriculture industry further its growth and development to keep up with changing technologies and increased demands.

One way to gather the impact of the 4-H program on its participants is through survey work. Asking alumni about their perceptions in regards to their 4-H experiences and how they potentially gained employability skills through 4-H is one way to gain insight in order to reach the research objectives.

## CHAPTER IV: DATA AND METHODS

### 4.1 Survey Research Methodology

A single online survey was utilized to gain insight from previous 4-H participants as to how effective they believe the 4-H program has been in preparing them to be successful in the agriculture industry of today. Survey research is “a method of collecting standardized information by interviewing a sample representative of some population” (Hackett 1981, 600). The purpose of a survey is to gather information, such as facts, opinions, and attitudes, to help solve a problem or to understand something that is unknown. There are three major forms/purposes of survey research: description, explanation, and exploration (Hackett 1981, 600).

A questionnaire survey was used. This allowed the participants to remain anonymous compared to participating in a personal interview. Additionally, we believed that the more responses that could be collected, the clearer the insights would be about the particular problem. Electronic surveys provide that advantage: being able to collect a large number of responses from a variety of participants that may reside across a vast area (Hackett 1981, 600-603).

The electronic survey was developed and dispersed through Qualtrics, an online survey software program. The 22-question survey was then distributed through one of the Nebraska 4-H Foundation’s email systems, Constant Contact, in order to keep the respondents anonymous. The listserv was comprised of 100 4-H alumni. No further information is known about the 100 alumni on the listserv in regards to their ties to Nebraska 4-H, whether that be as a donor, volunteer, judge, previous club leader, etc. Subjects were given ten days to complete the survey. A 50% survey response rate, which would equate to 50 surveys, was the initial goal for this study. Evaluation of the data was

done utilizing the tools found in the Qualtrics survey software program. Responses were gathered from 4-H alumni that participated in the program for at least one year and up to eleven years. The survey responses will help bring an understanding to what, if any, employability skills were gained by past 4-H participants along with other factors that may impact such success, such as how long they participated in 4-H and in what activities they participated. One question asked the 4-H alumni to provide any suggestions on what, if anything, 4-H could be doing differently to help youth gain such employability skills throughout their 4-H experience. A full list of the survey questions can be found in Appendix A.

## **4.2 Data**

The data were analyzed by utilizing regression models and Microsoft Excel. The data were collected and put into a regression model to determine the effects that alumni's experiences in 4-H had on the individual's claim of gaining at least 14 of the 27 employability skills mentioned in the survey and in the research. The variables used in the regression model included the number of years the participant was in 4-H, the number of 4-H activities they participated in, and their participation in other extracurricular activities while under the age of 18. The researchers felt that gaining 14 out of 27, or half, of the listed employability skills would show significant value in the experiences that 4-H provides for youth.

Another regression model was run utilizing the same data to determine if the number of employability skills obtained while in 4-H, the number of years the participant was in 4-H, the number of 4-H activities the participant experienced, and the participant's

current age had an effect on the salary range the participant receives today. Correlation tests were run among several of the variables as well to see if the variables were related to each other and how that might affect the overall regression models.

## CHAPTER V: RESULTS

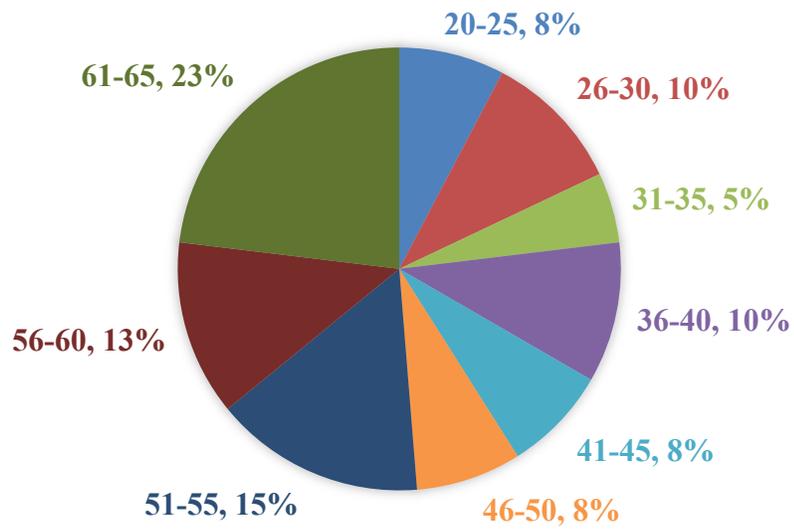
This chapter provides the analysis of the online survey. The survey was utilized to gain a better understanding of the effectiveness of the 4-H program when it comes to employability skill development.

### 5.1 Online Survey and Demographics

The online survey gave an insight into the demographics of the respondents and about their experiences while in 4-H. Participants surveyed ranged in location across Nebraska and into three other states in the United States. Participants ranged in age, employment status, salary range, and included both female and male respondents. Over the course of ten days, 40 participants completed the survey, equating to a 40% response rate.

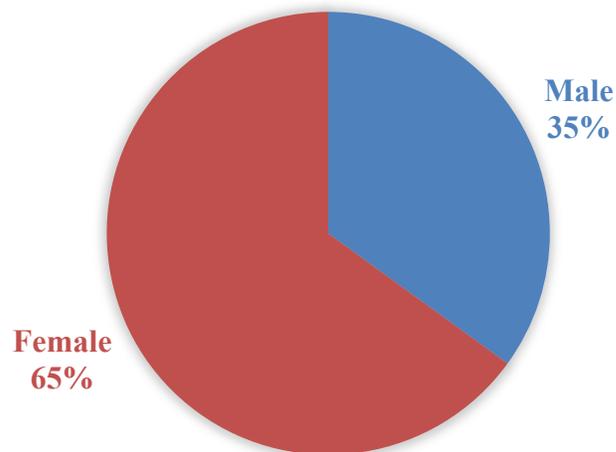
Figure 5.1 and Figure 5.2 provide the demographics of the survey respondents. The ages of the participants varied. The youngest age bracket, ages 20-25, had 8% of the participants. Ages 26-30 were represented by 10% of respondents, ages 31-35 by 5%, ages 36-40 by 10%, ages 41-45 by 8%, ages 46-50 by 8%, ages 51-55 by 15%, and ages 56-60 by 13%. The oldest age range was age 61-65 with 23% of participants in that category. Further combining age brackets indicates that 51% of respondents were over age 50, 23% were age 35 or younger, and 26% were age 36-50. Of the 40 participants, 65% were female with the other 35% being male. This is slightly comparable to the reach of the Nebraska 4-H program from 2014-2018 with 51% being female and 49% being male in those years (Nebraska 4-H 2019).

**Figure 5.1: Age Range of Respondents**



Note: Percentage = percentage of respondents, n=40.

**Figure 5.2: Gender of Respondents**

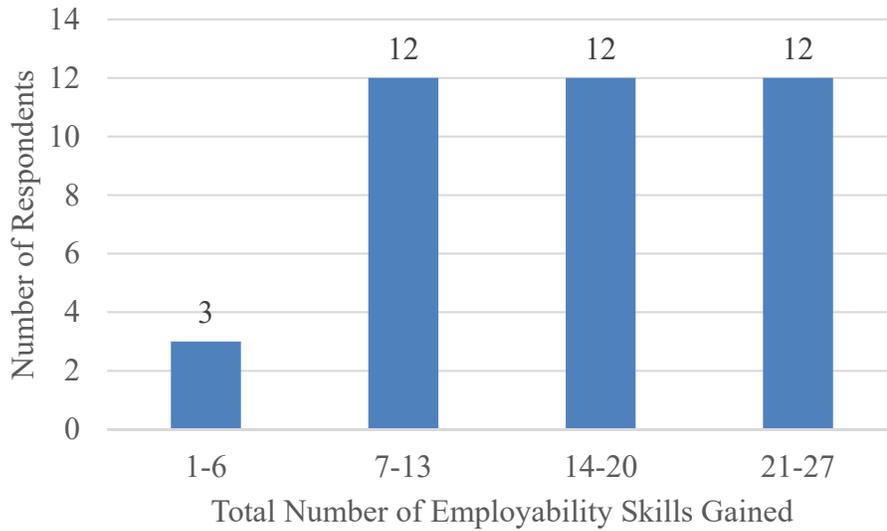


Note: Percentage = percentage of respondents, n=40.

## **5.2 Link Between 4-H Experiences and Employability Skills**

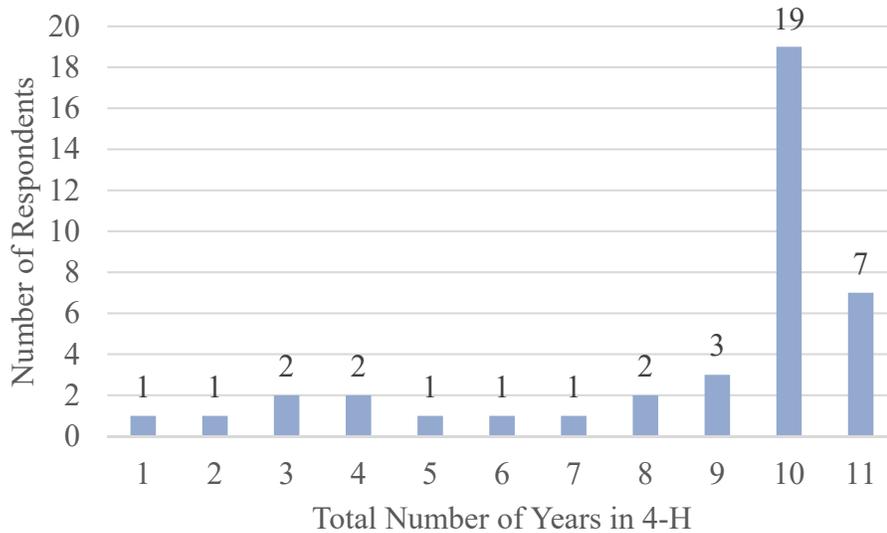
Positive experiences in 4-H can result from several variables, such as the number of years and the number and type of activities involved in while in the organization. In order to show significant value in the experiences that 4-H provides for youth, it was determined that the participant should have gained 14 out of the 27, or half, of the total employability skills listed in the survey. Seven of the employability skills came from the Gallup and Microsoft study (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013) and 20 of them came from the Alabama Extension study (Alabama Cooperative Extension System 2000). As shown in Figure 5.3, a total of 24 of the respondents claimed they learned anywhere from 14-27 of the given employability skills from their 4-H experiences. Even though this is 60% of the respondents, the sample size of 40 respondents is rather small for this study. One should be cautious about making a strong claim that these results are indicative of 4-H providing its participants the employability skills they need to be successful in their given employment industry. It does, however, provide positive feedback towards such a claim. Further research should be done to push those results towards 75% or 80% of a larger sample size. This would help the 4-H program make a stronger claim towards providing youth the employability skills for them to be successful.

