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Leaders of the Pack:

The Effect of Companion and Livestock Animal Ownership and/or Management on

Leadership Skills in College Students

Laurel Dhority

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Table of Contents

Abstract3

Introduction.....4

Literature Review.....6

Methods and Materials.....10

Results.....13

Conclusions and Discussion.....18

Acknowledgments.....21

Appendix.....22

References.....35

Abstract

Having and maintaining good leadership skills should be an important way of life for most college students. As these individuals search for their first jobs and employment outside of the university experience, many businesses and employers will utilize these leadership traits and officer positions within specific clubs and organizations to select who to extend a job offer. Many student associations which place their focus on animals, both agriculturally raised livestock and companion animals, take pride in the skills and proficiencies they teach their members. This study utilized a survey of both multiple choice and Likert Scale styled questions in order to determine if there was any correlation between owning and raising companion and livestock animals and possessing leadership skills. This survey was administered to 324 University of Arkansas students seeking various college majors and of multiple ages. The results were then run through the SAS analysis programs in order to determine if there is a significant difference in the strength of perceived leadership practices between students who raised strictly companion animals, those who raised both companion and livestock animals, and those who did not raise any animals at all. Analysis was also run in order to determine if there was a relationship between the types of animals raised or not raised and the amount of leadership officer positions held by the students, the level of involvement with these animals and the leadership positions held, and to see if there was any correlation between the majors involved in the survey and the number of leadership positions they have held. Analysis of variance between the groups of students and the mean scores for each of the five leadership practices showed no significant difference ($P > 0.05$) in four out of five of the practices. However, one practice, Enabling Others to Act, did show significant difference ($P < 0.05$). The results for the chi-square test between the groups of animals raised and the number of officer positions held showed no

significant difference ($P > 0.05$), as did the results for the chi square test between level of involvement with each type of animal (companion and both companion and livestock) and the amount of officer positions held. The final chi-square test between the indicated major in college and the amount of officer positions held showed no significant difference ($P > 0.05$).

Introduction

Leadership skills are an important and defining part of determining the future of many college students. Often times, these traits are mentioned within resumes by individuals seeking jobs, or even within job postings by companies and employers. Potential employers often look for evidence of various traits and skills, and leadership positions held (such as holding an officer position within a certain club or being a member of a specific organization) when hiring on new employees. These traits can include things such as the ability to form connections, work ethic and dedication to put forth effort and finish projects, or proper time management. By selecting these aspiring students for their company based on these leadership traits, the corporations are hoping they lead to great success and triumph within the organization.

Many agricultural and companion animal focused clubs, both in high school as well as in college, pride their associations on the skills and abilities they teach their members. It is common thought that raising another living being, such as a pet or livestock animal, requires a certain level of time and dedication in order to train, feed, and care for the animal. These skills are fairly similar to the previously mentioned abilities that are highly sought after by businesses and employers.

This study utilizes a survey containing both multiple choice and Likert Scale style questions in order to determine what effect, if any, raising various species of animals, both livestock and companion, could have on developing leadership potential within college aged students. We expected the results of this survey and research to show just how impactful owning and/or managing an animal (or animals) can be for college students and hope to see significant evidence of the positive impact that animal ownership can have on self-evaluated leadership potential, as owning and managing animals is a big responsibility. Generally speaking, animal owners/managers must be willing to balance time and manage other conflicts in order to care adequately for an animal. Being a responsible worker and problem solver is something that many potential employers look for when hiring due to the increasingly competitive world of business (Taylor, Lashman, & Helling, 1994). Additionally, animal ownership and management allow for an outlet of activity which could help build strong leadership skills. Animals can be a valuable way for students to meet new people and form connections (Wood et. al., 2015). Building connections and the ability to communicate with new people is a valuable, but often missed, part of job applications and interviews, as is said in a recent journal article and interview between author Stephanie Kanowitz with the current CEOs of LinkedIn and Voicera (Kanowitz, 2018). The objective of this study was to determine if there are differences in the three types of animal ownership and management (companion animal owners/managers, those who owned/managed both livestock and companion animals, and non-animal owners/managers) when it comes to the scores of questions involved with the five specific leadership styles outlined within Kouzes and Posner's Leadership Practices Inventory. The three groups of animal ownership and the survey answers about the level of involvement with the animals will also be evaluated against the number of club leadership and/or officer positions held. Lastly, the survey

will determine if the different majors of college students have a correlation with the amount of these leadership positions held, as it can often times be assumed that students who are majoring in an animal related field, such as Animal Sciences, will have a higher level of involvement working with different types of animals.

