

LANDSCAPE ARCHITECTURE IN THE AG-ED CLASSROOM:  
CULTIVATING THE NEXT GENERATION OF DESIGNERS

by

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B.S., South Dakota State University, 2013

A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture and Regional & Community Planning  
College of Architecture, Planning and Design

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2016

Approved by:

Major Professor  
Howard Hahn

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# Landscape Architecture in the Ag-Ed Classroom:

Cultivating the next generation of designers

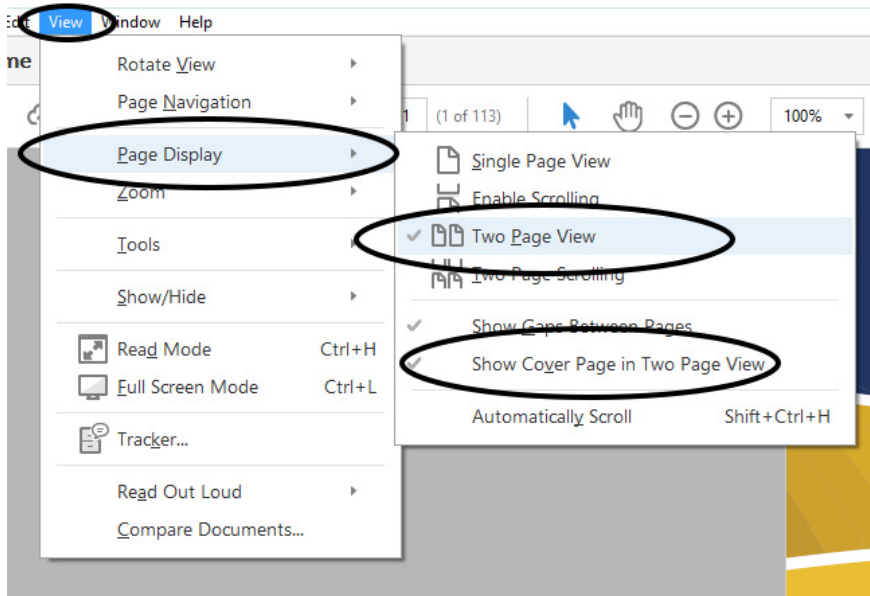
Erin Wilson



2016

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## **Landscape Architecture in the Ag-Ed Classroom**

Cultivating the next generation of designers

Erin Marie Wilson

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Masters Report submitted in partial fulfillment of the requirements for the degree of:  
Master of Landscape Architecture (MLA)

Major Professor: Howard Hahn

Supervisory Committee: Dr. Anne Beamish and Dr. Steve Harbstreit

Kansas State University

College of Architecture, Planning, and Design

Department of Landscape Architecture and Regional & Community Planning



LANDSCAPE ARCHITECTURE  
/ REGIONAL & COMMUNITY PLANNING  
THE COLLEGE of  
ARCHITECTURE, PLANNING & DESIGN // K-STATE



# Landscape Architecture in the Ag-Ed Classroom:

Cultivating the next generation of designers

Erin Wilson | Master of Landscape Architecture  
Major Professor Howard Hahn | Spring 2016





# Abstract

Landscape architecture education in schools have been focused primarily on elementary and secondary Common Core courses. In many states, career-oriented programs such as agricultural education serve as a platform to teach necessary skills to be successful in all aspects of the agricultural industry. With the shift in lifestyles and technology, agricultural education (Ag-Ed) today has branched out from the traditional farm management courses to food science, natural resources, and landscaping design as well as many others. At schools like Lennox High School in Lennox, South Dakota, students learn plant identification, fundamentals of landscape design, and design graphics. How comprehensive are students' awareness of the landscape architecture profession before, during, and after taking a landscaping course? What are the possibilities of reinforcing foundational skills learned in the landscaping coursework through an outdoor learning environment similar to practical application of other vocational-type courses? How could students be presented a snapshot of the landscape architecture profession that connects the current and future curriculum taught in the Ag-Ed classroom?

In order to better understand the landscape architectural aspects of current Ag-Ed, a mixed methods approach was used. First, national, state, and local Ag-Ed curricula standards were reviewed to track how Ag-Ed courses and priorities have changed over time. Next, Ag-Ed students were surveyed before, during, and after taking the Landscaping and Horticultural course offered at Lennox High School to assess potential changes in awareness. Lastly, students currently taking the landscaping course participated in a three-day workshop where they developed ideas for their outdoor learning environment to support current and future Ag-Ed courses and landscape architecture. After the workshop, these students took a post-survey to evaluate ideas produced in the workshop, the future implementation of the workshop, and their level of awareness of the landscape architecture profession.

Results from the surveys and workshop show a refinement and increase in landscape architecture awareness, a desire for more hands-on learning conducted outside, and an enthusiasm for using their creativity to design a project for future Ag-Ed students. In subsequent years, future iterations of the workshop will advance planning and design proposals toward implementation.

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# List of Abbreviations

**AFNR:** Agriculture, Food, and Natural Resources

**Ag-Ed:** Agriculture Education

**ASLA:** American Society of Landscape Architects

**CDE:** Career Development Event

**SAE:** Supervised Agriculture Experience

**SD CTE:** South Dakota Career and Technical Education

# Acknowledgments

Three years ago, I made the decision to continue my education and pursue a Master's degree at Kansas State University. Little did I know, I joined the K-State family. This project reflects the kindness, support, and encouragement from the K-State family, especially the faculty and staff of the LARCP Department and APDesign. I would not be the aspiring landscape architect today if it was not for the opportunities and challenges you gave me over my tenure at K-State.

Special thanks to Howard Hahn, my major professor. Your wisdom, confidence, and guidance has driven me to successfully complete this project. I appreciate your willingness and enthusiasm to learn more about my background in agriculture.

Additional thanks to my other committee members Anne Beamish and Dr. Harbstreit. Anne, thank you for continuing on this project with me and providing guidance in times of need. Dr. H, thank you for providing an outside perspective and for helping me delineate a doable project.

Thank you to Lennox High School Principal Chad Allison and Assistant Kory Williamson for your support of the project. To the Lennox Ag-Ed students, thank you for taking the surveys and participating in the workshop. Without your time and willingness, this project would not have succeeded.

To Kim James, thank you for supporting me on my academic journey for the past seven years. I appreciate your enthusiasm, insight, and friendship. You have greatly influenced me as a person who loves to share and build knowledge with others.

Richard, thank you for being my partner in crime since day one at K-State. I will always cherish your love, support, and guidance in life. Beth, thank you for all of the late night conversations in studio throughout the years. To Andrea and Morgan, thank you for being my support system and keeping my sanity. I wish the best for both of you as you continue your landscape architecture journey. I would also like to thank the #landarchcrew (Alfonso, Jonathan, Ally, Jared, Andrew, Wesley, Beth, and Taylor) for making this last year entertaining and memorable. You have been my family away from South Dakota. I appreciate your friendship and I look forward to seeing wherever the next chapter takes us.

To Dereatha and my students, thank you for letting me exercise my passion for teaching and mentoring. You have given me a purpose beyond just obtaining a Master's degree while being here. You all have contributed to my development as an aspiring landscape architect.



# Dedication

This is dedicated to my loving and generous family. There are not enough words to describe how your unconditional love, support, and encouragement has shaped me as a person for the past 24 years.

To Mom, thank you for being my support system and best friend in life. Your compassion for others has greatly influenced me to dedicate my life to serving others. You have been my biggest motivator to succeed in life.

To Dad, thank you for being my biggest fan and role model. You were very instrumental in introducing landscape architecture in my life. I appreciate your support and guidance to successfully complete this project. It would not have happened without you.

Alex, your humor, loyalty, and encouragement are appreciated. As my brother, you have given me a life full of love and laughter that has kept me entertained and surprised.

# 01

# INTRODUCTION

Driving forces

Dilemma

Research question

Boundaries/parameters

Relevancy to contemporary landscape architecture

Methods

Outcomes



# 01

## INTRODUCTION

### Driving Forces

Landscape architecture and agriculture share many common roots including horticulture, food systems, urban agriculture, edible landscaping, community gardens, land-use policy making, wildlife conservation, water conservation, and agricultural education (Philips 2013; NRC 1988). This document focuses on the potential education threads between landscape architecture and agriculture.

Agricultural education, also known as Ag-Ed, is defined as the “instruction [...] about the science, business, and technology of plant and animal production and/or about the environmental and natural resources systems” (The Council 2015). School-based agricultural education is comprised of three components: classroom and laboratory instruction, a supervised agricultural experience, and participation in FFA activities (National FFA Organization 2015). All three components of agricultural education incorporate aspects of landscape architecture. Agricultural education can serve as a platform for



teaching landscape architecture practices to a wide student audience. Nationally, 610,240 students are involved in FFA through 7,665 agricultural education programs including all 50 states, Puerto Rico, and the Virgin Islands (National FFA Organization 2015). Surprisingly, only 68 percent of agricultural education students live in rural areas and 32 percent of students live in urban settings (National FFA Organization 2015). Almost half of the national agricultural education programs in the United States offer horticulture-related classes (National FFA Organization 2015). Many landscaping and horticulture classes, like the one at Lennox High School in Lennox, South Dakota, also focus on landscape practices including site design, planting design, and design graphics. What if students could implement these foundational skills in an outdoor learning environment?

Outdoor learning opportunities consist of “outdoor adventure education, field studies, nature studies, outdoor play, heritage education, environmental education, experiential education, and agricultural education” (Rickinson et al. 2004, 15). A large component of agricultural education involves learning and applying hands-on skills discovered through a mixture of outdoor, experiential, and environmental education opportunities. Students in welding classes immediately apply their skills to actual hands-on projects. Can agricultural education classes, like landscape and horticulture, be better delivered and applied in an outdoor learning environment?

I was one of those Ag-Ed students and it was my agricultural education and FFA experiences at Lennox High School in Lennox, South Dakota that inspired me to pursue landscape architecture and fueled my passion for the environment. As the daughter of an educator, I have always been enthusiastic about school and learning new knowledge. I feel that landscape architecture can contribute to the agricultural education system by offering ways to design an environment that enhances students' learning outside of the classroom.