**Figure 5.3: Total Number of Employability Skills (n=39)**



Recall, 4-H participation ranges from age 8-18. Therefore, a participant can only be involved in 4-H for a maximum of 11 years. As Figure 5.4 shows, the majority of the respondents, 72.5%, were in 4-H a total of 9, 10, or 11 years. This supports the idea that the longer someone participates in 4-H, the more employability skills they are likely to gain.

**Figure 5.4: Years in 4-H (n=40)**



According to the 2018 Nebraska State Fair Fairbook, there were a total of 39 4-H activities available to its participants (University of Nebraska - Lincoln: Institute of Agriculture and Natural Resources Nebraska 4-H 2018). Figure 5.5 shows that the majority, 82.5%, of the respondents participated in ten or fewer activities. This might suggest that the number of activities involved in does not necessarily correlate with an increase in the amount of employability skills gained. On the contrary, perhaps it shows that the number of activities involved in is significant up to a certain point; in this case, that point could be a maximum of ten activities. If a participant is involved in ten or more activities, maybe that diminishes the quality of the experience they have in those activities because of the limited time they have to spend on each activity. Further research would be needed to explore this idea.

**Figure 5.5: Total Amount of 4-H Activities (n=40)**

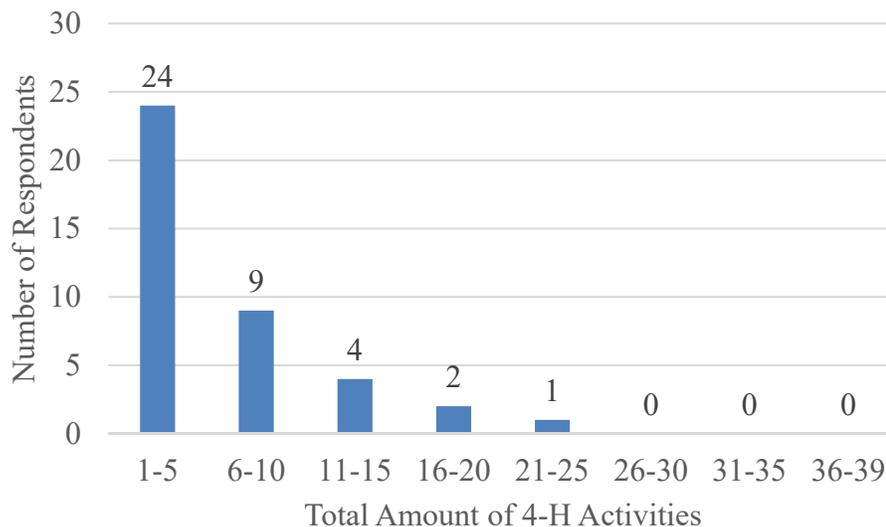
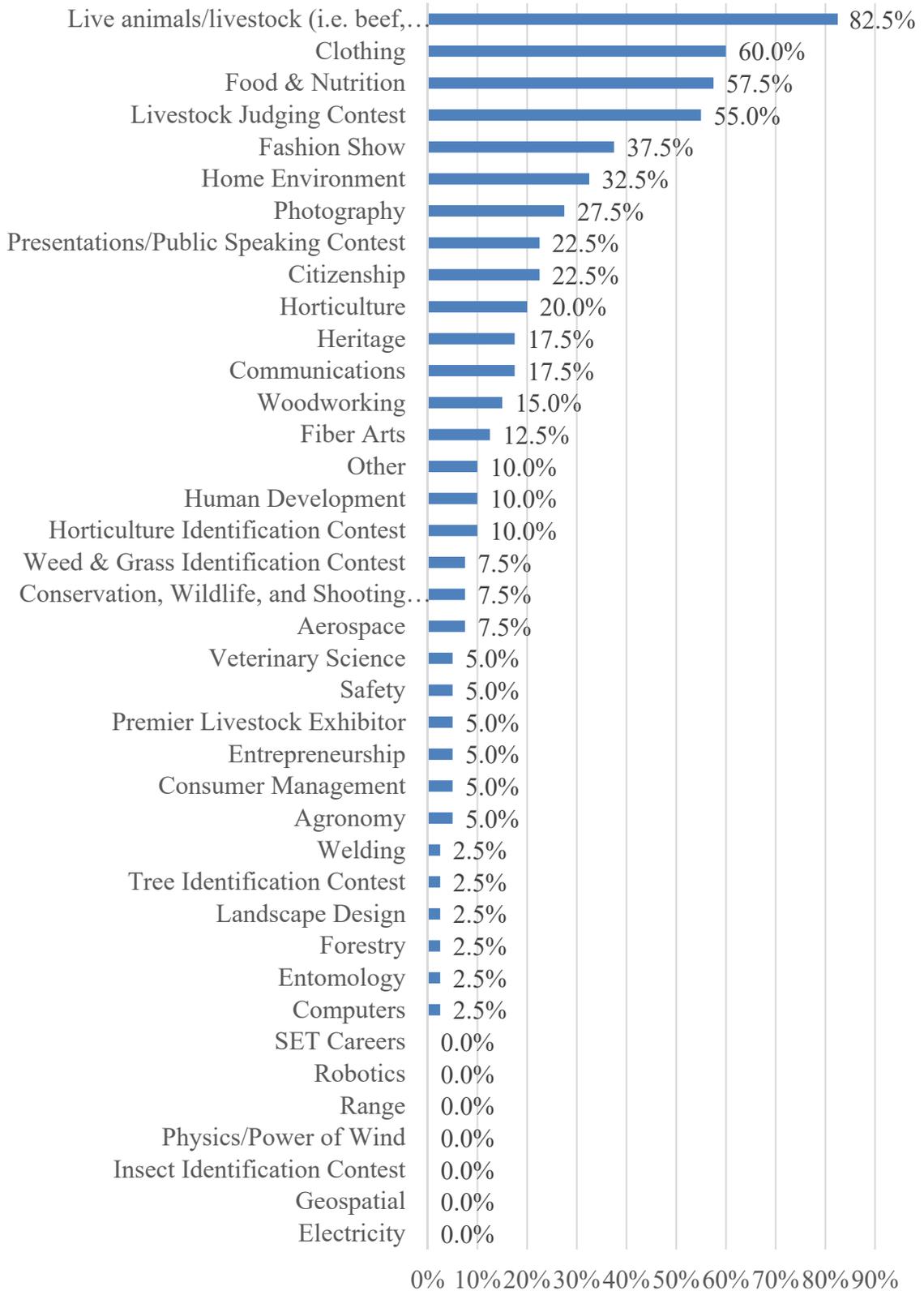


Figure 5.6 shows the percentage of respondents participating in each 4-H activity. The results show 82.5% of the respondents participated in the Live Animals/Livestock

activity. Other categories receiving a high percentage of participation include Clothing with 60%, Food and Nutrition with 57.5%, Livestock Judging Contest with 55%, Fashion Show with 37.5%, Home Environment with 32.5%, and Photography with 27.5%.

**Figure 5.6: The Percentage of Respondents In Each 4-H Activity (n=40)**



### **5.3 Inadequate Link Between Employability Skills, Salary Range, and Success**

All employment industries require skills in order to be successful. The research studies that resulted in the employability skills used for this research state that such employability skills are not unique to a given employment industry; they can be widely used and are widely essential. This is true whether the individual is employed part-time or full-time. Therefore, it was not deemed significant to use the variables, such as employment industry and employment status, in the regression models. These data do, however, provide insight into the demographics of the survey participants.

Figure 5.7 shows the percentage of respondents in each employment category. Agriculture had the largest percent of respondents at 32.5% followed by Other at 20%, Broadcasting at 15%, Health Care Services at 10%, and Government/Politics and Finance/Accounting/Business at 7.5% each.

**Figure 5.7: Respondents by Employment Industry (n=40)**

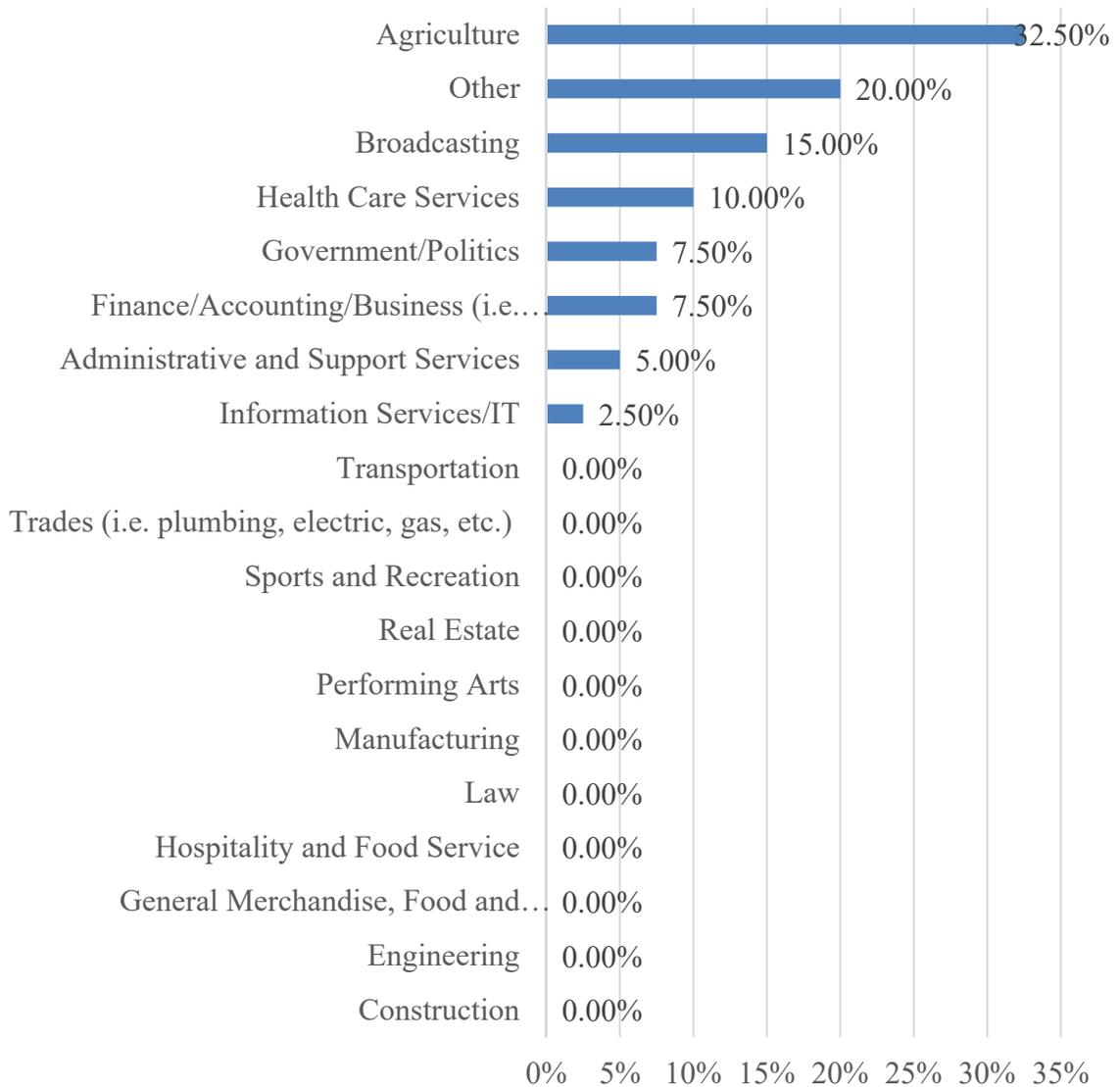


Figure 5.8 reports the percentage of respondents in each employment status category. The majority, or 58%, of the respondents are employed full-time by another employer; 20% are employed part-time and do not want full-time work; and 17.5% are self employed full-time.

**Figure 5.8: The Percentage of Respondents In Each Employment Status Category (n=40)**

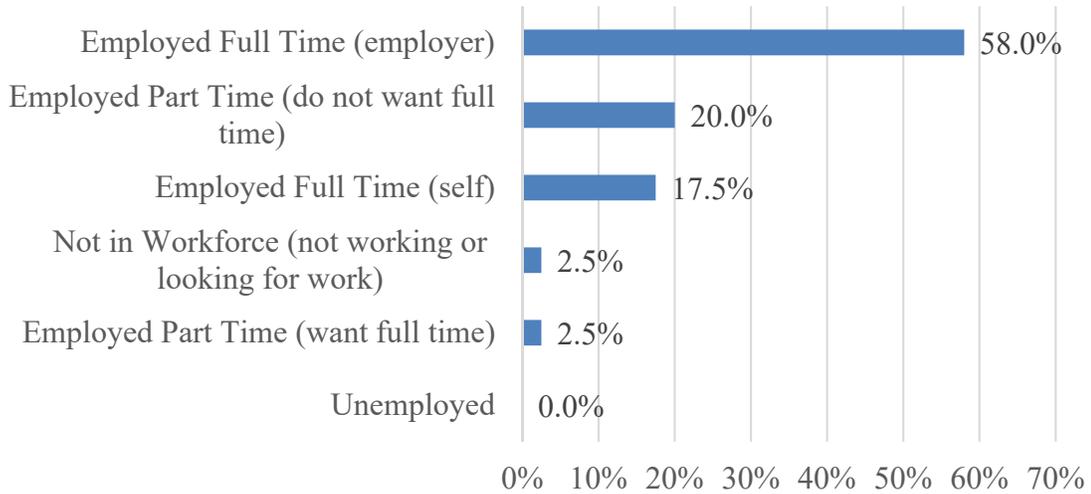
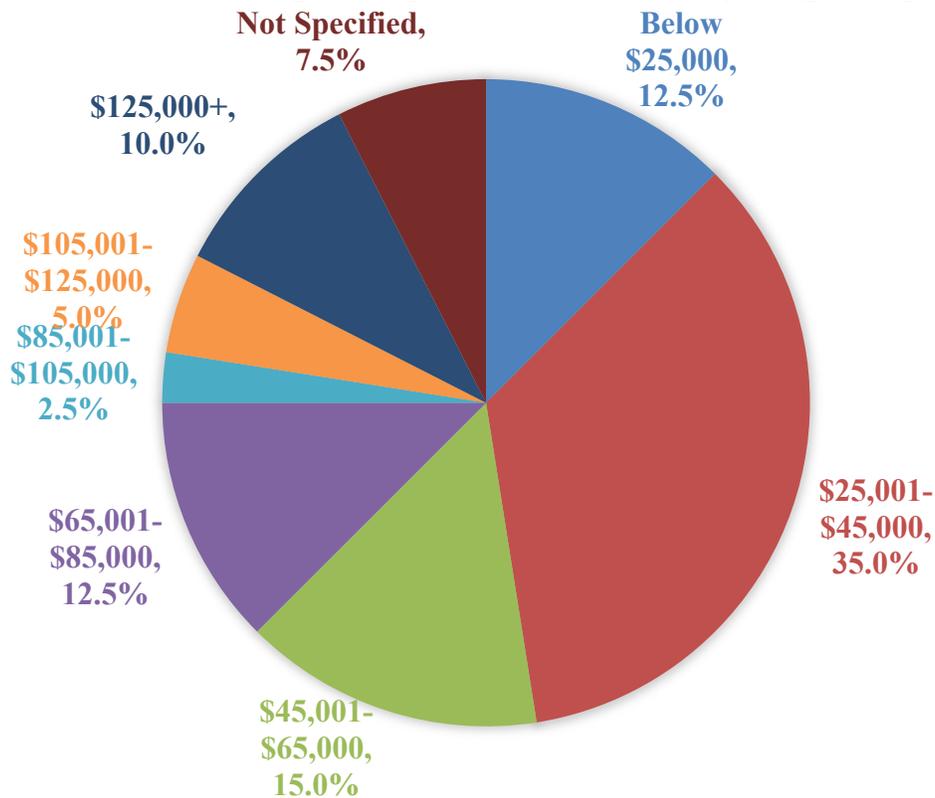


Figure 5.9 reports the percentage of respondents in each salary category. The highest category was \$25,001-\$45,000 with 35% of the respondents. The next highest categories were \$45,001-\$65,000 with 15%, Below \$25,000 with 12.5%, and \$65,001-\$85,000 with 12.5%; 7.5% of the respondents did not specify a salary range category. The salary ranges are relative to the employment industry, though. For example, a salary range that seems high for one industry may be very low in another industry. Success is a subjective term. Some may argue that salary can and should be used as a proxy for success. Others may argue that it is not the only measure of success. This study does not use the salary range to determine the success of the respondents because it likely does not capture all aspects of success of this sample. It can still be used, however, as a good indicator of the variety of the respondents across industries.

**Figure 5.9: The Percentage of Respondents In Each Salary Range Category (n=40)**

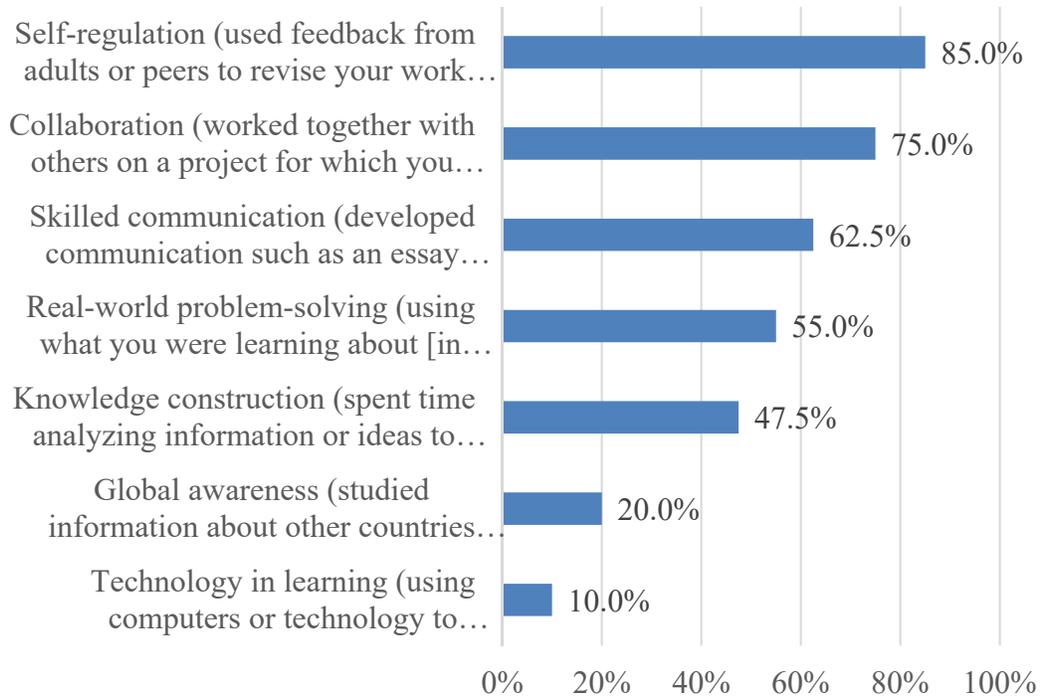


#### **5.4 Employability Skills Results**

The participants claimed they gained numerous employability skills from the survey. Figure 5.10 reports the percentage of respondents who claimed they gained the given employability skill as determined by the Gallup and Microsoft study through their involvement in 4-H. Self-regulation was selected by 85% of the respondents as one of the skills they gained from their participation in 4-H. This is where they used feedback from adults or peers to revise their own work and/or gave feedback to others to help them improve their work. Collaboration was selected by 75% of the respondents as one of the skills they gained. This is where they worked together with others on a project for which they had to share responsibility. Technology in Learning as an employability skill had the lowest percentage of respondents at 10%. Perhaps Technology was the lowest ranked skill

simply because utilizing technology in learning has been a fairly recent adoption. For example, if 51% of the respondents were over 50 years old, they may not have had the opportunity to explore the use of computers within their 4-H activities.

**Figure 5.10: The Percentage of Respondents Who Claimed They Gained The Given Employability Skill Through Involvement in 4-H (n=40)**

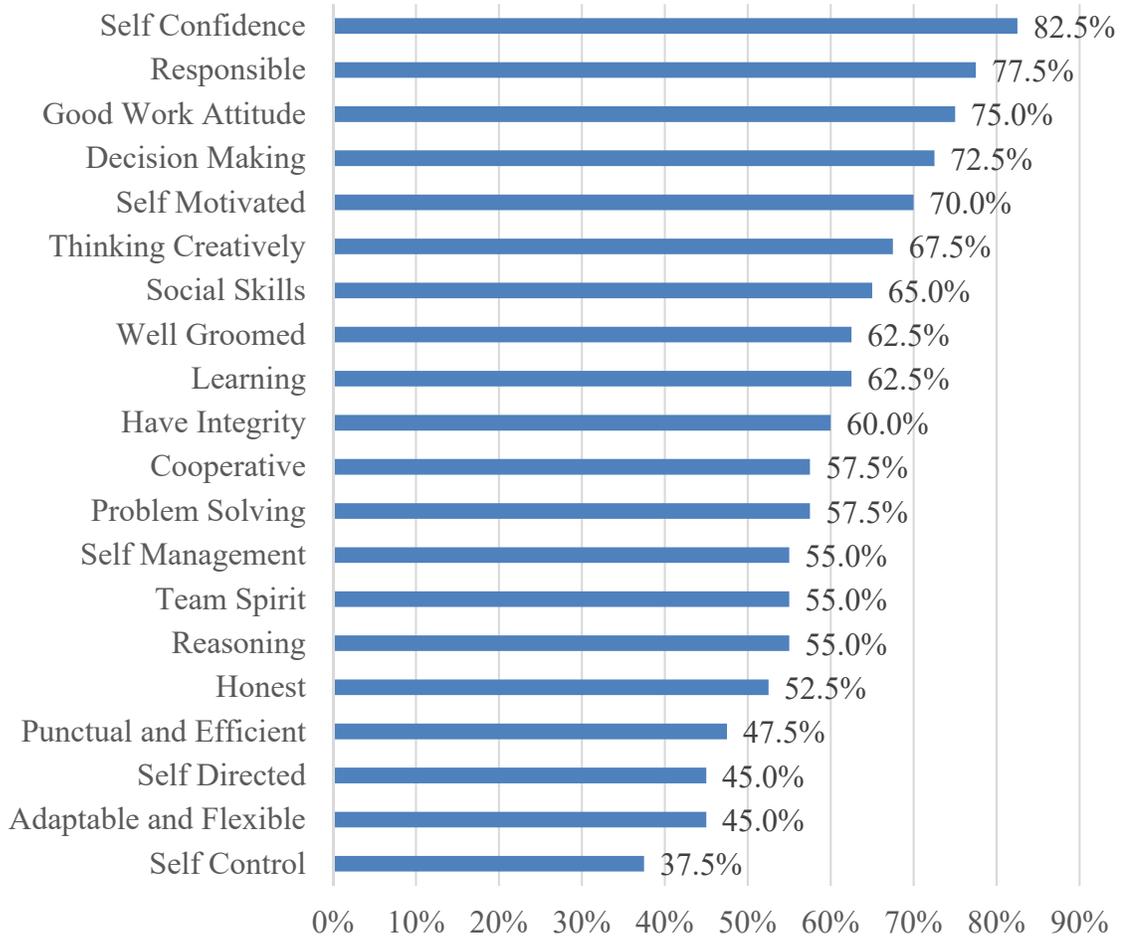


Note: Employability skills defined by the Gallup and Microsoft study.

Figure 5.11 reports the percentage of respondents who claimed they gained the given employability skill as determined by the Alabama Extension study through their involvement in 4-H. Self Confidence ranked the highest with 82.5% of the respondents claiming they gained this employability skill through their involvement with 4-H. Other high-ranking employability skills include Responsibility with 77.5%, Good Work Attitude with 75%, Decision Making with 72.5%, Self Motivated with 70%, Thinking Creatively

with 67.5%, Social Skills with 65%, Well Groomed with 62.5%, Learning with 62.5%, and Integrity with 60%. The lowest percentage of 37.5% was given to the employability skill of Self Control.

**Figure 5.11: The Percentage of Respondents Who Claimed They Gained The Given Employability Skill Through Involvement in 4-H (n=40)**



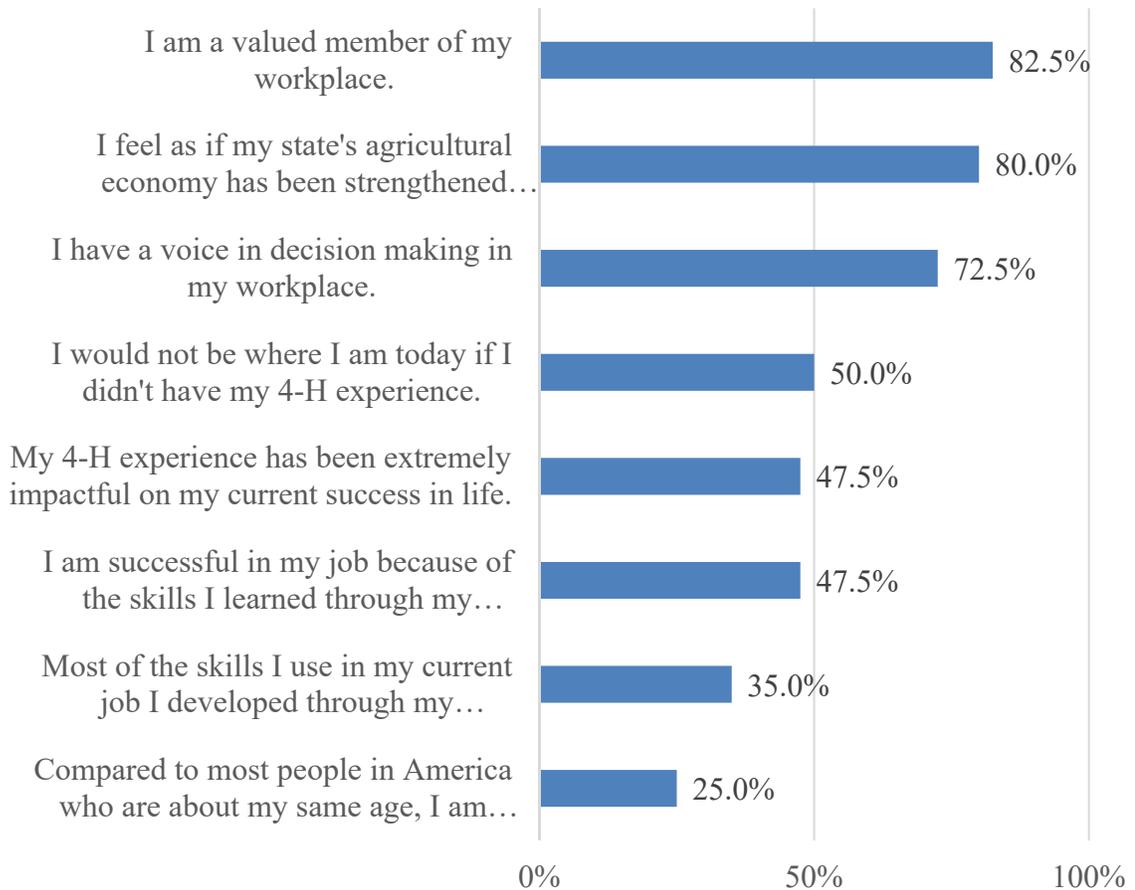
Note: Employability skills defined by the Alabama Extension study.

## **5.5 Respondents' Opinions and Comments**

The survey included eight questions to determine the respondents' level of agreement with a given statement. Figure 5.12 reports the results for agreeing or strongly agreeing with a statement. The results reported in Figure 5.12 show the following:

- 35% of the respondents agree or strongly agree that most of the skills they use in their current job they developed through their involvement in 4-H;
- 47.5% of respondents agree or strongly agree that they are successful in their job because of the skills they learned through their participation in 4-H;
- 47.5% of respondents agree or strongly agree that their 4-H experience has been extremely impactful on their current success in life;
- 50% of respondents agree or strongly agree that they would not be where they are today if they didn't have their 4-H experience;
- 80% of respondents agree or strongly agree that their state's agricultural economy has been strengthened because of youth participation in 4-H over time.

**Figure 5.12: The Percentage of Respondents Who Agree or Strongly Agree with the Statement Given (n=40)**



To further illustrate these results, a few of the comments from the online survey stated the exact skills and benefits they gained towards their current employment industry. These opinion statements make a strong claim towards the success of 4-H. One respondent stated, “[I] developed skills in the livestock industry including animal care and husbandry

and proper care and grooming of livestock for show purposes. [I] developed communication skills by giving reasons in livestock judging competition to judges to explain why you placed the animals in the order you selected. Also [I gained experiences from] community projects such as various clean-up and painting [to make my] community better. Today I am a farmer with crops and livestock, and lessons learned as a youth through 4-H have with no doubt been an asset to my career. An aspect not covered is the life-long acquaintances and friends made through 4-H competitions and activities.” Another respondent was “So thankful that I was made (yes, forced) to give 4-H demonstrations and speeches while I was young. It put the trajectory into my career, at a very young age ... that would not have been there any other way.”

When it comes to 4-H influencing participant’s career choices, one respondent stated, “4-H was a great experience for me growing up. It put me into positions that helped me to find my current career in farm broadcasting. Livestock judging trips gave me critical thinking and public speaking skills. Record books showed the importance of time management and accurate records. The entire experience from club meetings to state conferences helped to make me a more confident and social individual.”

Instead of 4-H becoming a trajectory for a career idea, one participant has gained skills needed for important hobbies that contribute to their quality of life: “I learned how to cook following a recipe and sew clothes following a pattern. Even though this is not my profession, I continue to cook for my family and sew clothes as a hobby that I will have the rest of my life. My mother sewed my clothes when I was growing up and she is still sewing to this day. I enjoy sewing for fun like making kids’ Halloween costumes and little projects for my grandkids.”

One of the open-ended survey questions asked respondents to explain more about their 4-H experience and the impact it has had on their life or their successes. Comments included:

- “4-H allowed me the opportunity to experience and gain a skill that I would otherwise not have had the opportunity to learn.”
- “4-H helped to teach me the value of hard work, honesty, and integrity. All of these things are extremely important, especially in my chosen career. If I hadn’t done 4-H, I doubt that I would possess these traits to the extent that I currently do.”
- “It gave me something to direct my creativity towards and a goal to work towards. It also gave me many friends and experiences that I would not have had otherwise.”
- “Working with livestock, 4-H taught me you have to work hard in order to achieve the success you want. I had to prepare my animal, and work with it everyday and know the ins and outs of how to care for them. I've had to use those same skills in the workplace. I have to prepare for a meeting and work hard.”
- “I eagerly wanted to get involved in 4-H because my sisters were in it, so were some of my friends and I joined the year we were old enough. I participated in projects, club meetings and the county fair every year. When I was old enough I ran for the County 4-H Council and served on that my final year. I took a 4-H exchange and lived with a family for a weekend in Michigan, and we hosted a girl from Michigan (I think Detroit) the following summer ... that was an eye-opening experience for me. The biggest impact on my life is the required public speaking

that I was part of; I overcame the fear at a young age, which has been what I do now -- teach public speaking.”

- “While I was in 4-H, I participated in foods, sewing, and woodworking but the bulk of my involvement was in showing livestock: beef, swine and equine. Each of these projects taught me basic skills ranging from reading and following directions to life skills such as cooking and sewing, but they also taught me about hard work, how to handle set backs, and how perseverance can lead to success. All of these lessons may have been learned in other activities as well, but learning them through 4-H, livestock specifically, helped drive my love for farming and desire to continue to be involved in farming. While I currently work in the Ag Industry, the bulk of my income comes from off of the farm, but it was the livestock projects that I started in 4-H that have kept me involved in the family farm.”
- “I participated in 4-H in all eligible years through several different project areas. Market and breeding beef showed me a passion for livestock and responsibility. Livestock judging taught me critical thinking, time management, and decision making. Livestock judging also led to a full tuition and book scholarship in college. Shooting sports taught me the most in leadership because I became a youth shotgun leader.”
- “4-H developed my love for cattle which has impacted my life decisions. Starting with those two breeding heifers, I always felt I had a responsibility to help with the cattle: fixing fence, vaccinating, helping with calving season and so forth. It didn't matter if it was when I was in college or when I moved out of the state to start working, I always made special trips or took time during other trips to help with the

cattle. The decision to move closer to home when the opportunity arose, was impacted by my involvement with our cattle herd which started from a 4-H project.”

- “4-H impacted my higher education choices due to my involvement in livestock judging. 4-H gave me several scholarship opportunities outside of livestock judging as well. Due to these scholarship opportunities it shaped where I went to college and also pushed me to study agriculture economics, farm & ranch management, and beef cattle science. In terms of hobbies I still enjoy trap shooting today and the only reason I found it was through 4-H shooting sports. As for career choices the confidence in trying new things through 4-H helped me get my first broadcasting job. That first job was a door to a career.”

Respondent comments suggest that the respondents’ experiences in 4-H left a lasting impact on their lives, whether that be with their hobbies, participating in their communities, being successful in their employment industries, or learning more about the world around them. These statements help make the claim that 4-H has been successful in providing the skills needed to be successful in the agriculture industry or other employment industries. However, the overall agreeable percentages from the survey questions suggest otherwise. Maybe 4-H was a highly influential experience for some participants while for others, it was just another extra-curricular activity. An additional research study would be needed to further explore these ideas. Perhaps another objective of the study could have been to determine if 4-H helps contribute to its participants’ quality of life.

The last question on the survey asked the respondents to provide examples or additional comments of how they believe 4-H has helped strengthen their state's agricultural economy. Comments provided included:

- “I believe 4-H has given young individuals the opportunity to delve into the complexities of various ag-related fields. Because of the wider choices now available to young people through 4-H, they can get a taste of possible career choices both ag-related and non-ag-related.”
- “Getting children invested in ag through 4-H has most definitely helped strengthen the economy of Nebraska, the state I grew up in. At a young age, 4-H shows children that agriculture is something cool and interesting that they can do, and that it is something they can be proud of.”
- “The education part of 4-H with youth has helped to share agriculture's story within urban areas that would not otherwise be connected to agriculture.”
- “The first two breeding heifers that I showed in 4-H became my share of our family cattle herd and through the years, my portion has grown to over 25 home-raised cows. That is where I believe 4-H is having the biggest impact on our state's Ag Economy, is by instilling that love for any portion of Agriculture as a child that continues to grow as an adult.”

The above statements contribute to one of the objectives of this study: to determine if 4-H alumni attribute their current success in the agriculture industry to their participation in 4-H. Furthermore, the statements show just how important 4-H has been for respondents as it relates to strengthening their state's agricultural economy. All such statements are

positive and help contribute to the hypothesis that 4-H has an impact on strengthening the state's agriculture economy.

### 5.6 Regression Model #1 – Effect on Skills

A regression model was developed to examine the impact of various variables on the number of employability skills gained by respondents. The survey data were used to determine the following regression model:

$$\text{SKILLS}_i = B_0 + B_1\text{YEARS}_i + B_2\text{ACT}_i + B_3\text{OTHEREX}_i + E_i \quad (5.1)$$

Where:  $\text{SKILLS}_i$  = the number of total employability skills gained by the  $i$ th participant;

$\text{YEARS}_i$  = the number of total years the  $i$ th participant was involved in the 4-H organization while under age 18;

$\text{ACT}_i$  = the number of total activities the  $i$ th participant was involved in while in 4-H;

$\text{OTHEREX}_i$  = 1 if the  $i$ th participant participated in other extra-curricular activities that could have given them the same employability skills and 0 otherwise;

$E_i$  = a classical error term.

The null and alternative hypotheses are:

$$\text{YEARS}_i \quad H_0: B_1 = 0$$

$$H_1: B_1 \neq 0$$

$$\begin{aligned} \text{ACT}_i & \quad H_0: B_2 = 0 \\ & \quad H_1: B_2 \neq 0 \end{aligned}$$

The estimated regression equation is:

$$\text{SKILLS}_i = -0.37 + 0.68\text{YEARS}_i + 0.49\text{ACT}_i + 7.97\text{OTHEREX}_i \quad (5.2)$$

Table 5.1 below reports the estimated regression results.

**Table 5.1: Estimated Regression Results for Effect on Skills (n=40)**

	Coefficients	Standard Error	t Stat	P-value
INTERCEPT	-0.37079	3.476084	-0.10667	0.915645
YEARS	0.683574	0.322938	2.116733	0.041262
ACT	0.485733	0.172515	2.815602	0.007849
OTHEREX	7.968877	2.934294	2.715774	0.010093

With a confidence level of 95%, we can reject the null hypotheses stated above if any of the independent variables provide a P-Value of less than 0.05. The data in Table 5.1 indicate the following results:

$\text{YEARS}_i$ : reject null hypothesis of  $H_0: B_1 = 0$

P-Value = 0.04, which is less than the confidence interval of 5%.

Therefore, we can conclude that the  $\text{YEARS}_i$  independent variable is statistically significant for this equation at the 0.05 level. A one year increase in the number of years the participant is involved in 4-H leads to an increase of gained employability skills by 0.68. However, this is limited to a

maximum possible response of 11 years. A participant could not be involved in 4-H outside the ages of 8-18. It also indicates that all years have the same impact regardless of the age of the participant.

ACT<sub>i</sub>: reject null hypothesis of H<sub>0</sub>: B<sub>2</sub> = 0

P-Value = 0.01, which is less than the confidence interval of 5%.

Therefore, we can conclude that the ACT<sub>i</sub> independent variable is statistically significant for this equation at the 0.05 level. A one-activity increase in the number of activities involved in by the participant while in 4-H leads to an increase of gained employability skills by 0.49. This variable is also limited. According to the Nebraska State Fair Fairbook, there are currently 39 activities being offered to 4-H participants (University of Nebraska - Lincoln: Institute of Agriculture and Natural Resources Nebraska 4-H 2018).

OTHEREX<sub>i</sub>: this is considered a “dummy” or “binary” independent variable where the inputs can only be 1 or 0.

P-Value = 0.01, which is less than the confidence interval of 5%.

Therefore, we can conclude that the OTHEREX<sub>i</sub> independent variable is statistically significant for this equation at the 0.05 level. It does matter whether the participant was involved in other extra-curricular activities or not when it comes to obtaining employability skills. If a participant were involved in other extracurricular activities, then this increases their skills by 7.97 relative to not being involved in other extracurricular activities.

As anticipated, the regression results showed that an increase in the number of years involved in 4-H as well as an increase in the number of activities involved in while in 4-H led to an increase in the employability skills gained. As the number of years increased, the number of employability skills gained also increased. Likewise, as the number of activities involved in increased, the number of employability skills gained also increased.

## **5.7 Limitations of Assumptions**

Other questions in the survey gathered other relevant data, such as employment industry, age, race, ethnicity, gender, current residential state, current salary range, current employment status, ages of participation, and environmental setting. However, these data were not relevant to creating a regression model. The data were more descriptive points of quality rather than helping to determine quantity of employability skills gained.

### *5.7.1 Employment Industry*

The original thought was that the current declared employment industry would be important when trying to see if 4-H gave the participant the needed employability skills to be successful in the agriculture industry. The employment industry list used in the survey was found on the Bureau of Labor Statistics website (United States Department of Labor: Bureau of Labor Statistics 2018). However, it was found that the question and possible answers were left up to interpretation. A participant could be employed by the government, therefore declaring government and politics as their employment industry. Their work, though, may be highly involved within the agriculture industry. By the participant declaring government as their employment industry, this would skew the results if the model were to just look at those participants' answers that declared agriculture as their

industry. In another example, a participant could choose broadcasting as their employment industry even though their broadcasting work is only about agriculture, such as a farm broadcasting network reporter. Since those more fine-tuned details could not be pulled or assumed from the given responses, those data results were not included in this regression model. Each respondent was treated as if their employment had something to do with the agriculture industry.

#### *5.7.2 Age, Race, Ethnicity, Gender, Current Residential State, Current Salary Range, and Current Employment Status of Respondents*

The current age, race, ethnicity, gender, current residential state, current salary range, and current employment status of the respondents helps describe the background of the respondents but doesn't lead to any indicative conclusions for the number of employability skills gained by such participants as a youth involved in 4-H.

#### *5.7.3 Ages of 4-H Participation*

It was originally thought that the ages of participation in 4-H would affect how many or the kinds of employability skills gained while in 4-H. After viewing the survey results, it was found that only 15% of the respondents were in 4-H for less than 5 years, with 77.5% of the respondents being in 4-H for 8 or more years. Therefore, it was concluded that since more than 75% of the respondents were in 4-H for at least 70% of the total possible years they could be involved, these data were not included in the regression models.

#### 5.7.4 Environmental Setting

One of the survey questions asked respondents to state the environmental setting they were in while participating in 4-H: rural (area population  $\leq 15,000$ ) or urban (area population  $\geq 15,001$ ). These results were deemed irrelevant based on the correlation results (see Table 5.2). The result was given a “1” if the response was Agriculture as the Employment Industry. A “1” was also given if the response was Rural for the Environmental Setting.

**Table 5.2: Correlation of Environmental Setting (Rural) and Agriculture as the Employment Industry**

	Employment Industry (Ag)	Rural
Employment Industry (Ag)	1	
Rural	-0.0857	1

It was believed that if the participant experienced 4-H while in a rural environmental setting, they would enter into the agriculture industry for employment. The correlation between the two variables ended up being -0.0857, which is a negative relationship. Therefore, there is no strong relationship between the environmental setting and the employment industry chosen. This could be affected, though, by the space of interpretation when it comes to answering the employment industry question, as noted previously.

#### 5.8 Regression Model #2 – Effect on Salary

In addition to wanting to see the effects of 4-H on the number of employability skills gained, another goal of the study was to see the impact on the salary of the participants given the skills they gained through 4-H and their 4-H experiences. It was

hypothesized that one's salary would increase with more years of experience in 4-H and an increase in the amount of employability skills gained. This would then show the success of the individual. In order to run a linear regression, the following equation was constructed:

$$\text{SALARY}_i = B_0 + B_1\text{SKILLS}_i + B_2\text{YEARS}_i + B_3\text{ACT}_i + B_4\text{AGE}_i + E_i \quad (5.3)$$

Where:  $\text{SALARY}_i$  = the self-disclosed salary range of the  $i$ th participant, where

Below \$25,000=1, \$25,001-\$45,000=2, \$45,001-\$65,000=3,  
 \$65,001-\$85,000=4, \$85,001-\$105,000=5, \$105,001-\$125,000=6,  
 \$125,001+=7;

$\text{SKILLS}_i$  = the number of total employability skills gained by the  $i$ th participant;

$\text{YEARS}_i$  = the number of total years the  $i$ th participant was involved in the 4-H organization while under age 18;

$\text{ACT}_i$  = the number of total activities the  $i$ th participant was involved in while in 4-H;

$\text{AGE}_i$  = the self-disclosed age range of the  $i$ th participant, where 20-25=1, 26-30=2, 31-35=3, 36-40=4, 41-45=5, 46-50=6, 51-55=7, 56-60=8, 61-65=9, 66+=10;

$E_i$  = a classical error term.

The null and alternative hypotheses were:

$$\text{SKILLS}_i \quad H_0: B_1 = 0$$

$$H_1: B_1 \neq 0$$

$$\text{YEARS}_i \quad H_0: B_2 = 0$$

$$H_1: B_2 \neq 0$$

$$\text{ACT}_i \quad H_0: B_3 = 0$$

$$H_1: B_3 \neq 0$$

$$\text{AGE}_i \quad H_0: B_4 = 0$$

$$H_1: B_4 \neq 0$$

The estimated regression equation is:

$$\text{SALARY}_i = 1.57 + 0.03\text{SKILLS} + 0.11\text{YEARS}_i - 0.12\text{ACT}_i + 0.12\text{AGE}_i + E_i \quad (5.4)$$

Table 5.3 below reports the estimated regression results.

**Table 5.3: Estimated Regression Results of Regression Equation 5.4 (n=40)**

	Coefficients	Standard Error	t Stat	P-value
INTERCEPT	1.56535	1.372113	1.140832	0.261686
SKILLS	0.026889	0.054976	0.489096	0.627825
YEARS	0.105658	0.125612	0.841147	0.405976
ACT	-0.11539	0.069709	-1.65525	0.106816
AGE	0.120213	0.113927	1.055173	0.298576

With a confidence level of 95%, we can reject the null hypotheses stated above if any of the independent variables provide a P-Value of less than 0.05. The data reported in Table 5.3 indicates the following results:

SKILLS<sub>i</sub>: fail to reject the null hypothesis of  $H_0: B_1 = 0$

P-Value = 0.63, which is greater than the confidence interval of 5%.

Therefore, we can conclude that the SKILLS<sub>i</sub> independent variable is not statistically significant for this equation at the 0.05 level.

YEARS<sub>i</sub>: fail to reject null hypothesis of  $H_0: B_2 = 0$

P-Value = 0.41, which is greater than the confidence interval of 5%.

Therefore, we can conclude that the YEARS<sub>i</sub> independent variable is not statistically significant for this equation at the 0.05 level.

ACT<sub>i</sub>: fail to reject null hypothesis of  $H_0: B_3 = 0$

P-Value = 0.11, which is greater than the confidence interval of 5%.

Therefore, we can conclude that the ACT<sub>i</sub> independent variable is not statistically significant for this equation at the 0.05 level.

AGE<sub>i</sub>: fail to reject null hypothesis of  $H_0: B_4 = 0$

P-Value = 0.30, which is greater than the confidence interval of 5%.

Therefore, we can conclude that the AGE<sub>i</sub> independent variable is not statistically significant for this equation at the 0.05 level.

None of the independent variables in this regression model were found to be statistically significant. The amount of skills gained doesn't always equate to a higher salary. For example, the salary for an individual who is a doctor in the health services industry will differ highly from someone who is self-employed in the agriculture industry. However, both would still need the given employability skills mentioned in this study in order to be successful, just as the research to determine those employability skills states. As

a result of such findings, a correlation test was run amongst the above independent and dependent variables.

### **5.9 Regression Model #2 Effect on Salary Correlation Test**

Table 5.4 reports the correlation estimates for the variables. Each variable used in equation (5.3) and equation (5.4) were used to create this correlation test. These variables were Salary, Skills, Years, Act., and Age. The goal of the correlation test was to see if any of these variables had a relationship with one another that would then help explain the regression results from equation (5.4). As a reminder, the Salary variable is the self-disclosed salary range of the  $i$ th participant, where Below \$25,000=1, \$25,001-\$45,000=2, \$45,001-\$65,000=3, \$65,001-\$85,000=4, \$85,001-\$105,000=5, \$105,001-\$125,000=6, \$125,001+=7. The Skills variable is the number of total employability skills gained by the  $i$ th participant. The Years variable is the number of total years the  $i$ th participant was involved in the 4-H organization while under age 18. The Act. variable is the number of total activities the  $i$ th participant was involved in while in 4-H. Finally, the Age variable is the self-disclosed age range of the  $i$ th participant, where 20-25=1, 26-30=2, 31-35=3, 36-40=4, 41-45=5, 46-50=6, 51-55=7, 56-60=8, 61-65=9, 66+=10.

All correlation values except one are less than 0.50. Between the Skills variable and the Salary variable, there is a very weak negative correlation (-0.0197). Years and Salary variables have a very weak correlation as well (0.0718). The Years variable and Skills variable have a weak positive correlation (0.4366) while the Act. variable and Skills variable have a positive average correlation (0.5053). Finally, the Age variable has a weak negative correlation with the Skills variable (-0.1501), Years variable (-0.2154), and Act.

Variable (-0.2102). Most of the relationships between these variables are either weak or very weak.

**Table 5.4: Regression Model #2 Effect on Salary Correlation**

	Salary	Skills	Years	Act.	Age
Salary	1				
Skills	-0.0197	1			
Years	0.0718	0.4366	1		
Act.	-0.2552	0.5053	0.2704	1	
Age	0.1914	-0.1501	-0.2154	-0.2102	1

### 5.10 Respondents’ Comments Versus Regression Results

The results showing the respondents’ level of agreement with a given statement from Figure 5.12 show some contradiction with the regression results. A stronger response for these questions, such as at least 60%+ of the respondents agreeing or strongly agreeing to these statements, would better explain the results seen from the regression models. Therefore, the results from these statements alone present more questions towards the validity of 4-H’s efforts with providing its participants the employability skills needed to be successful. Perhaps respondents’ perceptions versus statistical evidence based on the model specified contributes to the difference or issue identified here.

### 5.11 Recommendations from Respondents

One of the study’s objectives was to create suggestions based on survey results and 4-H alumni’s responses in regards to what can be done differently, if anything, to make sure the Nebraska 4-H program is helping youth develop employability skills in an effective way. An open-ended survey question was asked to address this objective. One respondent mentioned incorporating community leaders into teaching the needed life skills

(or in this case, we referred to them as employability skills). Another respondent wants to see more exposure of the 4-H program to youth by having more than 3-4 monthly meetings per year. Finally, one respondent focused on the 4-H model as a whole in regards to the club membership model versus being an independent member: “Find ways to encourage individual accomplishments and showcase that it’s OKAY to not be a member of a club; that it’s OKAY to shine on your own. Even though clubs are a great thing, it isn't always for everyone.”

Instead of offering a suggestion for improvement, one respondent supported the current efforts of the 4-H program: “Continue to have adult individuals willing to volunteer their leadership skills to help the youth who are interested in the 4-H program, and to help develop these young students’ leadership and skills.”

Overall, it seems as if the respondents believe there is room for improvement even though they also seem to believe that 4-H has been making positive impacts on participants over the years in regards to preparing them for the employment industry of their choice.

## CHAPTER VI: CONCLUSIONS

The results from this research make some suggestions that the Nebraska 4-H program is making strides towards accomplishing its mission: “provide 10 million kids nationwide with the skills they need to succeed in life today and tomorrow” (Nebraska 4-H 2019). This study has suggested that the program has been successful in developing the needed employability skills in youth to prepare them for their future careers in the agriculture industry.

The study identified employability skills designated by previous research as important for individuals to possess in order to excel in the agriculture industry. This was found through a literature review research. The Gallup skills are based on the Innovative Teaching and Learning Research project and include: collaboration, knowledge construction, skilled communication, global awareness, self-regulation, real world problem solving, and use of technology for learning (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013). Alabama Extension breaks employability skills into three categories: basic academic skills, higher-order thinking skills, and personal qualities. The skills listed in the basic academic skills category are primarily taught in the traditional education system. Therefore, the other two categories (higher-order thinking skills and personal qualities) are highlighted for the basis of this study. The higher-order thinking skills include learning, reasoning, thinking creatively, decision making, and problem solving. The personal qualities include responsible, self-confident, self-control, social skills, honest, have integrity, adaptable and flexible, team spirit, punctual and efficient, self-directed, good work attitude, well-groomed, cooperative, self-motivated, and self-management (Alabama Cooperative Extension System 2000).

Feedback was gathered from 4-H alumni in regards to the effectiveness of the Nebraska 4-H program to provide such needed employability skills. An online survey was sent to 4-H alumni via the Nebraska 4-H Foundation's listserv through Constant Contact. It was found that participants do perceive that 4-H involvement does have an impact on the amount of employability skills the respondent gained in order to be successful in their employment industry. It was also found that about half of the respondents attribute their current success in their employment industry to their participation in 4-H.

The survey also provided information that can be used to assess whether respondents felt that the Nebraska 4-H program is helping youth develop employability skills in the most effective way. Certain responses provided adequate suggestions for improvements, while other responses indicated the 4-H program is already working effectively.

The results from this study can help Nebraska Extension understand the effectiveness of its efforts as it relates to helping youth develop employability skills. Therefore, these findings can help the organization understand the validity of their efforts so they can further their "creative destruction" practices to better the youth of today to create a better world for tomorrow.

Finally, the results help support the hypothesis that 4-H is a vessel for youth to explore their interests while gaining skills that aren't always worked on in the classroom. This study can serve as an evaluation tool for the 4-H program to make sure it is doing what it is setting out to accomplish. From here, new goals can be set to improve its effectiveness even more. For example, one goal might be to incorporate teaching methods to increase the focus on the global awareness employability skill, which was only chosen

by 20% of respondents as a skill they gained through their experiences in 4-H. New goals could also be set to expand 4-H's reach when it comes to helping youth build employability skills outside of the classroom setting. For example, one goal could be to incorporate the teaching of a certain amount of employability skills for each 4-H activity offered.

The world is constantly changing. 4-H is and can continue to be that organization that changes along with the world to keep programs and skills for youth development current. The 4-H program in Nebraska is one of the extra-curricular activities that can provide youth the opportunity to gain the skills and experience needed to become successful in the agriculture industry. Such experiences and opportunities for exploration will help the agriculture industry further its growth and development to keep up with changing technologies and increased demands.

The results of this project lightly support the claim that 4-H alumni's participation in 4-H gave them the employability skills needed to enter the agriculture sector. 4-H did in fact provide them with employability skills. However, only about half of the respondents claim that 4-H played a significant role in helping them be successful. The respondents may feel this way because they perceived 4-H as a fun extra-curricular activity they only participated in during the summer. They may not have treated it as an opportunity for them to explore career areas or as a way to further develop knowledge in their chosen future career area. Additionally, other factors are important in determining the respondents success, including education and degrees received and job experience.

## **6.1 Limitations and Future Research**

Sample bias is present in this particular study. The variability in the respondents' number of years involved in 4-H was not as large as anticipated. The majority of

respondents in this study were in 4-H for 9, 10, or 11 years. The results seen in this study in regards to the number of employability skills gained could be expected of the respondents since the majority were involved in the organization for a number of years. Individuals with that longer commitment to the organization are possibly more likely to have positive experiences and are therefore, possibly more likely to attribute success to those positive experiences. Having more variability in the number of years involved in 4-H could potentially create more accuracy in the regression models.

A total of 40 respondents was not enough to generalize the effectiveness of the 4-H program with giving its participants the employability skills they need in order to be successful in the agriculture industry. Or, perhaps 4-H was a significant experience for some alumni but not for all. Conducting a survey study that encompasses respondents from around the United States and includes greater than 1,000 responses would be beneficial to make sufficient claims. The current research study, though, should give the foundation to perform such a study on a larger scale or in application to other extra-curricular activities' effectiveness towards participant success in their employment industry. It could even be expanded to further explore 4-H's impact on its alumni.

As mentioned previously, the assumptions and ambiguity within how some of the survey questions were written could be eliminated to create a more effective study. For example, defining each employment industry category in more detail might have been beneficial. Finding additional ways to list employment industries and their definitions might be beneficial as well. Defining the term technology based on the Gallup and Microsoft study would be beneficial to help the respondents determine if they gained that particular employability skill from their experiences in 4-H. For example, some may refer

to technology as a simple calculator while others consider technology to be a personal computer.

Within the second regression model, it would have been helpful to include additional variables. Other factors come into play that affect someone's salary. Such factors should have been addressed in the survey questions. For example, knowing the education level of the respondents would have added to the accuracy of the second regression model that focused on the effect on salary.

How the data from the online survey compares over time is a possibility for future research. The types and amounts of 4-H activities provided to its participants potentially changes over time. Therefore, it can be rather difficult for survey respondents to select the exact activity they were involved in while in 4-H if such activity lists change. It would also be interesting to see how someone responds to this survey shortly after they finish their involvement in 4-H versus how they would respond towards the end of their career. Perhaps their employment industry has changed or their ability to reflect on previous life experiences has magnified.

Additionally, it would be interesting to see if there is a correlation between the type of 4-H activities participated in and the type of employability skills gained. Does the type of 4-H activities involved in lead to a certain type or amount of employability skills? Is it important to participate in 4-H activities that relate to the participant's intended employment industry? Does a variety of 4-H activities lead to a variety of employability skills gained? Does this then lead to the importance of being well-rounded in order to be successful?

Overall, there are a number of possibilities for future research methods that the 4-H program, as well as other extra-curricular youth programs, could pursue. Future research can be conducted to further evaluate the effectiveness of such programs as they relate to providing their participants with the employability skills needed to yield employment industry success.

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**APPENDIX A: ONLINE SURVEY QUESTIONS**

1. In what age range do you fall? Please select the option that best describes you:
 

a. 20-25	e. 41-45	i. 61-65
b. 26-30	f. 46-50	j. 66+
c. 31-35	g. 51-55	k. I do not wish to specify.
d. 36-40	h. 56-60	
  
2. Please specify your ethnicity: (select all that apply)
  - a. White
  - b. Black or African American
  - c. American Indian or Alaska Native
  - d. Asian
  - e. Native Hawaiian or Pacific Islander
  - f. Other
  - g. I do not wish to specify.
  
3. Please specify your race:
  - a. Hispanic or Latino
  - b. Non-Hispanic or Latino
  - c. I do not wish to specify.
  
4. Please specify your gender:
  - a. Male
  - b. Female
  - c. I do not wish to specify.
  
5. In which state do you currently live?
 

Alabama	Louisiana	Ohio
Alaska	Maine	Oklahoma
Arizona	Maryland	Oregon
Arkansas	Massachusetts	Pennsylvania
California	Michigan	Rhode Island
Colorado	Minnesota	South Carolina
Connecticut	Mississippi	South Dakota
Delaware	Missouri	Tennessee
Florida	Montana	Texas
Georgia	Nebraska	Utah
Hawaii	Nevada	Vermont
Idaho	New Hampshire	Virginia
Illinois	New Jersey	Washington
Indiana	New Mexico	West Virginia
Iowa	New York	Wisconsin
Kansas	North Carolina	Wyoming
Kentucky	North Dakota	
  
6. In what economic industry do you currently work? (The following categories were taken from the Bureau of Labor Statistics website.) (United States Department of Labor: Bureau of Labor Statistics 2018)
 

a. Administrative and support services	c. Broadcasting
b. Agriculture	d. Construction

- e. Engineering  
Finance/Accounting/Business (i.e. accountants, banking, managers, logistics, supply chain, etc.)
  - f. General merchandise, food and beverage, and/or clothing stores
  - g. Government/Politics
  - h. Health care services
  - i. Hospitality and food service
  - j. Information services/IT
  - k. Law
  - l. Manufacturing
  - m. Performing Arts
  - n. Real estate
  - o. Sports and Recreation
  - p. Trades (i.e. plumbing, electric, gas, etc.)
  - q. Transportation
  - r. Other
7. What is your salary range?
- a. Below \$25,000
  - b. \$25,001-\$45,000
  - c. \$45,001-\$65,000
  - d. \$65,001-\$85,000
  - e. \$85,001-105,000
  - f. \$105,001-\$125,000
  - g. \$125,001+
  - h. I do not wish to specify
8. Which applies to you:
- a. Employed full time (employer)
  - b. Employed full time (self)
  - c. Employed part time, do not want full time
  - d. Employed part time, want full time
  - e. Unemployed
  - f. Not in workforce (not working or looking for work)
9. Did you participate in 4-H as a youth? If so, select how many years you were a participant. If you did not participate in 4-H as a youth, please skip this question.
- a. 1
  - b. 2
  - c. 3
  - d. 4
  - e. 5
  - f. 6
  - g. 7
  - h. 8
  - i. 9
  - j. 10
  - k. 11
10. If you did participate in 4-H as a youth, what were your ages of participation? Please select all that apply. (For example, if you participated in 4-H at ages 9-11, please mark the options of age 9, age 10, and age 11.)
- a. 8
  - b. 9

- c. 10
- d. 11
- e. 12
- f. 13
- g. 14
- h. 15
- i. 16
- j. 17
- k. 18
- l. 19

11. When you participated in 4-H, was it more in a rural area or an urban area?

- a. Rural (area population  $\leq$  15,000)
- b. Urban (area population  $\geq$  15,001)

12. What activities were you involved in while in 4-H? (Select all that apply) (taken from the Nebraska State Fair Book) (University of Nebraska - Lincoln: Institute of Agriculture and Natural Resources Nebraska 4-H 2018)

- |  |  |
|--|--|
| a. Aerospace                                   | w. Landscape Design  |
| b. Agronomy                                    | x. Live animals/livestock (i.e. beef, dairy cattle, dog, meat goat, poultry, rabbit, sheep, swine) |
| c. Citizenship                                 | y. Livestock Judging Contest   |
| d. Clothing                                    | z. Photography   |
| e. Communications                              | aa. Physics/Power of Wind  |
| f. Computers                                   | bb. Premier Livestock Exhibitor  |
| g. Conservation, Wildlife, and Shooting Sports | cc. Presentations/Public Speaking Contest  |
| h. Consumer Management                         | dd. Range  |
| i. Electricity                                 | ee. Robotics   |
| j. Entomology                                  | ff. SET Careers  |
| k. Entrepreneurship                            | gg. Safety   |
| l. Fashion Show                                | hh. Tree Identification Contest  |
| m. Fiber Arts                                  | ii. Veterinary Science   |
| n. Food & Nutrition                            | jj. Weed & Grass Identification Contest  |
| o. Forestry                                    | kk. Welding  |
| p. Geospatial                                  | ll. Woodworking  |
| q. Heritage                                    | mm. Other  |
| r. Home Environment                            |  |
| s. Horticulture                                |  |
| t. Horticulture Identification Contest         |  |
| u. Human Development                           |  |
| v. Insect Identification Contest               |  |

13. Click on all of the 21<sup>st</sup> Century Skills that you claim you have learned by being in 4-H. The definition of each are listed behind the skill name. Please select all that apply. (from a study conducted by Gallup and Microsoft) (Microsoft Partners in Learning, The Pearson Foundation, Gallup 2013)

- a. Collaboration (worked together with others on a project for which you had to share responsibility)
  - b. Knowledge construction (spent time analyzing information or ideas to draw conclusions and/or applied a concept you learned to a different context or problem)
  - c. Skilled communication (developed communication such as an essay or presentation that included facts, information, or numbers to support your ideas)
  - d. Global awareness (studied information about other countries or cultures that made you aware of how the world is connected)
  - e. Self-regulation (used feedback from adults or peers to revise your work and/or gave feedback to others to help them improve their work)
  - f. Real-world problem-solving (using what you were learning about in 4-H to develop solutions to real world problems in your community or in the world and/or worked on a long-term project that took several weeks/months to complete)
  - g. Technology in learning (using computers or technology to complete 4-H activities)
14. Do you have any additional comments you wish to share about these Gallup skills or the experiences you've had with these skills while in 4-H?
15. Were there other "soft" skills you claim you have learned by being in 4-H? Please select all that apply. (from an Alabama Extension publication) (Alabama Cooperative Extension System 2000)
- |                     |                        |
|---------------------|------------------------|
| Learning            | Have Integrity         |
| Reasoning           | Adaptable and Flexible |
| Thinking Creatively | Team Spirit            |
| Decisions Making    | Punctual and Efficient |
| Problem Solving     | Self Directed          |
| Responsible         | Good Work Attitude     |
| Self Confidence     | Well Groomed           |
| Self Control        | Cooperative            |
| Social Skills       | Self Motivated         |
| Honest              | Self Management        |
16. Do you have any additional comments you wish to share about these Alabama Extension publication skills or the experiences you've had with these skills while in 4-H?
17. If you learned any of the Gallup or Alabama Extension skills in another way besides 4-H, please select all of the extra-curricular activities that you learned the skills in:
- a. Academic clubs (i.e. science, math, aerospace, chess, etc.)
  - b. Art clubs (i.e. Speech, theatre, debate, photography, etc.)
  - c. Sports teams (i.e. basketball, football, fencing, cheerleading, etc.)
  - d. School-sanctioned organizations (i.e. FFA, FBLA, FCCLA, etc.)
  - e. Community Clubs (i.e. Girl Scouts/Boy Scouts, Key Club, Habitat for Humanity, etc.)
  - f. Language clubs (i.e. French, Italian, Spanish, etc.)

- g. Government (i.e. student council, community government, etc.)
  - h. Media clubs (i.e. newspaper, journalism, yearbook, etc.)
  - i. Military (i.e. ROTC)
  - j. Music Clubs (i.e. band, choir, etc.)
  - k. Religious Clubs (i.e. youth group, Fellowship of Christian Athletes, etc.)
  - l. Other
18. What could 4-H programs be doing differently to help foster these skills in a more effective way with its participants?
19. On a five-point scale, where “5” means strongly agree and “1” means strongly disagree, please tell me how much you agree or disagree with each of the following items:

	1	2	3	4	5
Most of the skills I use in my current job I developed through my involvement in 4-H.					
I am successful in my job because of the skills I learned through my participation in 4-H.					
I have a voice in decision making in my workplace.					
I am a valued member of my workplace.					
Compared to most people in America who are about my same age, I am the most successful because of my involvement in 4-H.					
My 4-H experience has been extremely impactful on my current success in life.					
I would not be where I am today if I didn't have my 4-H experience.					
I feel as if my state's agricultural economy has been strengthened because of youth's participation in 4-H over the years.					

20. Please explain more about your 4-H experience and the impact it has had on your life or your successes.
21. Did 4-H impact any of your life decisions? If so, how and can you give examples? (i.e. college or career choice, where you want to live, your hobbies, etc.)
22. Please provide examples or additional comments of how you believe 4-H has helped strengthen your state’s agricultural economy.