Literature Review

Animals and Leadership

Companion Animals

The pet and companion animal industry is one which is fairly prevalent within the United States. A study by Beck and Meyers (1996) recorded that at least 56% of households within the United States owned pets and made note that these creatures often take on the role of family member and friend. According to a book on animal sciences by Steven Damron (2017), most of these households include families with children and a higher level of income. The total number of dogs and cats in the United States from 2017 to 2018 was over 76 and 58 million, respectively (American Veterinary Medical Association, 2018). In fact, including areas of the business such as pet food, veterinary care, and other specialized forms of animal treatment such as grooming, this industry contributed \$60.3 billion dollars to the American economy in 2015 alone (Damron, 2017).

There is no doubt that animals play an important role in the lives of many people today. However, these animals can contribute more than just everyday comfort for their owners and families. For children within these households, these species can help in teaching and learning a more caring behavior, as well as the useful tools of nonverbal communication. Some pets who

have even been trained to support the mentally and physically ill may help boost morale and other physiological states (Beck & Meyers, 1996). Animals trained as guidance animal must know important skills such as when to signal for certain stimuli or dangers. These skills are crucial for the welfare of the owner and could potentially help teach unique skills such as how to communicate clearly and efficiently with another individual.

Similarly, it is quite easy to see the role these companion animals can play in forming and building connections with new people or members of a close community. A study and survey conducted by Wood et. al. (2015) within three United States cities found that following proximity factors (such as being neighbors), pet ownership was the second most common factor in conversing and building relationships within the neighborhood. Theoretically, these friendships and relationships could help build connections within the workplace going forward.

Livestock Animals

Within the United States, the livestock industry is an important sector of the business world. According to two censuses administered by the United States Department of Agriculture, National Agriculture Statistic Service (NASS) on January 1, 2020, the number of cattle in the nation was totaled at 94.4 million head, and the number of sheep and goats was found to be 5.20 million head and 2.66 million head respectively. The total number of horses was also nearing 3 million, according to a press release by the American Horse Council (2020). The USDA also reports that there are approximately 78.23 million head of swine within the United States as of 2019. These livestock animals can be used for important purposes such as meat, clothing, and transportation.

The benefits of owning animals reaches outside of just companion animals and into those who own and raise these various livestock species such as cattle, horses, sheep, and swine (Rusk, Summerlot-Early, Machtmes, Talbert & Balschweid, 2003). One notable club which focuses on the importance of agriculture and livestock animals, the National Future Farmers of America (FFA) Organization, currently has 760,113 high school and college members in the United States and Puerto Rico (National FFA Organization, 2021). Additionally, the 4H Organization teaches almost 6 million children and young adults ages 5 – 21 the importance of agriculture through hands on projects and engagement (National 4H Council, 2021). Students in middle and high school who raise and exhibit these livestock animals have said that they feel as though they have learned various life skills such as responsibility, the ability to solve problems, and honesty (Davis, Stripling, Stephens & Loveday, 2016). Similarly, most students who participate in 4H or FFA competition events which involve animals, such as livestock, horse, or dairy judging, but do not necessarily own animals themselves, believe that the experience has a positive impact on them (Nash & Sant, 2005). However, participants in these previously mentioned livestock and agricultural organizations are recorded as having not held a leadership position in their clubs or are not involved in projects involving technology or communication (Holmgren & Reid, 2007).

Some studies have shown that working with animals can help build team communication (Gunter, Berardinelli, Blankeney, Cronenwett & Gurvis, 2017), strengthen friendships (Wood, et. al., 2015), and even help young children conquer the fear of reading aloud (Jalongo, 2005). These skills are even more important in college as students prepare to go out into the work force. But how these animals play a role in developing leadership skills has still yet to be discussed.

Leadership Styles in “The Leadership Practices Inventory”

Throughout history, many different styles of leadership have been assessed and recorded in various studies and journals. One of the most commonly and widely utilized forms of leadership measurement is a survey known as “The Leadership Practices Inventory”, formulated by Kouzes and Posner in 1982. In this survey, each individual is asked a series of questions in order to break down various traits and skills into one of five different leadership types, called “The Five Practices of Exemplary Student Leadership”. For the purpose of this study, we utilized only the self-evaluation portion of “The Leadership Practices Inventory”. However, this instrument also includes an observer evaluation which is not seen within this research. The observer portion asks for those who personally know the respondent to evaluate the five leadership practices in a similar way as the student. These practices are: Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, and Encourage the Heart.

Model the Way is defined within “The Leadership Practices Inventory” as a commitment to setting the example for others. This leadership style is evident through the respondent’s ability to stand up for what they believe in. Through these actions, the person can become a role model for the actions and steps someone else should exhibit in order to become successful, too.

The next practice is Inspire a Shared Vision. This style is all about using a common goal or objective to encourage others to a desired outcome. This is accomplished by the student envisioning the future and pushing and cheering on others with the same outlook.