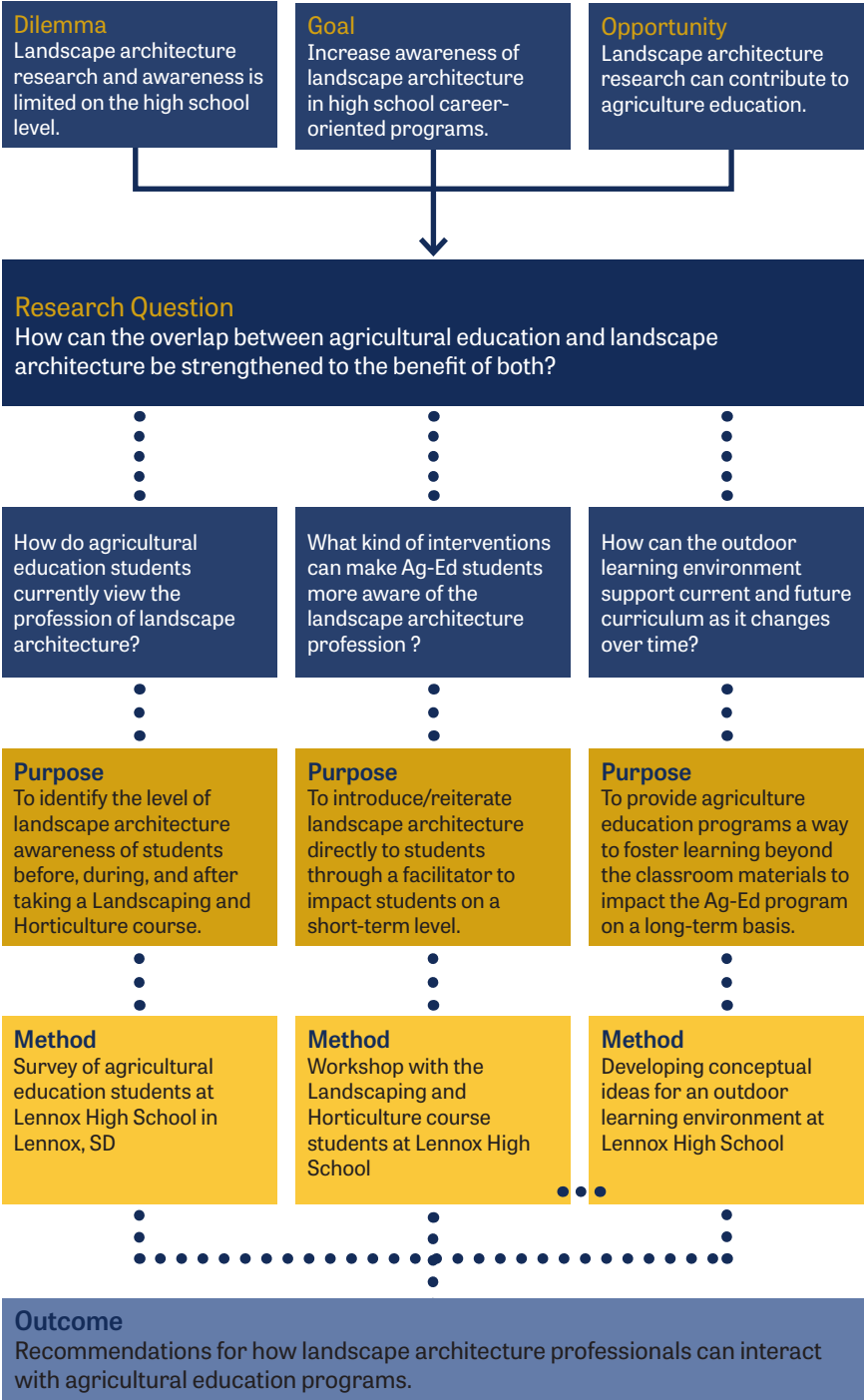
## Dilemma

When a person mentions agricultural education, people do not immediately think of landscape architecture or design. Only a few agricultural education curricula offer an introduction to the landscape. In the past, landscape related research in elementary and secondary education has primarily focused on outdoor learning settings, which often involve small vegetable, flower, and herb gardens that support the Common Core curriculum. Career-oriented programs such as agricultural education are often not included as potential participants in outdoor learning opportunities designed by landscape architects. Ag-Ed programs begin in junior high and high school, where they learn specific skills and knowledge about different facets of the agricultural industry. Many of these skills require hands-on teaching methods in order to be effective.

Students in rural states lack the knowledge and understanding of contemporary landscape architecture practices. South Dakota specifically doesn't have many examples of contemporary landscapes except for the downtown areas of Rapid City and Sioux Falls. Outdoor learning environments could serve as a vehicle for introducing landscape architecture to students in rural states. An outdoor learning environment can enhance several curricula programs in secondary schools while showcasing landscape architecture principles and practices as a visual example.

## Research question

With the overall goal of increasing awareness of the profession, the dilemma of limited research and awareness, and the opportunity for landscape architecture to contribute to Ag-Ed, this research investigates how the overlap between agricultural education and landscape architecture be strengthened to the benefit of both. Figure 1.1 depicts sub-questions of this research, the purpose behind each sub-question, the methods used to conduct the research, and the outcome of this research.



**Figure 1.1** | Research path (Author 2016)

## Boundaries/parameters

A preliminary outdoor learning environment master plan was designed for Lennox High School in Lennox, South Dakota. The high school sits on about 52 acres of land on the periphery of town. Lennox is located in the threshold between urban life in Sioux Falls and the rural landscape of eastern South Dakota. This site was chosen for several reasons. As an alumni of the vocational program at Lennox, I am already familiar with the curriculum and the agricultural educator, Jim Wilson. In addition, the Lennox Sundstrom FFA Chapter also receives substantial support from parents, faculty, and the community. The FFA chapter is also recognized as one of the top programs in the state and is involved in many events at the state and national levels. Also, this Ag-Ed program offers a Landscaping and Horticulture course and has a long history of being competitive in the Nursery/Landscape Career Development Event.

The envisioned outdoor learning environment will need to function for all facets of the agricultural education curriculum. In order to be financially feasible for a South Dakota public school, this outdoor learning environment will need to support a wide variety of courses taught in the school, in addition to supporting Common Core requirements. An aerial image of the site is presented in Figure 4.2.



**Figure 1.2 |** Lennox High School site boundary (Author 2016)

## Relevance to contemporary landscape architecture

Landscape architecture and agriculture share common themes like horticulture, food systems, urban agriculture, edible landscaping, community gardens, land-use policy making, wildlife conservation, and water conservation. Agricultural education has the opportunity to introduce current landscape practices such as urban agriculture and sustainable landscapes to high school students, which may inspire them to enroll in a post-secondary landscape architecture program. This project would give the landscape architecture profession an opportunity to contribute to the agriculture industry and to demonstrate how much they have in common.

## Methods

To assess the degree to which students in agricultural education are exposed to the field of landscape architecture, and their perceptions of what landscape architecture encompasses, I used a mixed-methods approach. A general assessment of the prevalence of landscape architecture related courses in ag-education was accomplished through a review of standard Ag-Ed requirements on a local, state, and national level. I then examined a group of agricultural education students' attitudes towards landscape architecture through surveys and a design workshop. The surveys uncovered agricultural interests, learning styles, and views on landscape architecture. The design workshop was a hands-on activity promoting students' interaction and creativity, and introduced them to the basics of the design process. Through this workshop, and future iterations, students will develop a deeper understanding of some of the practice realms of landscape architects. At the end of the workshop, participating students were asked to reflect about their experiences in the workshop and how they now perceive the landscape architecture profession.

All of the information gleaned from these methods was synthesized into a master plan for an outdoor learning environment at Lennox High School in



Lennox, South Dakota. The aim is for this process to spark the development of design guidelines for agricultural education programs across the United States and to serve as a model for ASLA recruitment strategies.

## Outcomes

The overarching goal is to strengthen the bond between agriculture and landscape architecture. The products of this report include an outdoor learning environment master plan for Lennox High School, conceptual imagery of the students' ideas, and promotional materials to promote landscape architecture to Ag-Ed students.

# 02

## BACKGROUND

Introduction

Changing agricultural practices and scale

Changing agricultural families/lifestyles

Diversification of agricultural education

Domain expansion of landscape architecture

Crossing boundaries





# 02

## BACKGROUND

### Introduction

This chapter describes the context of the agricultural industry, the landscape architecture profession, and how the two professions overlap through food systems, conservation efforts, and agricultural education. The agricultural industry and associated rural lifestyle are reviewed through changes in practices and scale, the change in families and lifestyles, and agricultural education. The landscape architecture profession is explained through a brief history, a dynamic definition, and domain expansion. This information sets the contextual base of both agriculture and landscape architecture in order to proceed with the study.

## Agriculture industry and the rural lifestyle

### Changing agricultural practices and scale

Agriculture is traditionally defined as “the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products” (“Agriculture | the Science or Occupation of Farming” 2015). However, this definition has evolved over time as the focus of the agriculture industry has expanded beyond animal and plant production. As a response to technology advancement, profession specialization, and lifestyle adjustments, the National Research Council’s Committee on Agricultural Education in Secondary Schools stated that agriculture embodies “the study of economics, technology, politics, sociology, international relations and trade, environmental problems, and biology” (NRC 1988, 8). Within the past few decades, modern agriculture has evolved to include communications, horticulture, natural resources, forestry, urban agriculture, health and nutrition, water and land conservation, science, and business (Romero 2010).

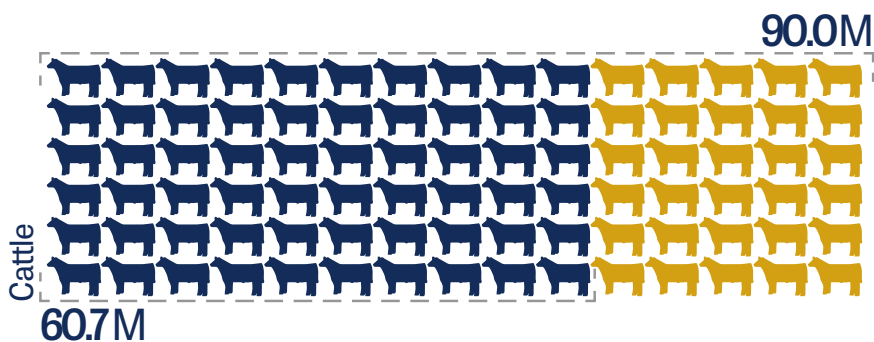
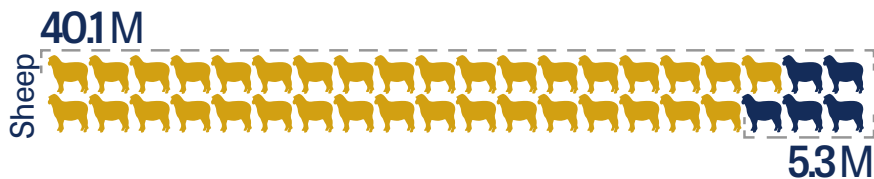
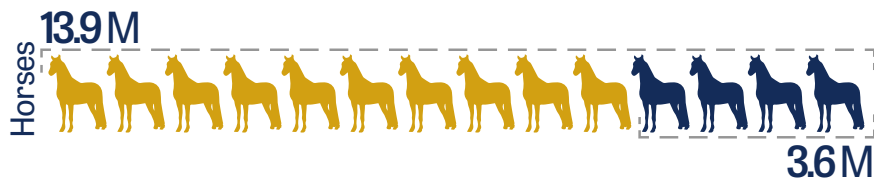
As the definition of agriculture has expanded over time, the scale of certain production areas have become more specialized. In the 1940 Census of Agriculture, there were about 6.1 million farms in the United States, with the average farm size being about 174 acres. Livestock on the farms were in higher concentrations across each species. The number of cattle totaled about 68.3 million, the number of sheep totaled about 48.4 million, the number of hogs totaled 37.2 million, and the number of combined horses and mules totaled about 11.9 million (USDA 1940). In the most recent decennial census, the number of farms reduced to about 2.1 million while the average farm size grew to 434 acres (USDA 2012). Cattle figures escalated 32 percent to about 90 million head and hogs jumped 77 percent to 66 million head (USDA 2012). Beef cattle production is the most common specialization due to reduced labor requirements, low cash demand, and the losses can be taken off the income from income outside of the farm (Hoppe 2006, 12).

Horses and ponies declined by 69.7 percent to only 3.6 million total. Also, the number of sheep rapidly decreased by 88.8 percent to just 5.4 million (USDA 2012). Figure 2.1 pictorially shows the comparison of livestock and farm numbers from 1940 to 2012.

The crop production picture has also changed over time. In the 1940 Census of Agriculture, the total number of barley bushels amounted to 261.0 million, 2.3 billion bushels of corn, 870.3 million bushels of oats, 87.6 million bushels of soybeans, and 708.9 million bushels of wheat (USDA 1940). In the most recent decennial census, bushels of barley decreased to 215.1 million, bushels of corn increased to 10.3 billion, bushels of oats decreased to 65.6 million, bushels of soybeans increased to 2.9 billion, and bushels of wheat increased to 2.2 billion (USDA 2012). Figure 2.2 compares the difference in bushel counts between 1940 and 2012.

1940

2012



**Figure 2.1** | Livestock and farm number comparison. (Author 2016)

1940

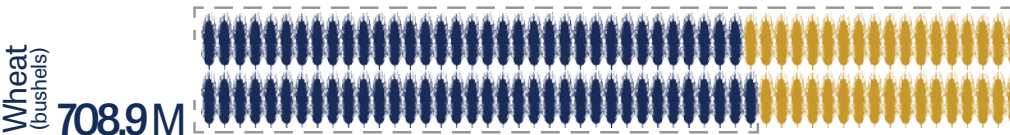
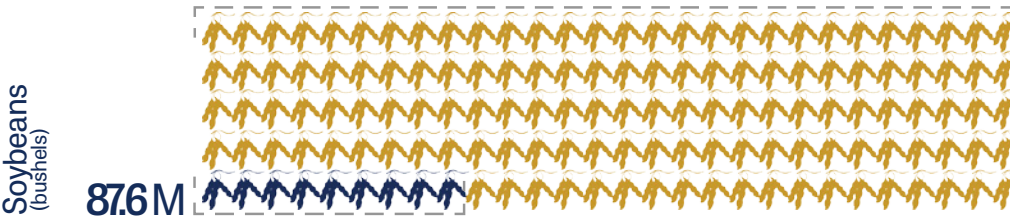
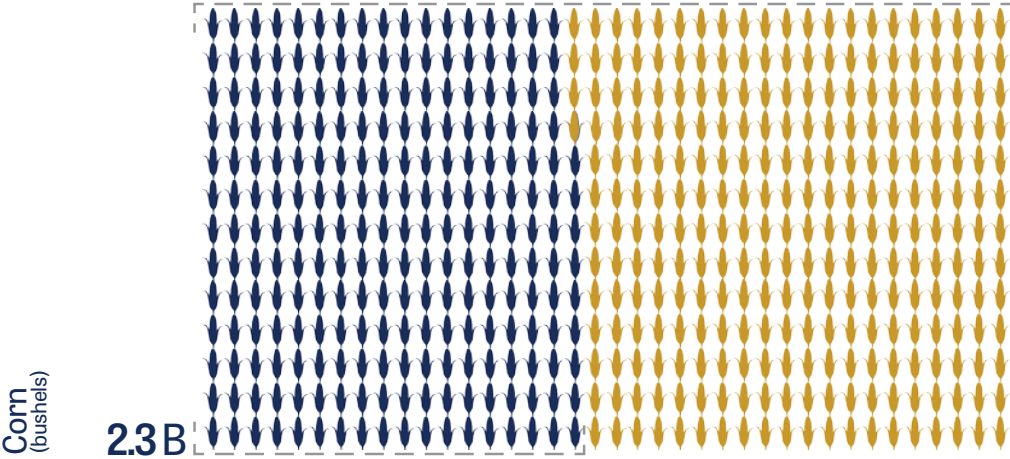
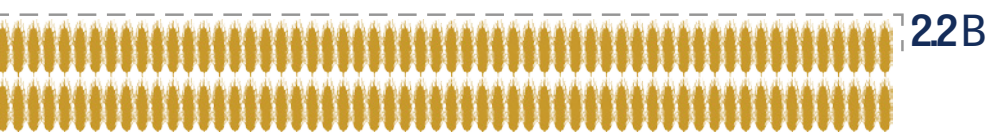
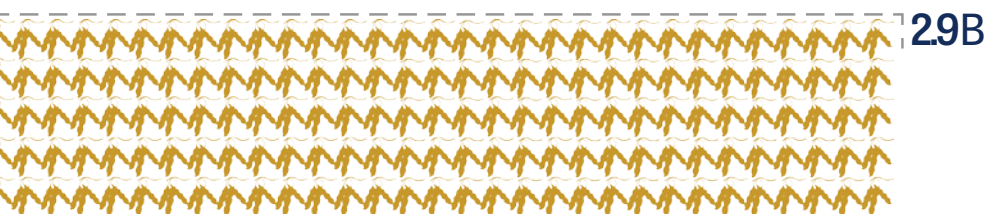
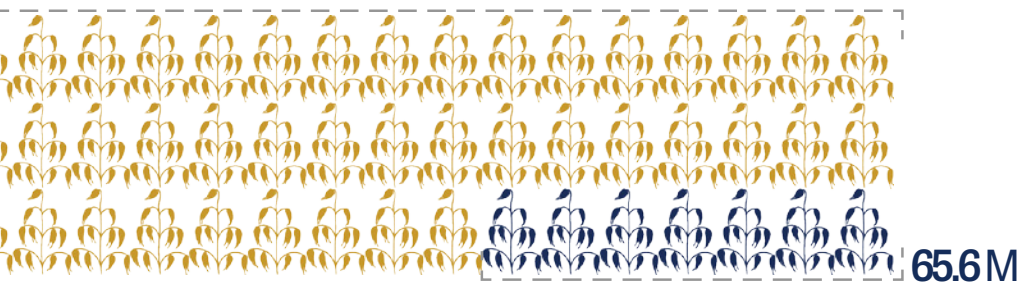


Figure 2.2 | Crop production comparison. (Author 2016)

2012



### **Changing agricultural families/lifestyles**

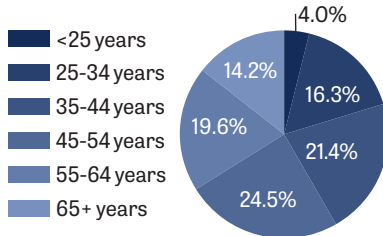
A common misperception is that all family farms are small in scale. The Economic Research Service (ERS) of the United State Department of Agriculture defines “family farms as those whose principal operator and people related to the principal operator by blood or marriage own most of the farm business. The principal operator is the person who is responsible for the on-site, day-to-day decisions of the farm or ranch business.” The ERS definition centers on who is in control versus the scale of the operation. Under this definition, 97.6 percent of all U.S. farms are family farms and they are responsible for 85 percent of the United States’ farm production (USDA 2015). The mean age of farmers is increasing due to farms merging together and the younger generations leaving for non-agricultural career paths and not coming back to the farm (Gale 2002; Hoppe 2006). The average American farmer was 48 years old in 1940 (USDA 1940). At the time, the farmer's kin took over the farm once the operator retired. However, the number of both old and young farmers steadily declined in 1978 with old farmers retiring and the future farmers gravitating towards non-agricultural career paths with better income projections (Hoppe 2006). This led to the average American farmer age of 58 years old in 2012 (USDA 2012). Figure 2.3 compares the 1940 and the 2012 farmer data. Technology advancements have contributed to the longevity of older farmers by providing operators with less strenuous work than in the past (Gale 2002). Soon, the farming sector will undergo another change as soon as these older operators retire or pass on.



# FARMER PROFILE

1940

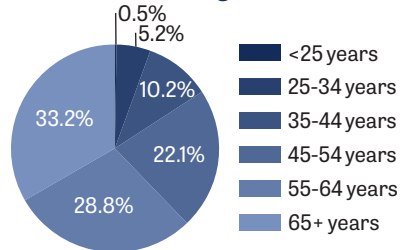
## Age of Farmer



Average Age: **48 years**

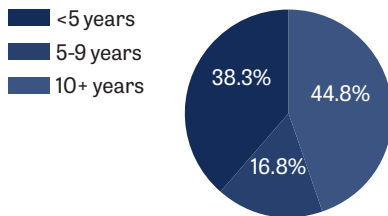
2012

## Age of Farmer



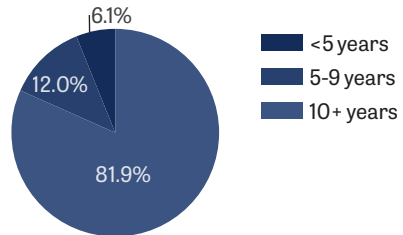
Average Age: **58 years**

## Years on Farm



Average Tenure: **12 years**

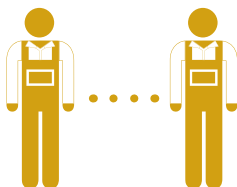
## Years on Farm



Average Tenure: **22 years**

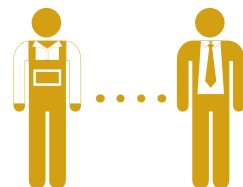
## Next generation:

Takes over farm



## Next generation:

Leaves farm for other work



**Figure 2.3** | Farmer profile comparison. (Author 2016)

## Agricultural education

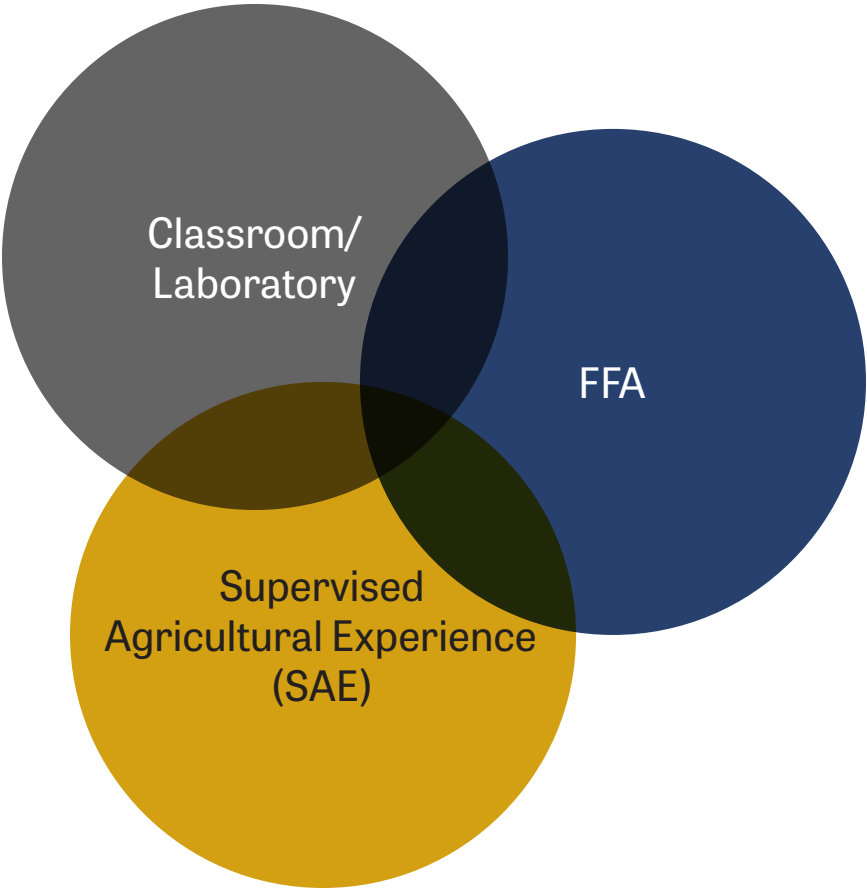
### Structure

The agricultural education (Ag-Ed) is comprised of three components. The first component is the classroom and laboratory instruction where “contextual, inquiry-based instruction and learning through an interactive classroom and laboratory” (FFA 2016). “Work-based, service, and/or experiential learning through the implementation of a Supervised Agricultural Experience Program” comprises the second component (FFA 2016). The third component focuses on “premier leadership, personal growth, and career success through engagement in FFA, PAS, or NYFEA programs and activities” (FFA 2016). Figure 2.4 shows a representation of the Ag-Ed components that is typically seen on a poster in the Ag-Ed classroom.

### Diversification of content

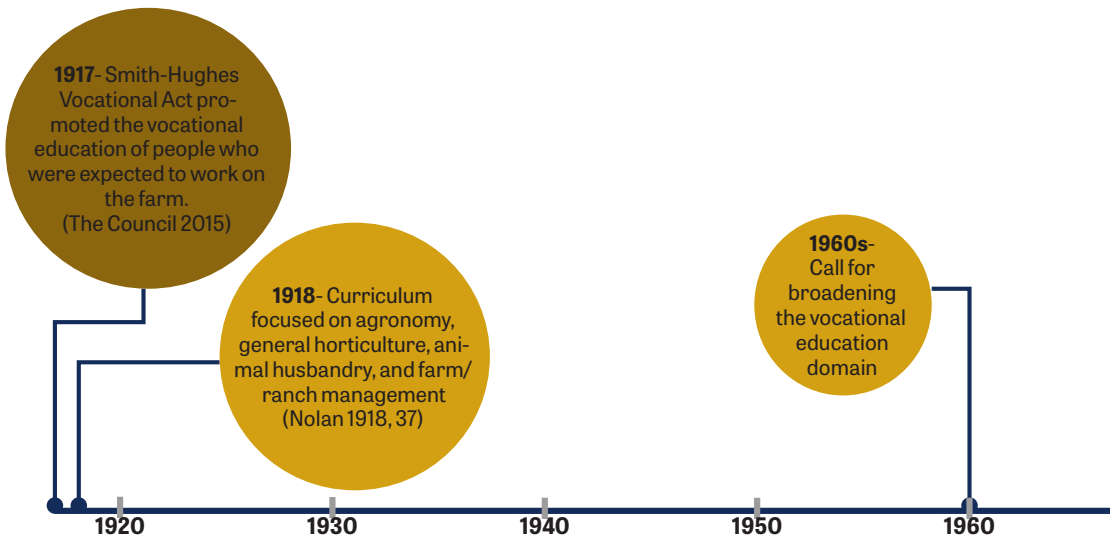
The agricultural education (Ag-Ed) curriculum has evolved over the years as interests in the agricultural sector broaden beyond traditional agriculture. In 1918, agriculture education focused more on agronomy, general horticulture, animal husbandry, and farm/ranch management. Agronomy concentrated on the botany of plants, commodity crop knowledge, crop management principles, associated farm implements, plant genealogy, pest management, and soils (Nolan 1918, 37). Usually, general horticulture closely followed agronomy in sequence as they both share common practices such as plant growth and breeding. However, horticulture centered on fruit tree management, vegetable production, floriculture, forestry, and landscaping (Nolan 1918, 57). In animal science courses, students studied livestock breeds as well as how to raise and tend to the animals (Nolan 1918, 46). The farm management class explored all aspects of developing a farm including farm types and suitable conditions, farm operators and employee responsibilities, farm implements and supplies, overall system operations, record-keeping and financial responsibilities (Nolan 1918, 73-4).

Moving forward, these traditional agriculture courses were expanded to meet the demands of changing demographics, lifestyles, and technology. In the 1980s, the National Research Council's (NRC) Committee on Agricultural Education in Secondary Schools made a call for action to expand the definition of agricultural education due to the evolving agricultural productivity and economic system (NRC 1988). The committee was charged for the development of skills relating to caring for the outdoor environment, whether it is cultivating a field of wheat or appreciating parks and gardens (NRC 1988).

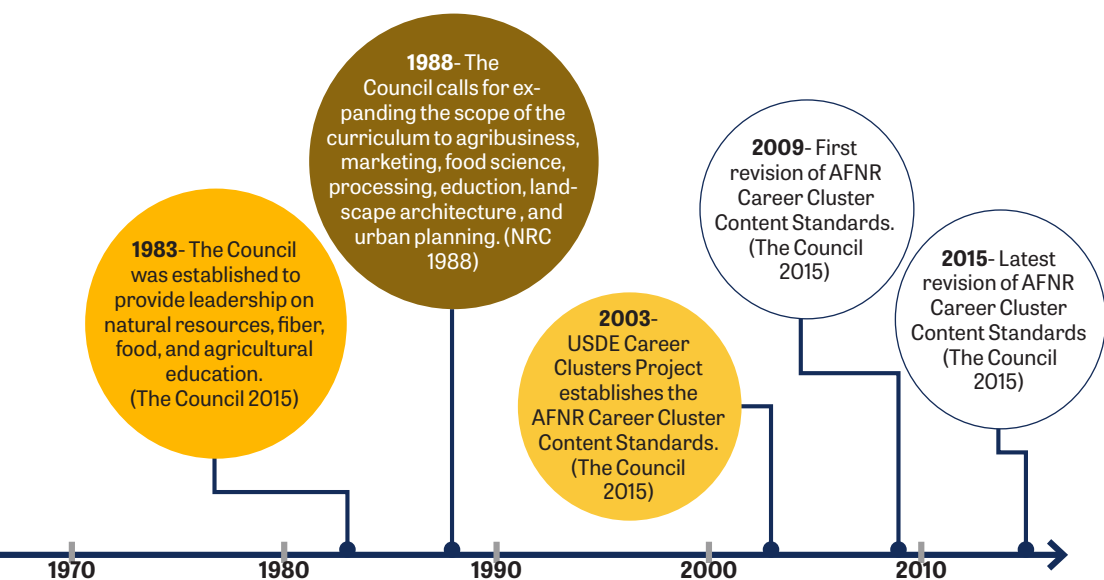


**Figure 2.4** | Ag-Ed components. (Author 2016)

With the demand for secure and bountiful food, fiber, and fuel systems, the content standards for the Agriculture, Food, and Natural Resources (AFNR) Career Cluster needed to expand to cover the growing, diverse, and specialized career pathways in agriculture. Agribusiness systems, animal systems, biotechnology systems, environmental service systems, food products and processing systems, natural resource systems, plant systems, and power, structural, and technical systems are the eight underlying themes across the agriculture education curriculum (The Council 2015, 2). More investigation on the current national curriculum can be found in “Chapter 04 Findings.” A timeline of the Ag-Ed content is displayed in Figure 2.5.



**Figure 2.5 |** Ag-Ed timeline. (Author 2016)



## Landscape architecture profession

The focus of landscape architecture has shifted and expanded to become a “360-degree profession” that encompasses endless opportunities (Foster 2010, 2). When the term “landscape architecture” was coined by Frederick Law Olmsted, landscape architecture began with a focus on public and private gardens, landscape construction, and park development. As the definition of agriculture expanded to meet the needs of society, the definition of landscape architecture has become more dynamic with continuously evolving meaning (Marshall 1972, 7). However, the definition of landscape architecture should maintain a commitment to nature and the environment (Marshall 1972, 7).

Landscape architecture can be defined as a profession that meaningfully fuses art, science, and technology in order to shape the built and natural environment. Landscape architects are charged with investigating, thoughtfully planning, creatively designing, and carefully managing diverse human environments. Landscape architects need to holistically understand civic, technical, and cultural knowledge in order to successfully create designs that are safe, attractive, and effective for people to experience (Purdue 2015; Rogers 1997; Marshall 1972; Foster 2010). Figure 2.6 shows landscape architecture project types promoted by the American Society of Landscape Architects.

Land planning  
Interior landscapes  
Security design  
Water resources  
Public gardens & arboreta  
Urban & suburban design  
Monument grounds  
Residential sites  
Parks & recreation  
Therapeutic gardens  
Streetscapes & public spaces  
Land reclamation & rehabilitation  
Hospital & other facility sites  
Transportation corridors & facilities  
Corporate & commercial grounds  
School & college campuses  
Landscape art & earth sculpture  
Hotels, resorts, & golf courses  
Historic preservation & restoration

**Figure 2.6** | Landscape architecture project types. (Author 2016)

## Crossing boundaries

Both professions share common concerns regarding land use policy-making, food systems, environmental conservation, and agricultural education. Professional landscape architects working in governmental capacities often influence land use policies and long-term planning that directly affect agricultural land (Jackson 2008). Farmers can also be directors of land use arrangements through their own property layout. Since the generational decline of family farming, the number of farmers left to cultivate land gives the power of land use decision-making to only a select few people (Jackson 2008).

Food systems are both influenced by agriculture and landscape architecture. A major shared thread between agriculture and landscape architecture is horticulture, which encompasses plant knowledge and growing practices that are important in food systems. Contemporary landscape architecture practices also expand agricultural opportunities into the city through urban farms, edible landscaping, and community gardens (Philips 2013). These urban agriculture opportunities require landscape architects to have a fundamental knowledge of food systems.

Environmental conservation is also a significant component of both landscape architecture and agriculture. A foundational aspect of landscape architecture is enhancing and protecting the environment through design. A common principle of design includes storm water management. Designers are often faced with storm water issues ranging from the residential scale to regional watersheds. Agriculture is also concerned with environmental stewardship. Farmers making land-use decisions also influence long term effects on local ecoregions (Jackson 2008). As traditional, large-scale farming has expanded to encroach on natural wetlands and other natural environments, alternative agriculture has moved forward towards smaller-scaled farms that either retain or expand natural areas (Jackson 2008).



Agriculture and landscape architecture are also linked by agricultural education. Traditionally, agricultural education focused on the instruction of vocational agriculture including crop production, livestock husbandry, and farm management. Many people today still believe that agriculture is only about farming. As a response to the lifestyle shift in the 1980s, the National Research Council (NRC) established the Committee on Agricultural Education in Secondary Schools in order to evaluate how agricultural education could maintain and improve domestic agricultural productivity as well as economic competition internationally and locally. Through their work, the committee found that the very definition of agricultural education needed to be broadened in order to adapt to forces such as changing demographics, lifestyles, and technology advancement (NRC 1988).

“In the committee’s view, vocational agriculture should give students the skills needed to enter and advance in careers such as farm production; agribusiness management and marketing; agricultural research and engineering, food science, processing, and retailing; baking; education; **landscape architecture; urban planning**; and other fields.” (NRC 1988 2-3).

As agricultural education moves forward today, the National Research Council is calling for more instruction in sustainable practices, natural resources, and stewardship (NRC 2009). Landscape architecture can be a way to facilitate knowledge and understanding of the natural and built environment in agricultural education students.

# 03

## METHODS

Introduction

Ag-Ed curriculum review

Ag-Ed student pre-survey

Workshop with students

Student post-survey

Conceptual master plan and photomontages

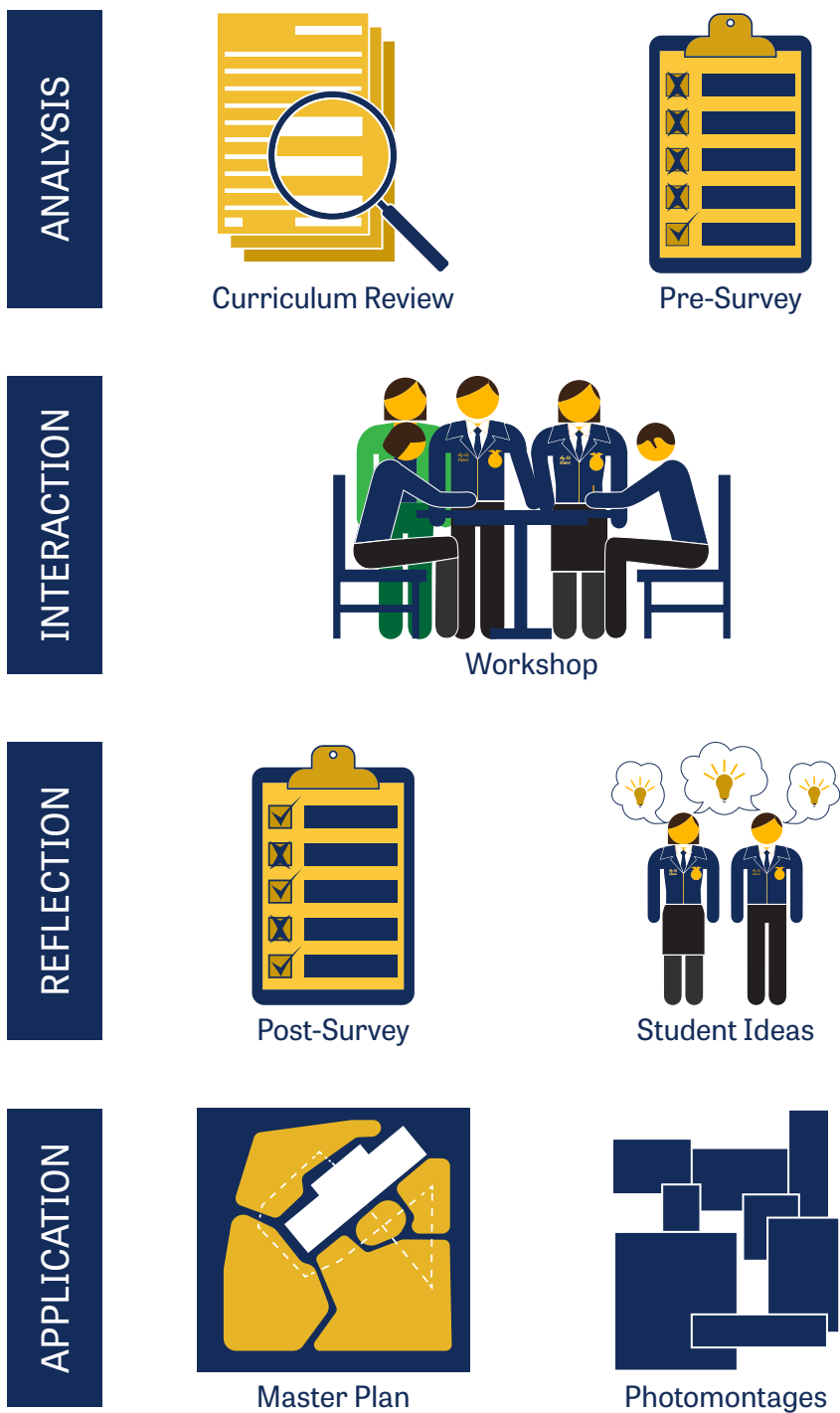


# 03

## METHODS

### Introduction

In order to better understand the landscape architectural aspects of agricultural education, a mixed methods approach was used as seen in Figure 3.1. First, national, state, and local agricultural education curricula standards were reviewed in order to trace where landscape architecture falls within the program. Next, a survey was distributed to all Ag-Ed students at Lennox High School (LHS) in order to gauge their current awareness of landscape architecture and assess the current delivered landscape curriculum content. A workshop was also conducted with the Landscaping and Horticulture students at LHS in order to brainstorm ideas and plan an outdoor learning environment for current and future Ag-Ed courses. After the workshop, another survey was administered to the participating students in order to gain their feedback on the effectiveness of the activities provided. This post-workshop survey would also reveal if the workshop increased general awareness of the landscape architecture profession, and if it sparked an interest among some



**Figure 3.1 |** Methods used in research. (Author 2016)



students to pursue a career in landscape architecture. After the post-workshop survey was complete, a conceptual master plan was created to guide future implementation. Finally, photomontages of the outdoor learning environment manifested from the workshop efforts in order to visually communicate the students' ideas in cohesive images.

### Ag-Ed Curriculum Review

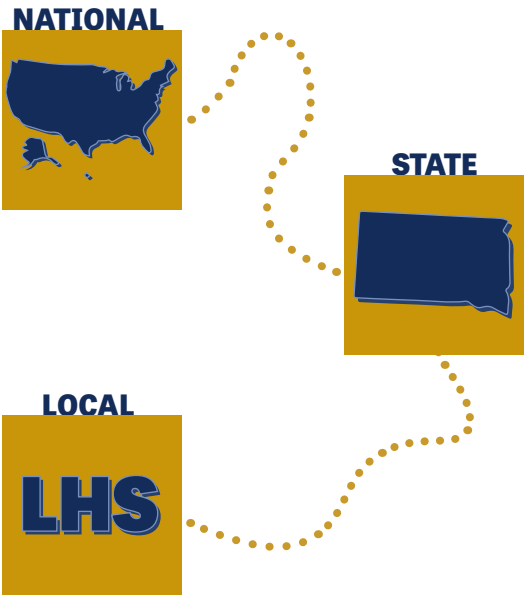
In order to understand the role of landscape architecture in agricultural education, a review of the curriculum was conducted to see where landscape architecture falls within Ag-Ed education standards. Landscape architecture potentially could fall within several categories, so the national standards were reviewed first.

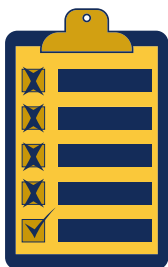
The national content standards for Agriculture, Forestry, and National Resources (ANFR) were retrieved from The National Council for Agricultural Education (The Council), who recently revised the standards in 2015. The Council partners with several organizations in “Team Ag-Ed” such as the National FFA Organization, National FFA Foundation, National Young Farmer Educational Association, United States Department of Education, National Association of Agricultural Educators, Association for Career and Technical Education, American Association for Agricultural Education, and many others to provide “the collective leadership voice for agricultural education in the United States” (The Council 2015). National umbrella topic areas were studied to identify their relevancy to landscape architecture as a whole. Content standard characteristics under investigation include the scope, sample careers, Common Career Technical Core Standards, performance indicators, and sample measurements.

Next, curriculum standards for agricultural education programs were examined at the state level. State data was collected from the South Dakota Department of Education Division of Career and Technical Education. Tiffany Sanderson, Director of the Division of Career and Technical Education (CTE),

and Michelle Nelson, Career Development Specialist in the Division of CTE, were contacted in early spring 2016 to supply data relevant to landscape architecture. In addition to knowing which Ag-Ed programs are teaching landscaping, the content standards provided the inclusion rationale, suggested the appropriate grade level, and outlined the foundational concepts to be covered. Core technical standards and examples were then reviewed to further understand the course expectations relative to the Ag-Ed educational standards.

Finally, the local level implementation of a landscape and horticulture course was reviewed at Lennox High School in Lennox, South Dakota, where the Landscaping and Horticulture course has been taught for 15 years. Mr. Jim Wilson, the agricultural educator, provided current course instruction goals, objectives, and sample lesson plans for research. Also, the other methods used in the overall study may provide additional insight on the effectiveness of this course. Once all data was collected, the information was outlined for further use by both agricultural education leaders and landscape architecture professionals.





## Ag-Ed Student Survey

An initial survey was used to assess current student exposure to the landscape architecture profession before, during, and after taking the Landscaping and Horticulture course. The goal of the survey was to understand the background of the student population, students' interest in the agricultural industry, and students' awareness of the landscape architecture profession. A copy of the initial survey questions is provided in Appendix A.

The target audience of the survey is all 78 high school students enrolled in Ag-Ed courses. This audience represents students who have taken the landscape and horticulture course, students who are currently taking the course this year, and younger students who have not yet taken the course. Seniors, who have taken the course, represent the experienced students who may have thoughts on how the course could be changed. The junior group represents students currently taking the course, and provides a “real-time” view. The freshmen and sophomores serve as the audience who could provide fresh ideas on what they perceive landscape architecture to be prior taking the course.

An application was submitted to the Institutional Review Board at Kansas State University in order to survey students. To comply with the standards for subjects under 18 years old, parents and guardians were sent a letter and consent form explaining the goals of the survey and asking for consent for their child(ren) to participate in the survey. If the parent or guardian felt that they did not want their child to participate, they did not return the consent form to the researcher. Once consent forms were returned to the researcher, a link connecting to the online Qualtrics survey was sent to the students by Mr. Wilson. Mr. Wilson provided students the opportunity to take the survey during their designated class time. The survey was open for four days to give students flexibility.



After survey completion, the data was analyzed to reveal consistencies and trends among groups of students. The survey showed students' overall awareness of landscape architecture, what they are currently interested in pursuing as a career, and if the survey sparked an interest in landscape architecture. This information guided the researcher in presenting the workshop with a better understanding of the students.

### Workshop with Students

In early March, a workshop was conducted with the Landscaping and Horticulture students at Lennox High School. The goals of the workshop included the application of skills learned in the classroom, the expansion of first-hand knowledge about landscape architecture, and the development of ideas for a real-world project like an outdoor learning environment. Generating ideas and designs for the outdoor learning environment gave the students a sense of ownership and pride towards what they contributed to the high school. The participants of the workshop were 17 juniors enrolled in the Landscaping and Horticulture course as well as one senior mentor. This class was large enough to split up into teams of three or four for collaboration. Like the survey, an application was submitted to the Institutional Review Board for research compliance with students under 18 years old. Parents and guardians were sent a letter, an informed consent form, and an image release form to sign in order for their child to participate in the research activity. All of the parents and students signed and returned the forms to the researcher. Copies of the IRB forms sent to parents are provided in Appendix B.



The workshop occurred during three Landscaping and Horticulture class periods of 85 minutes each. Students were given an overview of the landscape architecture profession and an overview of the outdoor learning environment project on the first day of the workshop. On the second day, the students began the design process on generating ideas for the outdoor learning environment in their assigned

teams. The final day consisted of a work day and team presentations. The workshop agenda is located in Appendix C.

The first session focused on a general overview of the landscape architecture profession. As a follow-up from the survey questions and results, the class discussed the differences between landscapes, landscaping, and landscape architecture. Students were given a handout of the updated American Society of Landscape Architects (ASLA) "Be a Landscape Architect!" presentation from 2008. In order to make the presentation more interactive, students were shown the video "I want to be a landscape architect" from the Be a Landscape Architect Team of The Landscape Institute. Then, the high school students were presented with example landscape architecture projects from Kansas State University (KSU) students to show the diversity of the profession as seen in Figure 3.2. To visually describe the design process, the class watched a video made by a KSU landscape architecture student. The students were presented with the outdoor learning project statement which explained the intent, overview, situation, outcome, schedule, and learning objectives. A copy of the project statement is located in Appendix C. Finally, students filled out notecards about their preferred role on a team, a rank order of three agricultural areas, and their preferred classmates for team formation. With a consultation from Mr. Wilson, the researcher assigned teams with all information provided by the students.

On the second day of the workshop, teams of three or four students were assigned to five different areas; animal science, plant science, environmental science, fabrication, and agricultural services/education. The senior mentor of the class was asked to float between the animal science and fabrication teams to assist idea generation. Although creativity was reinforced, students requested example products. Past KSU project product images were shown to the class including a cardboard model, a Sketchup 3D model, Pinterest boards, and hand



**Figure 3.2** | Presenter pointing to own work on the back wall of the classroom.  
(Wilson 2016)

sketches. As seen in Figure 3.3, the researcher went group to group answering questions and reiterating items on the project statement such as partnerships with community groups, different users throughout the year, activities and events throughout the year, surrounding field trip possibilities, and business sponsorship opportunities. Despite rainy weather, groups briefly went outside to view the potential areas for the outdoor learning environment. The majority of this class period focused on creative design ideas for each aspect of agricultural education as seen in Figures 3.4 and 3.5.



**Figure 3.3** | Interaction with the environmental science group. (Wilson 2016)





**Figure 3.4** | Agricultural services/education team. (Author 2016)



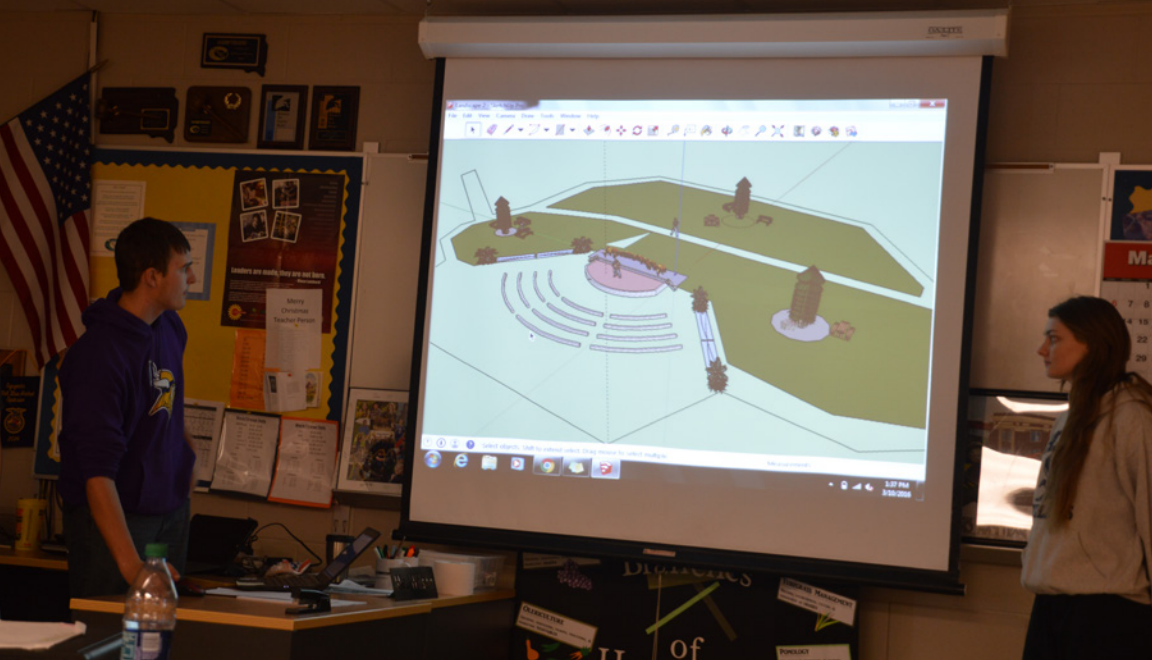
**Figure 3.5** | Fabrication team brainstorming ideas. (Wilson 2016)

On the final day of the workshop, groups continued working on their ideas and products for their presentations. Mr. Wilson was at a meat judging competition and substitute teacher Mr. John Kirchner, long-time supporter of Lennox Sundstrom FFA, supervised the class. A few students were also attending the South Dakota Girls State Basketball tournament. So, the post-survey was moved to the following class period when all of the students and Mr. Wilson returned to school. For the last half-hour of class, groups presented their ideas to the class as seen in Figures 3.6, 3.7, and 3.8. Each group had five to seven minutes to present their ideas and answer questions. All models and drawings were left in the classroom to be displayed on the back wall for other Ag-Ed students to see their ideas for an outdoor learning environment. The results of the workshop were discussed with Mr. Wilson for possible implementation in future courses.



**Figure 3.6** | Environmental science team presenting their ideas. (Author 2016)





**Figure 3.7** | Agricultural services/education group presenting their model. (Author 2016)



**Figure 3.8** | Plant science team explaining their barn and greenhouse. (Author 2016)



## Student Post-Survey

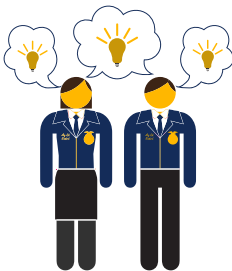
After the workshop, the participating Landscaping and Horticulture students were asked to reflect upon their experiences through another survey. Since Mr. Wilson and a few of the students were gone during the last day of the workshop, the class took the post-workshop survey during the following class period. Therefore, the Institutional Review Board application for research compliance with students under 18 years old was included with the workshop application. The post-workshop survey questions focused on students' new landscape architecture awareness, student workshop experience, future implementation of the workshop, and presentation of the workshop. To directly compare results with the pre-workshop survey, the same questions about landscape architecture awareness were reiterated in the post-workshop survey. All of the post-workshop survey questions can be found in Appendix D. Post-workshop survey questions about the future implementation of the outdoor learning environment influenced decisions in the conceptual master plan and photomontages.



Conceptual Master Plan and  
Photomontages

After reviewing the students' projects from the workshop, ideas were refined into a master plan list. Each idea has different requirements as far as how the idea will be implemented, how it will be paid for, who will ultimately build it, where it will be built, and when will it be implemented. This plan will help guide future Landscaping and Horticulture students design specific areas for the outdoor learning environment without losing the efforts from past workshop participants. This outdoor learning environment manifested as a “legacy project” for the current Landscaping and Horticulture students to leave a lasting impression on the Ag-Ed program and Lennox High School.

In addition to the master plan list, photomontages were designed for each agricultural education area to express a cohesive vision of the students' outdoor learning environment. Some teams from the workshop were enthusiastic and inspired with the outdoor learning environment project while other groups struggled to inspire and express themselves creatively. Knowing these risks, five photomontages were created by me to refine designs from the student groups. These photomontages elevate and demonstrate the students' designs through a landscape architecture lens. An example of the photomontages is shown in Figure 3.9.



**Figure 3.9** | Example photomontage. (Author 2015)

# 04

## FINDINGS

Introduction

Ag-Ed curriculum review

Ag-Ed student pre-survey

Workshop with students

Student post-survey

Conceptual master plan and photomontages



# 04

## FINDINGS

### Introduction

This chapter summarizes the curricula review of the national, state, and local standards, results from the Ag-Ed student pre-workshop survey, ideas produced by students in the workshop, results from the post-workshop survey, and conceptual master plan and photomontages. Figure 4.1 reiterates the methods used in this research to discover the findings.

ANALYSIS



Curriculum Review



Pre-Survey

INTERACTION

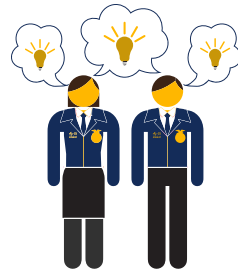


Workshop

REFLECTION



Post-Survey



Student Ideas

APPLICATION



Master Plan



Photomontages

**Figure 4.1** | Methods that led to the findings of the research. (Author 2016)



## NATIONAL



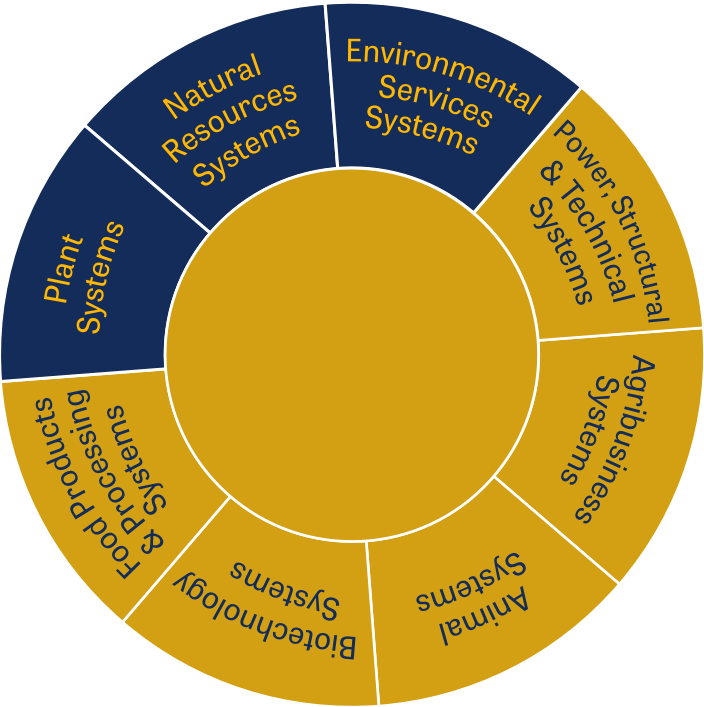
## Ag-Ed Curriculum Review

### National AFNR Standards

In Agriculture, Food, and Natural Resources Content Standards, landscape architecture connects to three career pathways: environmental service systems, natural resource systems, and plant systems as seen in Figure 4.2. Landscape architecture relates to environmental service systems through procedures, policies and regulations, and environmental issue solutions. Landscape architects utilize the newest technology to record information in order to design a site. Landscape architects also serve as surveyors and planners to accurately depict relevant environmental factors including physiology, ecology, hydrology and climatology. Landscape architects utilize field sampling of ecologies through the site inventory and analysis component of the design process. The ecologies of a site can largely impact the work of landscape architects. To be sustainable and ecologically conscious of a region, landscape architects sample the current landscape to identify how it fits within a local and regional ecology. Landscape architects also have to comply with local, regional, and national policies and regulations in order to guarantee the public's health, safety, and welfare in all design situations. Also, landscape architects can influence policy-making decisions through advocacy and awareness about environmental issues and ethics.

The natural resources system pathway focuses on the sustainability of natural resources management and the human natural resources relationship. Landscape architects practice visual resource management by “preserving or enhancing the aesthetic quality of an area” (Simmonds 2010, 210). In addition, landscape architects recognize natural resource issues and how problems can be solved through design. The Common Career Technical Core (CCTC) Standard NRS. 02 states “Analyze the interrelationships between natural resources and humans” (The Council 2016, 98). Landscape architects enhance the relationship between humans and nature to the benefit of both.

In the plant systems pathway, design appears in the Common Career Technical Core (CCTC) Standard PS.04. This CCTC standard states, “Apply principles of design in plant systems to enhance an environment” (The Council 2015, 115). In the first performance indicator, skills acquired in this CCTC standard include “evaluating, identifying and preparing plants to enhance an environment” and “create designs using plants” (The Council 2015, 115-6). Many of the sample measurements represent the fundamentals of design including plants identification, planting design, tools and techniques, landscape ecology, and sustainability (The Council 2015, 115-6). Table 4.1 shows the CCTC standard, performance indicators, and sample measurements for PS.04. Even though the words “landscape,” “landscape plans,” and “landscape designs” appear in the table, The National Council for Agricultural Education does not list “landscape designer” or “landscape architect” as a potential career for students.



**Figure 4.2** | National AFNR Standards that relate to landscape architecture.  
(Author 2016)





## PS.04. Apply principles of design in plant systems to enhance an environment (e.g. floral, forest landscape, and farm).

### PS.04.01. Evaluating, identifying and preparing plants to enhance an environment.

**Sample Measurement:** The following sample measurement strands are provided to guide the development of measurable activities (at different levels of proficiency) to assess students' attainment of knowledge and skills related to the above performance indicator. The topics represented by each strand are not all-encompassing.

**PS.04.01.01.a.** Identify and categorize plants by their purpose (e.g., floral plants, landscape plants, house plants, etc.).

**PS.04.01.01.b.** Demonstrate proper use of plants in their environment (e.g., focal and filler plants in floriculture, heat tolerant and shade plants in a landscape design, etc.).

**PS.04.01.01.c.** Install plants according to a design plan that uses the proper plants based on the situation and environment.

**PS.04.01.02.a.** Summarize the applications of design in agriculture and ornamental plant systems.

**PS.04.01.02.b.** Create a design utilizing plants in their proper environments.

**PS.04.01.02.c.** Evaluate a design and provide feedback and suggestions for improvement (e.g., a floral arrangement, a landscape or a landscape plan, etc.).

### PS.04.02. Create designs using plants.

**Sample Measurement:** The following sample measurement strands are provided to guide the development of measurable activities (at different levels of proficiency) to assess students' attainment of knowledge and skills related to the above performance indicator. The topics represented by each strand are not all-encompassing.

**PS.04.02.01.a.** Research and summarize the principles and elements of design for use in plant systems.

**PS.04.02.01.b.** Apply principles and elements of design that form the basis of artistic impression.

**PS.04.02.01.c.** Analyze designs to identify use of design principles and elements.

**PS.04.02.02.a.** Identify and categorize tools used for design (e.g., computer landscape software, drawing tools, florist tools, etc.).

**PS.04.02.02.b.** Demonstrate the use of tools used for creating designs.

**PS.04.02.02.c.** Choose and properly use appropriate tools to create a desired design.

**PS.04.02.03.a.** Explain the concept of landscape ecology and summarize factors that shape the ecology of a landscape (e.g., composition, structure, function, etc.).

**PS.04.02.03.b.** Research and provide examples of ecological factors incorporated into landscape designs.

**PS.04.02.03.c.** Utilize green technologies and sustainable practices that prevent or limit negative environmental impacts.

**Table 4.1 | PS.04. Content Standards. (Author 2016)**

## STATE



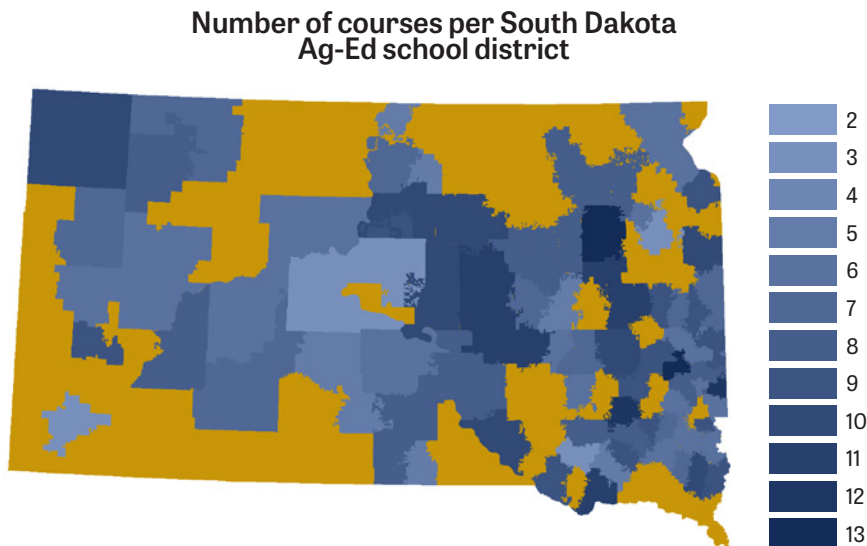
### South Dakota AFNR

On the state level, South Dakota Agriculture, Food, and Natural Resources career cluster offers 31 courses within the agribusiness systems pathway, animal systems pathway, plant systems pathway, natural resource systems pathway, environmental service systems pathway, and power, structural, and technical systems pathway as depicted in Figure 4.3. Each agricultural educator has the option to choose which courses are appropriate for their students depending on the context of the program. Therefore, agricultural education (Ag-Ed) course content varies from classroom to classroom across the state. According to 2015-2016 data provided by Michelle Nelson of the South Dakota Career and Technical Education office, there are 85 Ag-Ed programs across the state that offer between two and thirteen courses (SD CTE 2016). Figure 4.4 shows Ag-Ed school districts in blue. The darkest blue shade represents thirteen courses offered and the lightest blue shade represents two courses in the school district. Yellow represents where Ag-Ed courses are not taught. All of South Dakota Ag-Ed programs may not use the exact same course titles, but the content between different schools aim towards the general course content.

South Dakota Ag-Ed offers six courses in the plant systems pathway: Horticulture, Fundamental Plant Science, Advanced Plant Science, Floriculture, Greenhouse Management, and Landscape, Design, and Maintenance. Twenty-three schools offer Fundamental Plant Science, 22 schools offer Horticulture, and 13 Ag-Ed programs offer Landscape, Design, and Maintenance. Figure 4.5 shows the locations of the Ag-Ed programs that offer these three courses. The darkest blue shade represents the Ag-Ed programs that offer Landscape, Design, and Maintenance, the middle blue shade represents programs that offer Horticulture, the lightest blue shade represents the programs that offer Fundamental Plant Science, and the Ag-Ed programs that do not offer any of these three courses are shown in the gray shade.

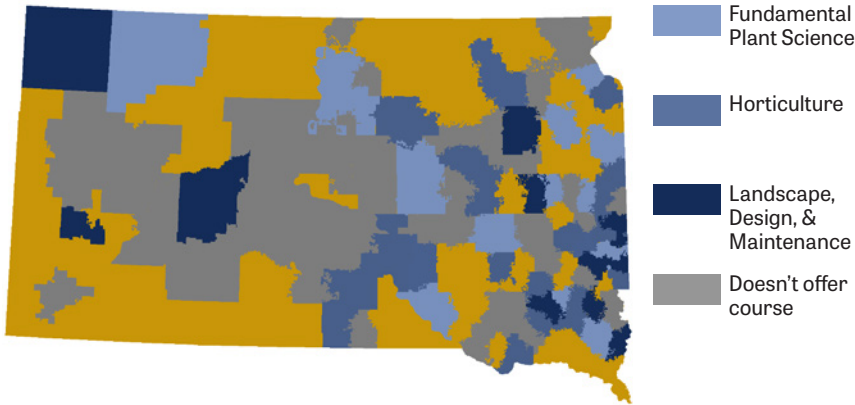
Ag Metal Fabrication Technology  
 Introduction to AFNR Ag Communications Horticulture  
 Greenhouse Management Environmental Science  
 Ag Power Technology CASE Animal & Plant Biotechnology  
 Companion Animals Agribusiness Sales & Marketing  
 Ag Processing Technology CASE Animal Science  
 Advanced Plant Science CASE Introduction to AFNR  
 Ag Biotechnology Advanced Ag Structures Technology  
 Landscape, Design & Maintenance  
 Fundamental Ag Mechanics Advanced Animal Science  
 Leadership & Personal Development Natural Resources  
 Fundamental Ag Structures Technology Food Science  
 Floriculture Wildlife & Fisheries CASE Plant Science  
 Fundamental Animal Science Agriscience  
 Fundamental Plant Science Agribusiness Entrepreneurship  
 Middle School Introduction to AFNR

**Figure 4.3** | South Dakota AFNR courses. (Author 2016)



**Figure 4.4** | South Dakota Ag-Ed school districts. (Author 2016)

South Dakota Ag-Ed Fundamental Plant Science, Horticulture, or Landscape, Design, & Maintenance school locations



**Figure 4.5** | SD Ag-Ed that offer courses related to landscape architecture.  
(Author 2016)

In 2001, South Dakota agricultural education (Ag-Ed) went from teaching Ag I, II, III, and IV to more specialized course titles within the Career and Technical Education Agriculture, Food, and Natural Resources division. The change from generalized courses led to developing course offerings like the Landscape, Design, and Maintenance course. As seen in Table 4.2, this course focuses on site inventory and analysis, graphic representation, combining form and function, plant identification, contracting, maintenance, and technical software (SD CTE 2015). Suggested “work-based learning strategies” to enhance the course include projects on school grounds and field trips to appropriate nearby businesses and project areas. Students could complete the standards’ recommended projects like designing a landscape plan, selecting plants for the site, installing plants on a site, installing hardscapes on a site, utilizing maintenance techniques, and working with relevant software. The standards also mention that possible career options include nursery owner and operator, landscape designer, and landscape construction (SD CTE 2015).

Landscape, Design, and Maintenance Core Standards		
<b>Indicator #1: Develop an outdoor environment based on the elements of design.</b>		
<b>Creating</b>	<b>LDM1.1</b>	<b>Design a landscaping plan based on design elements and principles.</b>
	<b>Examples</b>	Conduct a site evaluation for physical condition and design implications. Apply elements of design (line, form, texture, and color). Incorporate principles of design (space, scale, proportion, and order). Use landscape design drawing tools or industry-specific software. Calculate total cost of a landscape plan (plants, labor, and materials).
<b>Applying</b>	<b>LDM1.2</b>	<b>Choose materials and plants for landscape design based on quality and stages of growth.</b>
	<b>Examples</b>	Select landscape plants for a given plan. Select landscape hard goods. Identify landscaping plants. Identify methods of weed control. Identify water requirements for plants.
<b>Indicator #2: Implement the fundamentals of plant design installation.</b>		
<b>Applying</b>	<b>LDM2.1</b>	<b>Install plant material according to a landscape design.</b>
	<b>Examples</b>	Read a landscape plan. Prepare outdoor seedbed. Describe methods of laying sod. Evaluate and demonstrate planting practices.
<b>Applying</b>	<b>LDM2.2</b>	<b>Install material as assigned by a landscape design.</b>
	<b>Examples</b>	Apply soil mulches. Install hard goods (edging, fabric, and structures).
<b>Indicator #3: Use the fundamentals of plant care to maintain a landscaped area.</b>		
<b>Applying</b>	<b>LDM3.1</b>	<b>Apply plant management practices in a landscape maintenance plan.</b>
	<b>Examples</b>	Interpret environmental conditions to foster plant growth and development. Maintain and operate gardening equipment. Trim and prune hedges/shrubs. Prune ornamental trees. Control plant growth. Maintain lawn/turf. Develop pest management plans based on pest life cycles.
<b>Applying</b>	<b>LDM3.2</b>	<b>Appraise a landscape area for water requirements.</b>
		Identify water needs of plant families. Report on the benefits of xeriscaping. Illustrate an irrigation system. Monitor irrigation system output.

**Table 4.2 | Landscape, Design, and Maintenance Core Standards. (Author 2016)**



## **Lennox High School Ag-Ed Program**

Following changes in South Dakota AFNR course titles in 2001, the Lennox High School Ag-Ed program has been offering courses in Introduction to Agriculture Industry, Animal Science, Landscaping and Horticulture, Agricultural Business and Mechanics, Welding, Advanced Welding, Companion Animal Science, Leadership in Agriculture, and Equine Science over the years as seen in Figure 4.6. Currently, the program has freshmen taking the Introduction to Agriculture Industry, sophomores taking Animal Science, juniors taking Landscaping and Horticulture, and seniors taking Agricultural Business and Mechanics as well as a mix of students taking Welding. Middle School Introduction to AFNR is a new addition to the curriculum in the fall of 2015 as a rotating wheel course, where twelve students take the course for nine weeks before moving on to the next wheel course.

The Landscaping and Horticulture course combines both the Horticulture and Landscape, Design, and Maintenance standards at the state level with more emphasis on landscaping. The materials used in the Landscaping and Horticulture course include the textbook and workbook *Landscaping Principles & Practices* by Jack E. Engles and Ferrell M. Bridwell as seen in Figure 4.7. This textbook and exercises cover learning materials and equipment, using a scale, drawing fundamental graphic symbols, developing planting schemes, applying elements of design, sketching thumbnails, and calculating take-offs (Bridwell 2004). The final project gives students the opportunity to choose their own site: a house, farm, et cetera, and design the landscape using all of the previous lessons (Lennox Ag-Ed Archives 2016). The Nursery/Landscape Career Development Event (CDE), also provides opportunity to apply the lessons learned outside of the normal classroom setting into a friendly competitive environment.

Middle School Introduction to AFNR

Introduction to Ag Industry

Welding

Animal Science

Landscaping & Horticulture

Companion Animal Science

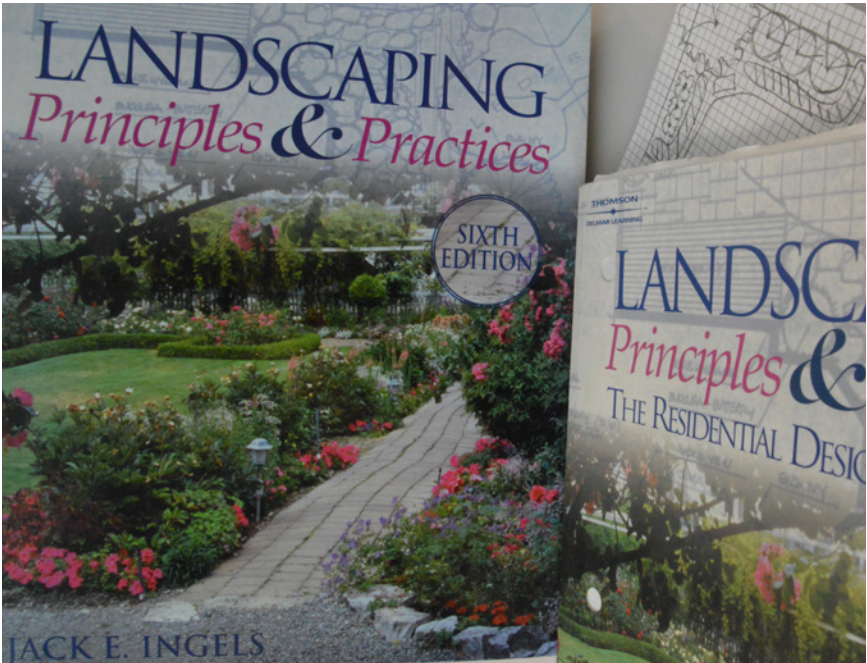
Agricultural Business & Mechanics

Equine Science

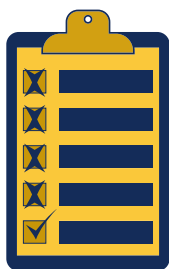
Advanced Welding

Leadership & Personal Development

**Figure 4.6** | Lennox Ag-Ed course offerings. (Author 2016)



**Figure 4.7** | Textbook and workbook used by Lennox Ag-Ed. (Author 2016)

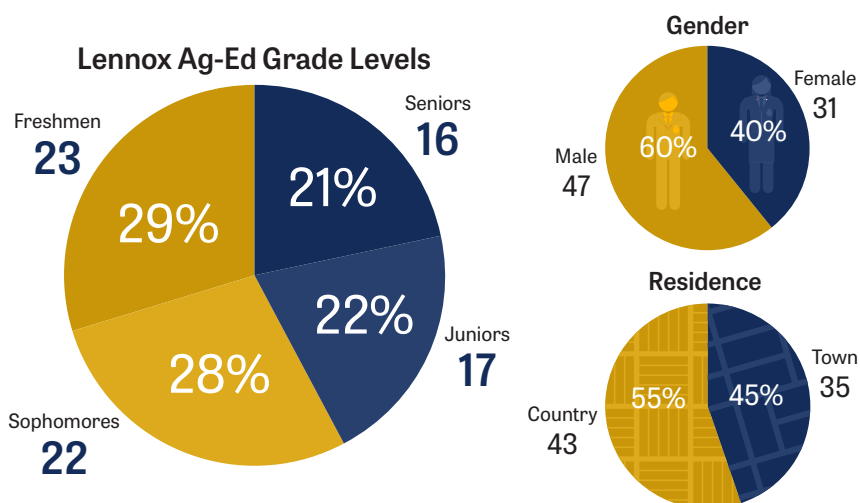


## Ag-Ed Student Pre-Workshop Survey

A 25-question online survey was distributed to agriculture education (Ag-Ed) high school students at Lennox High School in Lennox, South Dakota. With written consent from the participants and their guardians, all 78 Ag-Ed students partook with a 100 percent response rate.

### Participant Demographics

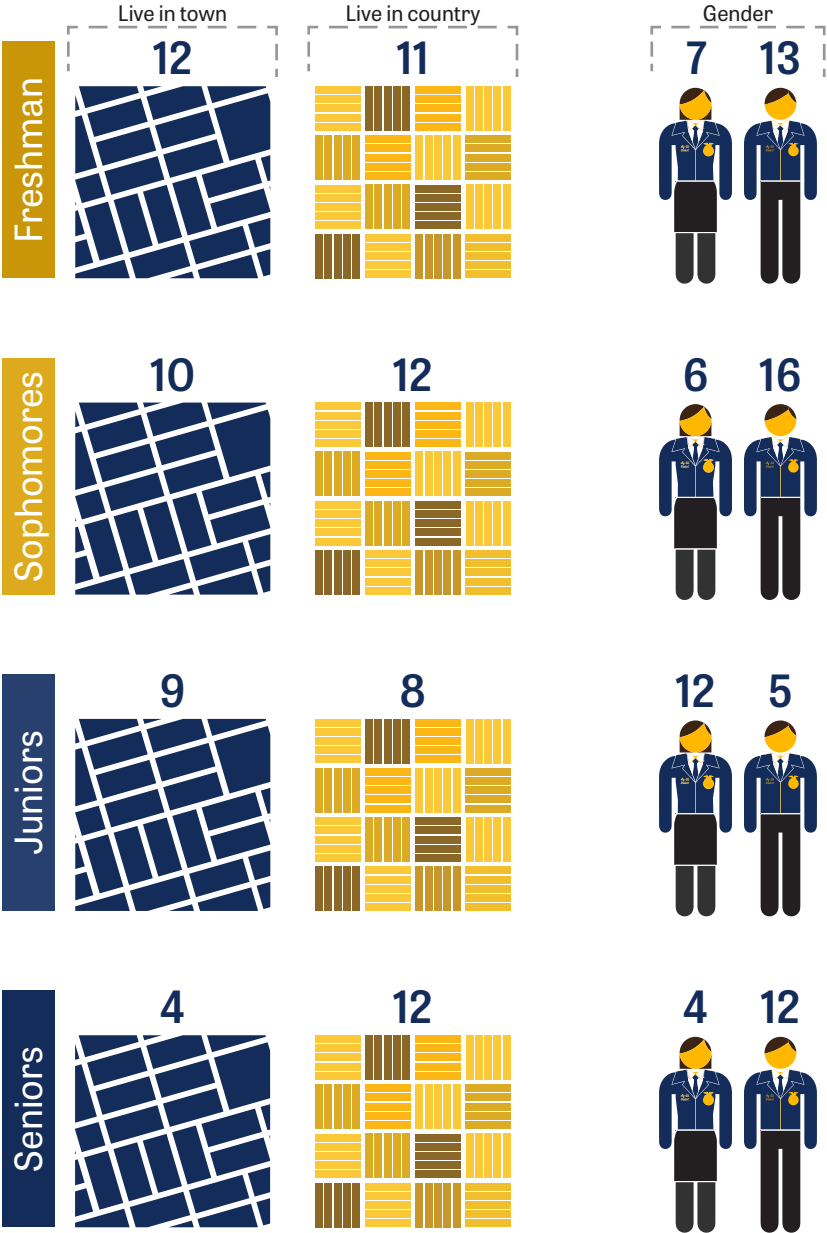
Respondents who took the survey were asked general questions about their background including what grade they are currently in, what gender they identify with, and whether they live in town or in the country. Sixty percent of the survey respondents were male and 40 percent female. The majority of each grade consisted of male students except the junior class, where the class is 70 percent female. Respondents' answers as to where they live revealed the characteristics of a community on the fringe between a large city and rural country. Forty-five percent of the survey respondents said they live in town while the other 55 percent responded that they live in the country. Each individual grade was fairly split in residence location except the senior class where 75 percent of students live in the country. Figure 4.8 shows the overall demographics of the survey participants and Figure 4.9 divides the demographics by each grade level.



**Figure 4.8** | Lennox Ag-Ed student survey participants profile.(Author 2016)



# LENNOX AG-ED STUDENT SURVEY CLASS PROFILES



**Figure 4.9** | Lennox Ag-Ed student survey class profiles. (Author 2016)

### Student personal interests

Survey respondents were asked “what area(s) of agriculture excite you the most?” as a multiple response question. Just over 51 percent of students selected animal science, half of the students chose natural resources, just under 45 percent selected fabrication, about 23 percent chose crops or plant science, and about 20 percent selected agricultural services as an answer. One student wrote “Landscape design” as another answer that excites them beyond the provided responses. These results are shown in Figure 4.10.

Another question posed to participants asked, “In 20 years, do you see yourself working in the agriculture industry?” While 42 percent of the respondents were undecided, 31 percent were “unlikely or very unlikely” to work in the agriculture industry and 21 percent of the respondents felt that they were “likely or very likely” to work in the agriculture industry in 20 years.

#### Agricultural services

education, marketing,  
business, etc.

20.5% (16 students)

#### Crops

small and large scale

23.1% (18 students)

#### Fabrication

welding, woodworking, etc.

44.9% (35 students)

#### Natural resources

environment, wildlife,  
conservation, etc.

50.0% (39 students)

#### Animal science

livestock, small animals

51.3% (40 students)

#### Other:

“hunting”

-Freshman

“cars”

-Freshman

“floriculture”

-Junior

“Landscape design”

-Junior

**Figure 4.10** | Ag-Ed student agriculture interest areas. (Author 2016)

Student learning preferences

Participants were asked to rank their degree of agreement or disagreement on how they learn classroom material best. Almost 95 percent of the responders learn best through visuals, 91 percent of students felt that they learn best through physical or tactile teaching techniques, and about 76 percent of respondents learn through logical or systems thinking. Also, about 71 percent of students responded that they “like to study with others compared to studying alone.” The results from all responses are located in Figure 4.11.

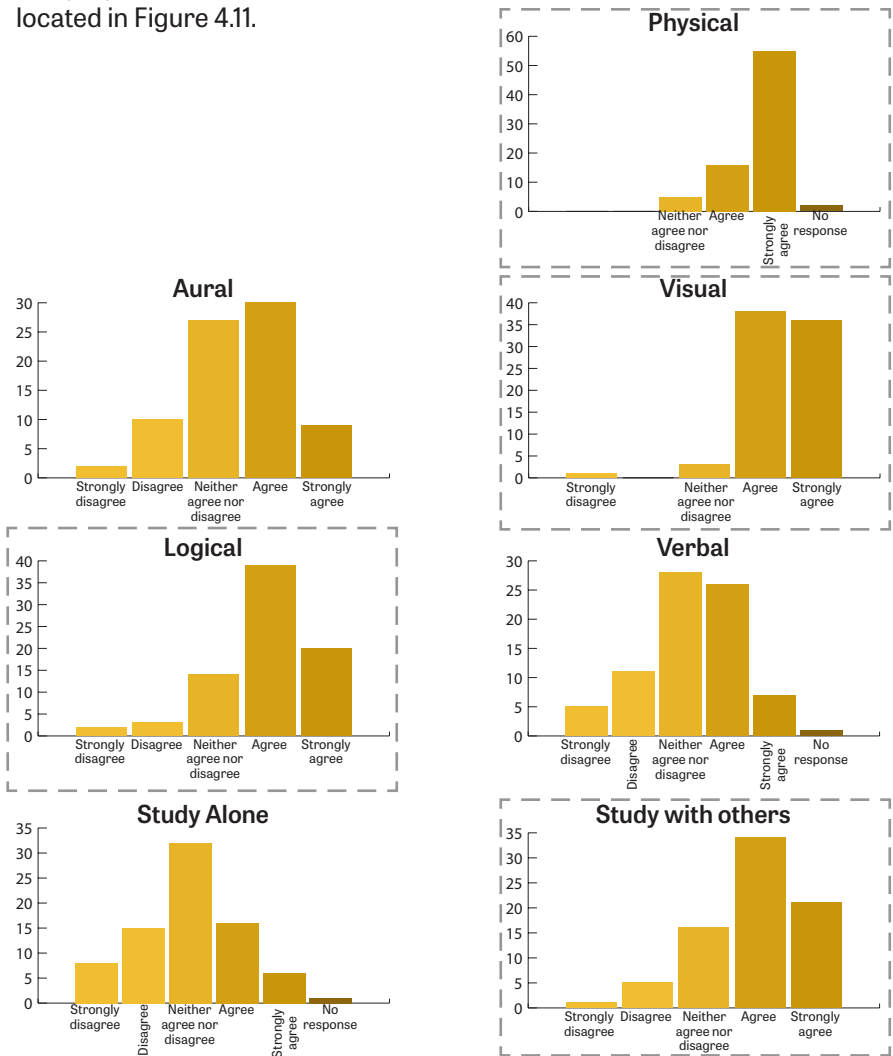


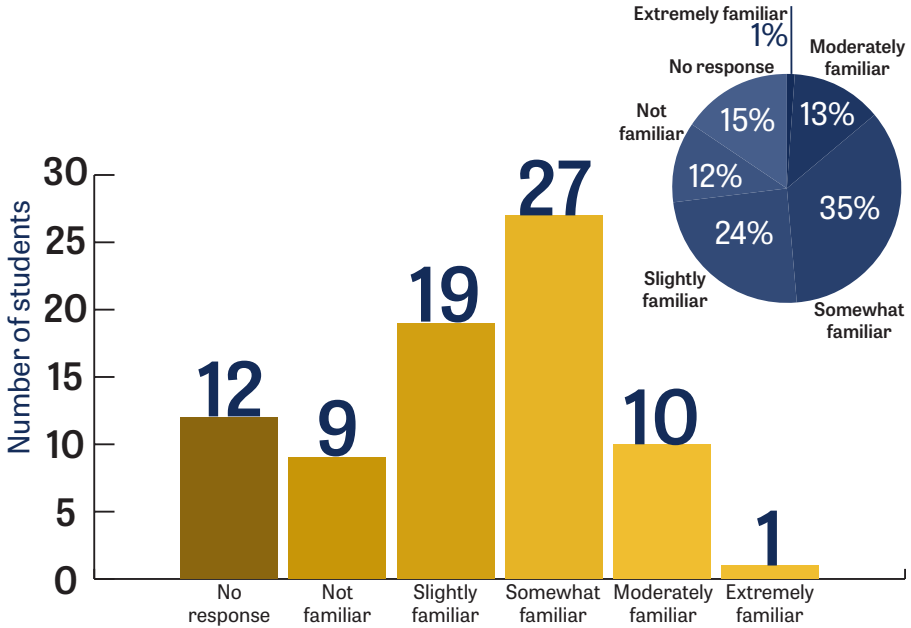
Figure 4.11 | Ag-Ed student preferred learning styles. (Author 2016)

### **Landscape architecture awareness**

When asked about their familiarity with the term “landscape architecture,” respondents felt that they were “mostly, slightly or somewhat familiar” with the term at 24 and 35 percent respectively, as shown in Figure 4.12. Twenty-one of the total Ag-Ed students either were not familiar with the term or did not respond to the question. One student in the whole program felt that they were “extremely familiar” with the term “landscape architecture.” Students were then asked from whom they heard the term “landscape architecture”. As a multiple response question, 78 percent heard it from the teacher, Mr. