

A Case Study Investigating Skill Development Through 4-H Livestock Projects

Timothy Hunter Romano

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Committee Chair: Carl Zipper, Crop and Soil Environmental Sciences

Committee Co-Chair: Tiffany A Drape, Agriculture, Leadership, and Community Education

Committee Member: Donna Westfall-Rudd, Agriculture, Leadership and Community Education

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Table of Contents

Abstract .....	3
Introduction .....	4
Purpose of Project .....	4
Definition of Terms .....	5
Review of Literature .....	6
Theoretical Framework .....	8
Methodology .....	10
Results and Discussion .....	14
Recommendations .....	17
References .....	19
Appendices .....	22

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ABSTRACT

The purpose of this project is to determine what important skills youth gain from participating in 4-H livestock projects. This goal was important not only to 4-H, but to Cooperative Extension as an organization. The theoretical framework for this study was Richard Lerner's Positive Youth Development (PYD). The participants of this study are all 4-Hers who participated in 4-H livestock projects. A qualitative case study was developed to determine what skills youth gained through livestock projects. A total of five youth participated in the research interviews. Responses to interview questions proved that there are important skills gained from livestock projects. A follow up interview with each participant would be beneficial to gain more detail on benefits that are gained through livestock projects.

## **Introduction**

The agriculture industry supports more than 300,000 jobs in Virginia annually (VDACS, 2018). Virginia's agriculture production is diverse and includes tobacco, apples, turkeys, and broiler production (VDACS, 2018). According to the 2012 Census of Agriculture Wise County ranks last, 95<sup>th</sup> in the state, for total value of agriculture products sold (USDA, 2012). Historically, Wise County has been known for coal production (DMME, 2015). With coal mining and coal employment on the decline (DMME, 2015), agriculture is becoming more important to the local economy.

The agriculture industry is constantly changing. The 4-H program in Wise County has integrated agriculture projects into its program to encourage future agricultural leaders. Providing agricultural education to youth is a way to help generate interest in this field. The 4-H program is intended to encourage positive youth development in areas such as: leadership, life skills, and hands-on experiences.

### **Purpose of Project**

The purpose of this project is to determine what important skills youth gain from participating in 4-H livestock projects. To achieve this purpose interviews were conducted with participants in 4-H livestock projects. The research question guiding this study was:

What skills have you learned through livestock projects?

This goal was important not only to 4-H, but to Cooperative Extension as a whole. 4-H livestock projects require youth to be responsible and dedicated to an animal or animals that depend solely on them to survive (Vahlenkamp, 2014).

## **Definition of Terms**

**DMME** – Department of Mines, Minerals, and Energy.

**PYD** – Positive youth development theory.

**Coalfields** – Areas in Virginia where coal deposits are found.

**Livestock Project** – A project area in 4-H where youth learn about selection, health, nutrition, production, breeding, showing, management, and marketing of livestock.

**Pullet** – a young hen, less than one year old.

**Pullet Project** – the process of raising poultry, in this case for egg production.

**Extension Fair** – Yearly event hosted by the Wise County Extension Office to help showcase production of farmers and 4-Hers.

**Record Book** – Part of the livestock project process. This book allows youth to record all information in regards to their project animal.

## **Review of Literature**

### **Overview of 4-H**

In 1902 4-H was created with its initial focus on practical skills of food production. Since the organization's founding, programming has been delivered in multiple ways with special interest clubs, like livestock clubs, as a focus (National 4-H Council, 2018). In order to aid development of the agriculture industry and agriculture production in the county, time and resources have been invested to increase interest in youth about the value of agriculture. "If young people become engaged in projects that involved these practices, they would not only convince their parents of their worth but also experiment with other new ideas in farm" (Ellis & Irvine, 2010).

The current 4-H program in the U.S. is no longer identified as a program to learn practical agricultural skills but has shifted to being an outlet for positive youth development. The organization reaches over six million children (National 4-H Council, 2018). Every child has talents, strengths, and interests that offer potential for a bright future (Damon, 2004). Children can benefit from participation of multiple activities in order to succeed. The goal of the Wise County 4-H program is to create a learning environment that allows any and all youth to participate actively in program that can improve their future.

The slogan of 4-H is "learn by doing" (National 4-H History Preservation Program, 2018). This is a major tool used in agricultural education (Davis, 1998). Agricultural projects allow youth to gain firsthand knowledge of upkeep, nutrition, and the financial aspects of livestock production. Agriculture education, noted by Sad (2017), is said to provide leadership skills through focused training in environmental stewardship, product safety, and business

management. Responsibility is placed on adults to educate and encourage youth interest in inventive ways (Sad, 2017).

### Need for Agriculture Education

In 2017, the Census Bureau estimated the United States population to be just under 326 million people (United States Census Bureau, 2017). As population increases, agricultural land decreases with urban sprawl. This change has led to a decline in agriculture education. “Most non-rural people are far removed from the farm” says Tara Sad (2017) for the Council of State Governments. She went on to say that people removed from food production do not pay much attention to how their food miraculously appears in a grocery store.

Organizations such as 4-H and Future Farmers of America strive to keep agricultural education alive by providing projects that engage youth in the food production process. Chad Davis (1998) attempted to verify that competitive livestock competition gives youth skills such as development of character, exposure to competition, and knowledge of animal care. He emphasized that “winning” helps prepare youth for real-world situations (Davis, 1998).

Student recruitment is a critical concern of university faculty and administrators in the field of agriculture (Rayfield et.al., 2013). Education prior to college is key to recruiting individuals who will succeed in agriculture related fields. Participation by adults in 4-H agricultural projects can be extremely helpful in providing support for youth who want to learn more about agriculture education through participation in these projects. Parents have been identified as an influencing factor on children, both prior to college and during college, when children choose to participate in youth organizations (Rayfield et. al., 2013).

The Wise County 4-H program reached 2,400 youth in 2017 (4-H Online, 2017). Through participation in agriculture-based in-school, after school, and summer programs, it is believed that 4-Hers will develop a particular interest in different aspects of agriculture ultimately resulting in special interest clubs and finally agriculture projects (National 4-H Council, 2018). The future of agriculture in America is becoming an issue of importance to today's youth. At the macro level, the beginnings of 4-H have been linked to the larger social, economic, and political forces in play during the Progressive Era (Trace, 2014).

### **Theoretical Framework**

The theoretical framework for this study was Richard Lerner's Positive Youth Development (PYD) (2005). Lerner has done extensive research in 4-H programming to help educators reach youth in an influential and positive way. Since this study was based on 4-H livestock projects the connection to PYD is relevant. Lerner believes that strengths of youth come from everyday factors in a child's life such as home, school, and community. He also contends that community-based programs such as clubs and sports are strongly connected to success in youth (Lerner, 2005). Nansook Park (2004) establishes that "the goal of PYD is to build and strengthen assets to enable youth to grow and flourish throughout life."

Life skills are encouraged by 4-H programs in all its delivery methods (National 4-H Council, 2018). Youth ranging from the ages of 9-19 were the focus of Lerner's PYD study (2005). Through Lerner's research, he established the notion of the 5 Cs. These 5 Cs include: competence, confidence, connection, character, and compassion (2011). All are skills that are potentially gained through 4-H programming. Through the promotion of PYD it is believed that changes in youth will occur over time (Lerner, 2005).

The participants of this study were 4-Hers who have participated in 4-H livestock projects. Larson (2000) states that 40-50% of youth's time outside of school is spent on leisure. This free time, he says, "does not encourage concentration or challenge" (Larson, 2000). Wise County 4-H provides opportunities for youth to participate in activities that are outside their day-to-day routine at school while still providing a constructive way to spend their free time.

Larson (2000) believes that activities provided to youth they can voluntarily participate in help increase motivation and concentration. 4-H livestock projects are not an activity that can be forced but require youth to work willingly with animals daily for extended periods of time promoting motivation and concentration. These types of activities can help adolescents take initiative in reaching a goal (Larson, 2000). In an ideal situation, youth participants would complete multiple livestock projects over the course of their 4-H career. The thought is that the project or projects for each individual will get better each year resulting in new skills reported at their conclusion.

### **Reflexivity**

The researcher believes that agricultural education is important to youth. As a product of a family farm, he has first-hand knowledge of the benefits of raising livestock. His connection to agriculture and preservation for its practices have been the driving force behind this study.

He worked directly with youth who participated in Wise County 4-H livestock projects. This included informational meetings, showmanship clinics, aiding youth in choosing project animals, judging project record books, and attending livestock shows. He provided outlets for youth participants to teach the community through fair exhibitions and field days. He believes that his dedication to the projects have encouraged more youth to participate. The researcher believes that youth who have participated in livestock projects will be able to understand and

express skills that have been attained or improved. Livestock projects in Wise County have increased steadily for four years.

### **Methodology**

The purpose of this study was to determine what important skills youth gain from participating in 4-H livestock projects. To answer this question a qualitative case study was developed. Case studies allow researchers to concentrate on a certain subject using different “cases” to understand that subject (Creswell et.al, 2007). This case study conducted interviews with Wise County 4-Hers who have participated in livestock projects. The purpose of the interviews was to gauge what skills youth reported as part of their participation in livestock projects.

The interview method made it possible to select related cases in order to find information connected to the research question (Bennett and Elman, 2006). The size of the interview pool was small and is referred to as a “collective or multi-case study” (Creswell, 2007). A single theme was being examined but more than one case is used to draw conclusions (Creswell et.al, 2007). Participants in the interviews were all current members of the Wise County 4-H program. They all had been 4-H members for more than one year. They also had to have participated in at least one livestock project at some point during their 4-H career.

### **Projects**

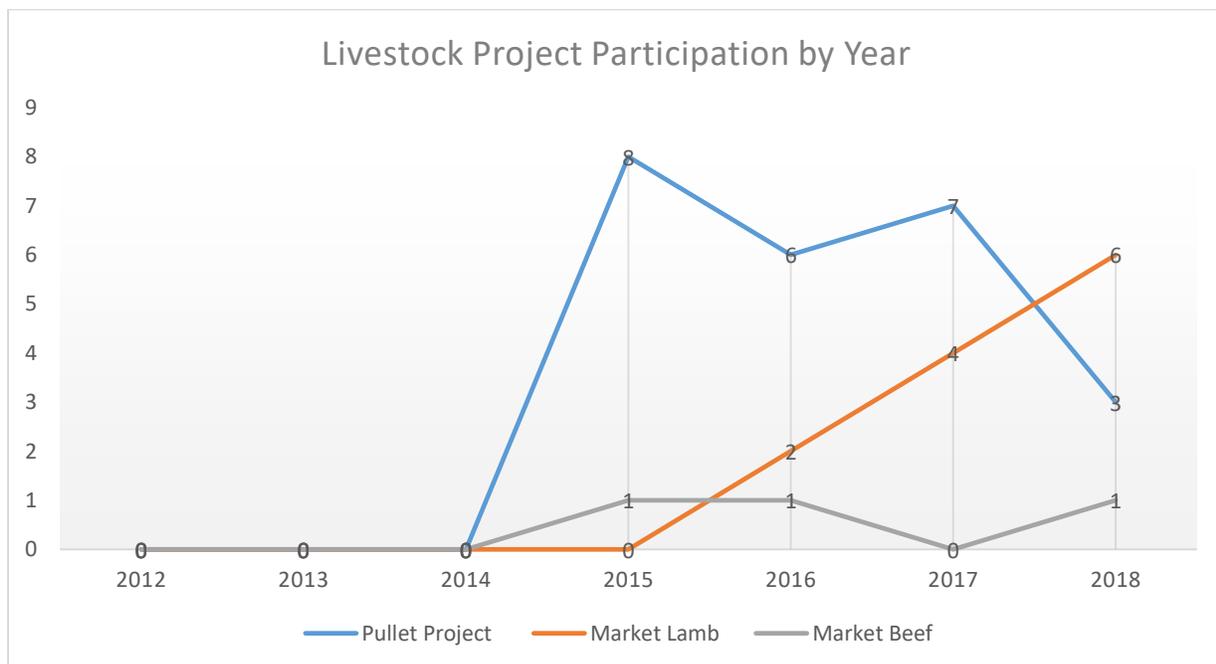
Since 2012, Wise County 4-Hers have had the opportunity to participate in three livestock projects: poultry, market lamb, and market beef. In 2014 the first successful group of pullet projects was completed (Figure 1). Each 4-Her that signed up was given fifteen pullets provided by the extension office. Participating youth received instruction on proper care of birds, education on pullet nutrition and housing, business education on egg production, and instruction

on maintaining a project record book. The youth also participated in a pullet auction at the Wise County Extension Fair.

Market beef was the second project offered to 4-Hers beginning in 2014. In 2015 and 2016 there were two completed market beef projects (Figure 1). The extension office aided in connecting youth with farmers to purchase animals. Extension personnel also provided youth with education on beef production, project record keeping, showmanship clinics, and opportunities to show their animals at local fairs.

The third project offered was the market lamb project beginning in 2016. Since the start of the market lamb project, interest has grown each year (Figure 1). The extension office connected youth to farmers so they could purchase animals, provided education on care of lambs, provided showmanship clinics, provided instruction on maintaining a project record book, and found opportunities for youth to show their livestock.

Figure 1. Participants in Wise County 4-H Livestock Projects



### Records of Project

Youth participating in livestock projects were required to keep a project record book. The books allowed youth to record all information associated with their project including - goal setting, project planning, expenses such as feed and medical care, show ring success, and other 4-H activities. Record keeping was a way for youth to learn organization and responsibility while also recording important information about their animals to improve their understanding of the process.

### Timeline and Budget

Selection of animals occurred during the spring from 2014-2018 (Table 1). This allowed youth most of the year to prepare their animals for show and gave them time to complete their project record books. Purchasing of pullets was the largest expense to the extension office. Each set of fifteen pullets was purchased at a cost of \$40. Other expenses included educational materials such as project record books and curriculum, volunteer expenses, and educational venues.

### Limitations

Major limitations to this project were lack of funds to create agricultural curriculum and to aid in purchase of livestock and equipment for youth participants. Other limitations to increasing programming included lack of volunteers and limited venues for education.

Table 1. Timelines for Wise Count Youth livestock projects.

	<b>Pullet Project</b>	<b>Market Beef Project</b>	<b>Market Lamb Project</b>
<b>Start Date (approximate)</b>	April	April – May	April – May

Skill Development through 4-H Livestock Projects 13

<b>Showmanship Clinic (approximate)</b>	June	June	June
<b>Project Record Book Check</b>	Date of Wise County Extension Fair. August-September.	Date of Bristol Steer and Heifer Show. May.	Date of Wise County Extension Fair. August-September.
<b>End Date</b>	Date of Wise County Extension Fair. August-September.	Date of Bristol Steer and Heifer Show. May.	October (depending on last fair attended)

## **Results and Discussion**

A total of five youth participated in the research interviews. All were between the ages of 10 and 14. Four interviews were conducted at the local extension office and one was held in a class-room at a local school.

### **Participants**

#### **Participant A**

Participant A was 12 years old and completing the sixth grade. He had been enrolled in the Wise County 4-H program for four years. During this time he has completed three pullet projects, two market lamb projects, and is currently enrolled in his third market lamb project.

#### **Participant B**

Participant B was 14 years old and completing the eighth grade. She has been enrolled in Wise County 4-H for five years. She has completed one pullet project.

#### **Participant C**

Participant C was 12 years old and completing the sixth grade. He has been enrolled in 4-H for four years. He had completed two pullet projects, two market lamb projects, and he is currently enrolled in the pullet and market lamb project.

#### **Participant D**

Participant D was 10 years old and is finishing fifth grade. She has been enrolled in 4-H for 2 years. She is enrolled in her second market lamb project.

#### **Participant E**

Participant E was 14 years old and completing the eighth grade. She has been enrolled in 4-H for five years and has completed one pullet project.

## **Data Analysis**

Interviews collected at the Wise County Extension Office. All interviews were audio recorded and transcribed. A semi structured method of interviewing was implemented to allow further discussion of topics if necessary (Cohen, 2006). Answers to questions were analyzed for common themes in connection to the research question. The interview pool was made up of five individuals all middle school aged. All participants were required to have parental consent due to age restrictions. The theoretical framework of PYD was the leading factor in interview question design. Participants were asked to describe their livestock project, share what was fun and what was difficult during their project. Three themes emerged: responsibility, participation in livestock shows, and other skills learned.

## **Major Themes**

### Responsibility

Referring back to the theoretical frame-work Larson (2000) asserts that activities youth can voluntarily participate in help promote motivation and concentration. This assertion linked directly to the increase of responsibility among livestock project participants. Participants acknowledged that keeping their animals fed, watered, and clean was the most difficult task regarding their livestock projects.

In answering a question about project difficulties, Participant C said “Probably keeping the animals clean, keeping their stalls clean or pens clean. Making sure that they have food and water every single day and keeping them warm in the winter and cooled off in the summer.”

Participant E joked about cleaning up after her chickens “Cleaning up after the chickens. It’s not anything anyone wants to do but it has to be done. It can be difficult because they can make big messes. It’s just not fun at all.”

Participant A described the process of taking care of new born lambs as the most difficult obstacle they had encountered during their projects. “Well, when the lambs were born we had to go up every two hours to make sure they were okay and one of them was struggling to we had to give it some extra stuff [colostrum].”

Participant D said that training their lamb with a halter was the most difficult task. “Training her on a halter because she wouldn’t walk. I had to walk her every day. I couldn’t even get the halter on her, she would run around her stall.” All obstacles listed are connected to responsibility. Without completing these tasks they would not have had success throughout their projects.

### Confidence

Livestock showing was another common theme among interview participants. The findings most connected to this research are strengthening of social relationships and exposure to competition (Davis, 1998). When asked what their favorite part of their livestock project was, Participant A stated “I liked going to the shows and talking to other people and see where they’re from.” Participant D said “Showing her and just having a lot of fun. No matter what place you get.” Participant E was excited to talk about winning, “My favorite part was probably taking them to the auction and getting them tested and then winning the first-place ribbon, made me feel really good. Since all of my hard work had paid off.”

### Connection Through Participation in Livestock Showing

When asked what the most fun thing about the projects is, Participant C stated “The most fun thing about my project is probably showing the different animals that I’ve done, going to shows or auctioning the chickens at the fundraiser because I love being with the other 4-Hers that

do it.” Based on these findings, livestock showing helps promote one of the 5Cs of Larson’s PYD (2000) by allowing youth to connect with other kids who share their interests.

### Patience

Throughout the interviews there were other skills mentioned that did not create the instance of a major theme. Patience was a skill listed by two participants. When asked what major skills he learned during his livestock projects Participant A stated “Some of the skills that I’ve learned is to not get frustrated and work harder when something goes wrong.” Participant D simply stated that the major skills she learned were “commitment, responsibility, and patience.”

### Organization

Participant B was the only 4-Her to discuss organization as a skill that was learned throughout her enrollment in livestock projects. She said “I became more responsible because I always had to keep the chicks clean and where they lived clean and I became more organized. Well I had to keep with a book on notes on the chicks and I had to keep up with the food and water.”

## **Recommendations**

### Researcher

To dig deeper into the experiences of you, follow up interviews with every participant of a livestock project would be beneficial to further examine benefits of these projects. The follow up interviews would be based on the participant’s first interview to analyze skill development in greater detail. It would be beneficial to have a second interview at the conclusion of the participant’s 4-H career to determine what changed over the course of their adolescent life.

### Practitioner

This interview process should be implemented as an aspect of livestock projects. Each participant in livestock projects would benefit from interviews at the conclusion of their project to help extension personnel evaluate the program from the youth perspective. Involving 4-H alumni as volunteers would create leadership opportunities and create a team to help extension agents with organization and implementation of livestock projects with youth.

One of the biggest barriers to participation is the cost. Creating partnerships with farmers who would lease or allow youth to borrow animals could increase participation in these projects while also acting as a marketing tool for the farmer. Resources to aid families in their projects by helping purchase animals, feed, or supplies would increase the participation in livestock projects.

## **Conclusion**

Based on this work, 4-H livestock projects have numerous positive effects on the youth who participated in pullet, market lamb, and beef projects. It was clear during that interviews that youth participants have seen the value of the projects and the goals they accomplished. Participant C stated “It is a wonderful and great investment and pass time.” Participant E said “I would say I wouldn’t do it if you don’t have a lot of time but if you do it’s really worth it.”

Through analysis of data from interview participants it is clear that there are benefits to 4-H livestock projects. Youth stated that they learned responsibility, gained an affinity for showing their animals for competition, gained patience, and learned organizational skills. Utilization of this information by extension personnel could allow practitioners to highlight these skills to promote projects to families in the future.

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## **Appendices**

### **Appendix A – Interview Questions**

1. Can you tell me a little bit about your livestock project(s)?
2. Why do you do livestock projects?
3. What is/was the most fun thing about your project?
4. What is challenging or difficult about your project?
5. What is your favorite part of your livestock project? (Why?)
6. What skills have you learned during this/these projects?
7. What kind of skills do you think you want to work on as/if you continue your project?
8. What could your 4-H program or volunteer do to help you learn more during your project?
9. What would you say to a friend who wanted to know more about livestock projects?
10. How old are you?
11. How long have you been in 4-H?
12. What grade are you finishing this year?