The third leadership style is Challenge the Process. Challenging the Process involves looking outside of what practices or steps are typically followed in a given situation and thinking of alternatives. As is stated in the inventory, “leadership is closely associated with change and innovation” (Kouzes & Posner, 2006). Overall, this practice encompasses risk taking and experimentation on behalf of the student in order to reach a particular goal.

Enabling Others to Act involves the leader's ability to work with others. This practice requires "an atmosphere of trust and respect" (Kouzes & Posner, 2006). It revolves around the relationships and connections of those involved and helps build cooperation by uplifting and supporting one another.

The last of "The Five Practices of Exemplary Student Leadership" is that of Encouraging the Heart. This final practice uses the expectations and recognition of each individual's contribution to a common goal. Students exhibiting this style provide encouragement and constructive feedback to those they are leading within an organization.

Each of these different practices involve traits and skills which help build efficient and strong leaders. "The Student Leadership Practices Inventory" looks at the respondent's scores within each category in order to help strengthen their leadership potential in areas where they wish to improve.

Methods and Materials

Survey Methodology

In order to determine the role of companion and livestock animals on the development of leadership skills and traits in college students, a survey was formatted based on questions regarding the types of animals students have been involved with, as well as some questions focused on leadership development and various traits. Questions were a combination of multiple choice as well as Likert Scale styles. Prior to the deployment of these surveys, research compliance was submitted and approved by the University of Arkansas IRB. The complete survey was 50 questions long and can be found under Appendix A.

Subject Selection

The current population at the University of Arkansas is around 29,000 students. With a confidence level of 90, and a margin of error of 5, we concluded that we should strive to sample 420 students. In total for this study, 324 students responded to the survey request. These students were selected based off of courses they were enrolled in, as the survey link was sent to numerous teachers. Due to this decision to reach a wide variety of majors and study concentrations, the survey was distributed to students outside of agricultural or animal science disciplines, as well as students within those disciplines. This choice helped avoid biased answers among participants. In total, the types of classes surveyed included Animal Science, Agricultural Business, Agriculture Communications, Microbiology, Communications, and Trigonometry.

Instrument Development

The questions included in the survey tool were a mixture of multiple choice style and Likert scale style (“on a scale of 1 -5...”) questions. The study took place on the University of Arkansas campus located in Fayetteville, Arkansas, during the spring academic semester (January - May). “Kouzes and Posner’s Student Leadership Practices Inventory” was utilized for part of our data collection. This instrument allows its users to look at various types of leadership styles and traits as outlined by the inventory. The five practices of leadership outlined within this particular study are as follows: Modeling the Way, Inspiring a Shared Vision, Challenging Processes, Enabling Others to Act, and Encouraging the Heart. This study uses Likert Scale and yes or no styled questions, while also looking at self-assessed results as well as responses from observers. For the purpose of our study, we will be using only the self-evaluation portion of this instrument. This allows students to reflect on their own leadership styles and skills while completing this particular portion of the survey. Several of the other questions in this project

were formulated by the observer for the purpose of this particular study. These questions were primarily multiple-choice questions which focused on looking at and analyzing the types of animals owned and raised, as well as more basic demographic questions.

Data Collection

Due to the fact that leadership covers a wide quantity of traits, this study looks at the five styles described in “Kouzes and Posner’s Student Leadership Practices Inventory”. Again, these styles are: Modelling the Way, Inspiring a Shared Vision, Challenging Processes, Enabling Others to Act, and Encouraging the Heart. At the end of the survey, students were asked, based on a Likert scale, what effect they felt companion animals might have in the formation of their leadership skills. The survey was formatted and administered within the online program Qualtrics. This allowed for a wider range of student participation due to the current online presentation of most classes. All participants were asked between 20 and 30 multiple choice styled questions at the beginning of their survey to categorize their knowledge of companion and livestock animals and the role of these animals in their life prior to, as well as during, college. These questions were then followed by those found within “Kouzes and Posner’s Student Leadership Practices Inventory” in order to further break down and analyze the different leadership styles and personalities of each individual respondent.

Data Analysis

The responses to the survey were grouped based on whether or not the respondents owned companion animals, both livestock and companion animals, or had not owned any animals. An analysis of variance test was then run between the three groups of animal ownership and the responses to each of the segments of the survey containing questions over each of the five leadership practices in order to determine if there was any significant difference

in the responses based on the groups. This test had a null hypothesis that there was no significant difference between the types of animals raised and the average score for each of the leadership practices.

A chi-square test was run on the three student groups and the amount of leadership positions held within club organizations in order to see if there was any relationship between them. A comparison of the involvement and time spent with each type of animal raised was also run through analysis with the amount of leadership positions held, as well as against the respondent's stated college major. Again, each of these three tests had a null hypothesis that neither the types of animals raised, the level of involvement with these animals, nor the respondent's college major created any significant difference in the amount of leadership officer positions held.

Results

Types of Animals Raised and Student Leadership Practices

In total, the number of students who indicated they had raised companion animals was 104 students, the amount which stated they had raised both companion and livestock animals was 61, and those which did not raise or manage any animals was 159. This group of both companion and livestock animals raised or managed was due to the small total number of students who raised strictly livestock animals was only 10. The total responses were 324. In order for each of these five sets of statistical analysis to show that there is a significant difference among the three groups of students based off of animals raised, the probability value must be less than or equal to the significance value of 0.05. In total, the total number of students per course

subject was as follows: 38 from Microbiology, 41 from Animal Science, 30 from Agricultural Business, 66 from Communications, 91 from Trigonometry, 31 from Agricultural Communications, and 27 students who did not list a designated class.

Model the Way

The mean score and statistical values for questions regarding the leadership practice of Model the Way is given in Table 1. The means for these groups were found by taking the total number of each leadership practice category and dividing by the number of responses for each type of animal raised. The scores for the practice Model the Way ranged from 1 – 16, with a higher score showing a higher likelihood of possessing this particular skill set. The average score for students who raised companion animals was 12.34. For those who raised both companion and livestock animals the average score 12.44 and for those who did not raise or manage any animals at all, the average was 12.46. The analysis of the linear regression test produced a probability value of 0.86, which shows that there is no significant difference in the average score of the respondent's perceived leadership practice as Model the Way based on the animals raised ($P > 0.05$).

Inspire a Shared Vision

The statistical information for Inspire A Shared Vision and the types of animals raised is found in Table 1. Once again, the average scores for each of the three groups of animals raised/managed was found by adding up the total values for this category of questions based on the Inspire A Shared Vision leadership practice, and dividing by the number of responses for each of the three groups. The scores for this group of survey questions could range from 1 – 16, with a higher score showing a higher likelihood of possessing the leadership skill. The mean score for students who raised companion animals was 11.38, for those classified as raising both

livestock and companion animals the mean score was 11.36, and for those who raised neither type of animal the average score was 11.29. There is no significant difference in the self-assessed score for the leadership practice of Inspiring a Shared Vision between these three categories of animals raised ($P = 0.95$).

Challenge the Process

Information regarding the average values of each group based on animals raised and the average score for Challenge the Process analysis questions can be found in Table 1. Scores for this style of leadership practice ranged from 1 – 16, with a higher score showing a higher possession of the leadership style of Challenge the Process. According to this analysis, we can see that the average score for this leadership practice for the group which indicated they raised companion animals was 13.09, for those who raised both livestock and companion animals the average score was 13.16, and for students who indicated they raised no animals at all, the average score was 13.01. We can see that there is no significant difference in the three groups of students based on animals raised and the perceived leadership practice of Challenge the Process ($P = 0.86$).

Enable Others to Act

The statistical information for the leadership practice of Enabling Others to Act can be found below in Table 1. The scores for this leadership practice category can range from 1 – 6, with 6 showing a higher likelihood of possessing the leadership skill of Enabling Others to Act. There is a significant difference between the groups of animals raised and the self-assessed scores of the leadership practice Enabling Others to Act ($P = 0.0036$). What this probability value of 0.0036 is saying is that the null hypothesis of there being no significant difference in the average scores among groups could only occur 0.36% of the time with this data. Therefore, we

must reject the null hypothesis and find that there is significant difference between the types of animals raised and the average scores assessed for Enabling Others to Act. With further analysis, we can see that there is no significant difference between the two groups who did raise animals ($P = 0.48$), however, there is a significant difference between the group of students who did not raise any animals at all and the two groups who indicated that they raised either type of animal ($P < 0.05$). The average score for those who did not raise any animal was significantly higher than those who raised companion or both companion and livestock animals.

Encourage the Heart

Encourage the Heart statistical data for this test is located in Table 1. Scores for Encourage the Heart are from 1 -11, with a higher score showing a greater possession of this particular leadership practice. There is no significant difference among this data set ($P = 0.37$). We can see that the average scores for the three groups are as follows: for students who raised companion animals only the mean score was 9.32, for those who raised both companion and livestock the mean score was 9.02, and for those students who did not raise either companion or livestock animals the mean score for this practice was 9.13.

Animals Raised/Managed and Student Club Leadership Positions

Chi-square results and probability values for this particular portion of the survey analysis are found in Table 2. This test looks to see if there is any significant difference between the three groups of animals owned (companion animals, both companion and livestock, or neither) and the amount of responses indicating each student has held a leadership position within a student organization. These leadership positions are president, vice president, treasurer, and secretary. The probability values for the analysis between the types of animals raised or managed and each of the four student club leadership positions were as follows: President ($P = 0.6338$),

Vice President ($P = 0.4355$), Treasurer ($P = 0.0758$), and Secretary ($P = 0.7857$). Overall, the data shows that the probability values for each of these four leadership positions is greater than 0.05, showing that there is no significant difference between the three groups of students based on animals raised and the number of students who held each leadership position.

Animal Involvement and Student Club Leadership Positions

Companion Animal Involvement

The statistical results for the chi-square test between the amount of involvement with the animal for students who raised a companion species and the amount of leadership officer positions held by each level of involvement can be found in Table 3. Each of the students who indicated they had raised companion animals was later asked to categorize the amount of involvement they had with raising/managing the animal. These groups are: primary caregiver of the animal, helping care for the animal, but not the primary caregiver, someone else cared for the animal, or other. In total, the analysis found that the probability values for each of the four leadership positions (president, vice president, treasurer, and secretary) were above the stated significance value of 0.05. Therefore, we can see that there is no significant difference in the level of involvement with the companion animals and the leadership offices held.

Livestock Animal Involvement

The results of the chi-square analysis on the levels of involvement for those students who raised livestock animals and the amount of leadership positions held can be found in Table 4. The students who indicated they had raised or managed some type of livestock animal prior to or during college were later asked a question asking them to categorize their level of involvement into one of four groups: primary caregiver, helping care for the animal but not the primary caregiver, not responsible for the care of the animal, or other. These answers were then placed in

a chi-square analysis to see if there was any significant difference in the amount of involvement with livestock animals and the amount of indicated leadership positions held in student clubs and organizations. Across the four listed leadership positions (president, vice president, treasurer, and secretary), the test produced probability values of more than 0.05, meaning there is no significant difference between the level of involvement with livestock animals and the amount of officer positions held.

Majors in College and Student Club Leadership Positions

At the beginning of the survey, students were asked a question to select their current major at the University of Arkansas. The options for this question were as follows: 1. Animal Science (n = 67 responses), 2. Agriculture Business, Agricultural Education, Communication and Technology, 3. Other Agricultural Field, or 4. Non-Agricultural Field (n = 179 responses). Since this particular part of the analysis wants to look at if there is any significant difference between the major of Animal Science with other majors and the amount of student leadership positions held, the previously listed groups 2 and 3 were summed together and listed as group 2 (n = 78 responses). A chi-square test was then run and all analysis provided a probability value of greater than 0.05 across the four leadership positions of president, vice president, treasurer, and secretary. Since these values are higher than the indicated alpha value of 0.05, we can conclude that there is no significant difference between the groups of college majors and the number of students who held each student leadership office. The results of this test can be found in Table 5.

Of the students surveyed, 9 out of 67 Animal Science students, 9 out of 78 Other Agricultural Field students, and 27 out of 179 Non-Agricultural Field students said they had held the leadership position of President. For the office of Vice President, 10 out of 67 Animal Science students, 8 out of Other Agricultural Field students, and 16 out of 179 Non-Agricultural

Field students indicated they had held that leadership position. A smaller number of students in total held the club leadership position of Treasurer, with no Animal Science majors, 4 out of 78 Other Agricultural Field majors, and 16 out of 179 Non-Agricultural students. Lastly, 6 of the 67 Animal Science students, 3 of the 78 Other Agricultural Field majors, and 13 of the Non-Agricultural Field students indicated they held the leadership position of Secretary within a student organization.

Conclusions and Discussion

Student Leadership Practices

In conclusion, we can see that there is very little significant difference ($P > 0.05$) between the types of animals raised or not raised and four out of five of leadership practices identified in Kouzes and Posner's "Student Leadership Practices Inventory". These four practices were: Model the Way, Inspire a Shared Vision, Challenge the Process, and Encourage the Heart. In fact, the only one of the five practices which did produce a significant difference was the category of Enabling Others to Act. Within this data, we can see that the statistically significant difference ($P = 0.0036$) among students who raised companion animals, students who raised both companion and livestock, and students who did not raise any animal at all, indicated that students who did not raise any animal at all, have a significantly ($P < 0.05$) higher average score for this particular practice. Furthermore, there was no significant difference ($P > 0.05$) between those students who raised companion animals and those who raised both companion and livestock animals.

Based off of this data, we can reject the hypothesis made at the beginning of this report that believed that students who owned companion and livestock animals would overall produce a higher score for each of the leadership practices. It is interesting that the score for Enabling Others to Act is the only one of the five practices which produced a higher score -- specifically and for students without any animal ownership/management at all. Further testing could be taken in order to determine the cause of these higher scores, but possibilities include the fact that not all students have the resources (such as money and land) to raise and care for various species of animals, or the fact that this practice focuses on the ability of students to work with others. Those students who raised animals and livestock could potentially have less time to spend with peers as they have more time invested in activities regarding the animals raised. A good way to test for this would be to preform another self-assessed survey among the three groups using Kouzes and Posner's "Student Leadership Practices Inventory", as well as utilizing the observer survey. The observer study uses some of the same questions as the self-assessment survey, however, is based off of observers who know the student. By using this second part of the survey tool, we would be better able to see how other people outside of just the owner or manager of the animal views their leadership style. This would of course lead to different statistics, depending on the relationships the students have with their observers. We could also gain new results with the observer data which is not seen in this study. Lastly, if this survey were to be completed a second time, it could be beneficial to seek a more diverse set of backgrounds. For example, surveying students still enrolled in high school or those from a more rural area. This could potentially help broaden the responses of students who have experiences raising or managing livestock animals or have more involvement in student clubs and organizations.

Animals Raised/Managed and Student Club Leadership Positions

For this particular chi-square test between the three groups of students based off of the types of animals they raised/managed (companion, both, or neither) and the number of students who indicated they had held one of the four student officer positions within a club or organization, we saw no significant difference ($P > 0.05$) among the groups.

This shows that there is very little or no role of animals in students seeking leadership or officer positions within student clubs. This therefore rejects the hypothesis that animals were an important part of receiving a leadership position. This is important for students to realize, as again, not all members of certain clubs and organizations will have the same access to resources and therefore might not be able to raise animals. However, based off of the data received from this survey, we can see that this does not hinder them from being elected or chosen to lead within a club or organization.

Animal Involvement and Student Club Leadership Positions

As previously stated, there was no significant difference ($P > 0.05$) between the students who indicated they raised companion or livestock animals' level of involvement and the amount club leadership positions held. This information is important to those students who are involved with these clubs and organizations and raise companion and livestock animals because it shows that the amount of time spent working with and managing these animals does not hinder their ability to hold a leadership position within a group. This conclusion could be tested again in order to see what level of time management these students feel like they possess, as they must find time to both raise the animals and be involved with the organization or club. As previously mentioned within this study, this time management can be a key skill that future employers look for in resumes and job interviews.

Majors in College and Student Club Leadership Positions

There was no significant difference ($P > 0.05$) was found between the groups of majors who completed the survey and the amount of student club leadership positions held (Table 5). This is interesting information because we know that although someone might be majoring in an animal or agricultural discipline and therefore interested in animals, they potentially could have no experience raising or managing animals at all. Through this test, however, we see that the chosen majors by students does not produce a significant difference ($P < 0.05$) in the amount of club leadership positions held.

Acknowledgments

Survey question development and proposal was created and crafted with the assistance of Dr. Jefferson Miller and Dr. Lauren Thomas. These professors also both helped administer the survey to their classes on the University of Arkansas campus during the spring 2021 semester. These classes were in Agricultural Communications and Animal Sciences respectively. Other professors who presented the survey to their classes include: Dr. Timothy Kral and Dr. Adnan Alrubaye's Microbiology class, Dr. Nathan Kemper's Agricultural Business courses, Professor Victoria Ryburn's Trigonometry classes, and Dr. Fred Jennings's Communications classes.

Dr. Janeal Yancey, Dr. Jeremy Powell, and Dr. Lauren Thomas led the discussion in determining how to analyze and interpret the survey data after responses were collected. Data results were then coordinated and run through the SAS program by Dr. Donald Johnson. Dr. Johnson and Dr. Jefferson Miller also helped explain the results of the analysis of variance and chi-square analysis once these tests were completed.

Appendix A

Survey Administered to Students:

Consent Question:

Below are several questions and designated responses for a survey on Leadership and Animal Ownership. Your participation in this survey is completely voluntary and all answers will be kept anonymous. The survey should only take you 10-15 minutes to complete, and your responses are very important for the success of this project. By selecting “yes” below, you are agreeing to have your answers utilized as a part of an ongoing research study. It is up to you if you would like to enter your personal contact information at the end of this survey in order to be entered in a drawing for one of three \$100 Amazon gift cards.

Do you agree to the above terms? By selecting “yes” below, you consent that you are willing to answer the questions to this survey.

- a. Yes
- b. No

General Data Questions:

- 1.) I identify as a/an:
 - a. Male
 - b. Female
 - c. Prefer not to answer

- 2.) My current class level is:

- a. Freshman b. Sophomore c. Junior d. Senior e. Graduate

3.) Please select your age group:

- a. <18 b. 18 c. 19 d. 20 e. 21 f. 22 g. >21

4.) My major or concentration is:

- a. Animal Science
b. Agriculture Business
c. Agriculture Education, Communication, and Technology
d. Other Agriculture Field
e. Non-agriculture Field

5.) I am an Arkansas native:

- a. Yes b. No

Multiple Choice Questions:

1.) Did you raise companion or livestock animals prior to or during college?

- a. Companion b. Livestock c. Both d. Neither

2.) If “a”, what type of companion animals did you raise? Please select all that apply.

- a. Dogs
b. Cats
c. Rabbits and/or Guinea pigs
d. Other

3.) If “**b**”, what types of livestock did you raise? Please select all that apply.

- a. Cattle
- b. Sheep
- c. Pigs
- d. Goats
- e. Swine
- f. Horses
- g. Poultry

4.) During which time period(s) did you actively raise these animals? Please select all that apply.

- a. Prior to high school
- b. During high school
- c. During college

5.) If you raised **companion animals**, please select which option BEST describes the activities completed with the animals:

- a. The animal was a family pet with little to no training.
- b. The animal was a family pet with a significant amount of obedience training.
- c. The animal was used/trained for specific work-related or specific recreational activities (hunting, herding, service, etc.).

- d. The animal was trained to compete in competitions or shows (field trials, dog shows, etc.).
 - e. Other
 - f. I did not raise or own any companion animals.
- 6.) If you raised **companion animals**, please select the option which BEST describes your role with the animals:
- a. I was the primary caregiver for the animal (including feeding, exercising, etc.).
 - b. I helped care for the animal sometimes, but I was not the primary caregiver (another family member cared for the animal the majority of the time).
 - c. I was not responsible for the animal and did not provide care. Someone else was the caregiver.
 - d. Other
 - e. I did not raise or own any companion animals.
- 7.) If you raised **livestock animals**, please select the option that BEST describes the activities completed with the animals (more than one response can be selected):
- a. The animal was a family pet with little to no training.
 - b. The animal was raised for agricultural production purposes.
 - c. The animal was raised and/or trained to compete in competitions or shows.
 - d. Other
 - e. I did not raise or own any livestock animals.

8.) If you raised **livestock animals**, please select the option which BEST describes your role with the animals:

- a. I was the primary caregiver for the animal (including feeding, exercising, etc.)
- b. I helped care for the animal sometimes, but was not the primary caregiver
(another family member/friend cared for the animal the majority of the time)
- c. I was not responsible for the animal and did not provide care, someone else was the caregiver
- d. Other
- e. I did not raise or own and livestock animals.

9.) If you owned and/or raised animals, how many hours per day (on average) did you spend with the animal(s)? This time is measured as the time spent giving the animal your full attention, such as feeding, grooming, exercising, or providing for other needs for the animal.

- a. Less than 1 hour
- b. 1-3 hours
- c. 3-6 hours
- d. 6> hours

10.) Were you involved with an agricultural organization/club prior to or during college (FFA, 4H, etc.)?

- a. Yes
- b. No

11.) If you answered “Yes” (“a”) to the previous question, please select which option BEST describes your involvement within the organization:

- a. I was a member of the organization, but did not participate in any activities (judging teams, public speaking, etc.) or hold an officer position.
- b. I was a member of the organization and participated in organization activities.
- c. I was actively involved and served as an officer for the organization.
- d. Other
- e. Not applicable

12.) What other non-agriculture related clubs and organizations were you involved in prior to/during college?

13.) If you submitted answers to the previous question, please select which option BEST describes your involvement within the organization:

- a. I was a member of the organization, but did not hold a leadership position in the organization.
- b. I was actively involved and served in a leadership position for the organization.
- c. Other
- d. Not applicable

14.) Please select which option you feel best describes your leadership skills during college:

- a. I have been an officer/held a leadership position in an organization/club and have spoken in a public group setting.
- b. I have been an officer/held a leadership position in an organization/club, but have not spoken in a public group setting.
- c. I have not held a leadership/officer position in an organization, but I have spoken in a public group setting.
- d. I have not held a leadership/officer position in an organization, and have not spoken in a public group setting.

15.) If you have held a leadership/officer position in any organization, please select the options which best describes your position(s). Select all that apply.

- a. President
- b. Vice President
- c. Treasurer
- d. Secretary
- e. Other
- f. Not applicable

Kouzes and Posner's Student Leadership Practices Inventory:

Model the Way

- 1.) On a scale of 1-5 (5 being the highest score), how well do you feel that you are able to keep track of how you spend your time?
- 2.) Do you keep a daily planner?
 - a. Yes
 - b. No

- 3.) On a scale of 1-5 (5 being the highest), how open are you to admitting your mistakes?
- 4.) On a scale of 1-5 (5 being the highest), how likely are you to allow someone less experienced than you in a skill “shadow” you?

Inspire a Shared Vision

- 1.) On a scale of 1-5 (5 being the most frequently), how often do you feel you give positive affirmations?
- 2.) On a scale of 1-5 (5 being the most frequent), how often do you find yourself speaking positively?
- 3.) How often do you volunteer to speak in front of large groups, with 1 being never and 5 being always (i.e. read aloud in class, or explain difficult topic)?
- 4.) Have you ever taken a public speaking class?
 - a. Yes
 - b. No

Challenge the Process

- 1.) Do you enjoy challenging assignments and opportunities?
 - a. Yes
 - b. No
- 2.) On a scale of 1-5 (with 5 being the best), how well do you feel you work in a group?
- 3.) On a scale of 1-5 (with 5 being thoroughly enjoy) how much do you enjoy learning new things and skills?
- 4.) On a scale of 1-5 (5 being always), how often do you perform a certain task in a particular way because it was done that way in the past?

Enable Others to Act

- 1.) On a scale of 1-5 (5 being the most often), how regularly do you seek interaction among members of a group/organization?
- 2.) Do you enjoy assigning tasks to other people, or do you prefer working on them by yourself?
 - a. Yes, I assign the tasks
 - b. No, I do them myself

Encourage the Heart

- 1.) On a scale of 1-5 (5 being often), how often do you acknowledge/reward others for their achievements?
- 2.) On a scale of 1-5 (5 being always, 1 being never) how often do you say thank you?
- 3.) Have you ever taken a class on creativity (examples: drawing, painting, photography, etc.) to build expressiveness?
 - a. Yes
 - b. No

Objective Questions:

- 1.) On a scale of 1-5, with 1 being not at all and 5 being very easily, how would you rate your ability to form connections with other members of your campus community?
- 2.) On a scale of 1-5, with 1 being not at all and 5 being excellent, how well do you feel that you set goals?
- 3.) On a scale of 1-5, with 1 being not well at all and 5 being excellent, how well do you feel like you accomplish the goals that you set?

4.) On a scale of 1-5, with 1 being not well at all and 5 being excellent, how well do you feel that you problem solve?

4.) On a scale of 1-5, with 1 being no impact and 5 being the most impactful, how would you rate the role that raising **companion animals** had in developing your leadership skills?

5.) On a scale of 1-5, with 1 being no impact and 5 being the most impactful, how would you rate the role that raising **livestock** animals had in developing your leadership skills?

6.) On a scale of 1-5, how strong of a leader do you feel you are amongst your peers?

Please answer the next question based off of the following definitions of the 5 leadership styles.

Encourage the Heart: This leadership style focuses on recognizing other people's strengths and expressing it to them. They celebrate accomplishments and use them to continue moving forward.

Enable Others to Act: These leaders make decisions in order to empower others. They work to build relationships and strengthen others around them.

Model the Way: This type of student leads by example. They serve in hopes to encourage others to take action.

Inspire a Shared Vision: These leaders see the shared visions among a group and get others involved to work towards them. They lead the group towards a common goal.

Challenge the Process: This leadership style focuses on making changes. They seek challenges and use them as opportunities to grow and evolve.

7.) Which of the following do you feel best describes your leadership style?

- a. Encourage the Heart
- b. Enable Others to Act
- c. Model the Way
- d. Inspire a Shared Vision
- e. Challenge the Process

Information for Incentives:

- 1.) If you wish to be considered into a drawing to win one of three \$100 Amazon gift cards for your participation in this survey, please enter your University of Arkansas email address as well as your student ID number below.

*Tables***Table 1: Types of Animals Raised and Average Scores of the Five Leadership Practices**

Types of Animals Raised	Participants	Model the Way	Inspire A Shared Vision	Challenge the Process	Enable Others to Act	Encourage the Heart
Companion	104	12.34	11.38	13.09	3.71	9.32
Both (Companion and Livestock)	61	12.44	11.36	13.16	3.67	9.02
None	159	12.46	11.29	13.01	4.13	9.13
<i>P</i> value	--	0.86	0.95	0.86	0.0036	0.37

Table 2: Chi-Square Analysis of Types of Animals Raised and Leadership Positions Held

Officer Positions Held	President	Vice President	Treasurer	Secretary
Chi-Square Value	0.9122	1.6623	5.1606	0.4823
Probability Value	0.6338	0.4355	0.0758	0.7857

Table 3: Chi-Square Analysis of Companion Animal Involvement and Leadership Positions Held

Officer Positions Held	President	Vice President	Treasurer	Secretary
Chi-Square Value	1.9005	1.2181	2.3301	0.5695
Probability Value	0.5933	0.7487	0.5068	0.9034

Table 4: Chi-Square Analysis of Livestock Animal Involvement and Leadership Positions Held

Officer Positions Held	President	Vice President	Treasurer	Secretary
Chi-Square Value	0.9380	3.4086	5.3062	1.3643
Probability Value	0.9191	0.4919	0.2573	0.8504

Table 5: Chi-Square Analysis of College Major and Leadership Positions Held

Officer Positions Held	President	Vice President	Treasurer	Secretary
Chi-Square Value	0.7770	1.9521	6.4649	1.7113
Probability Value	0.8550	0.5824	0.0110	0.8407

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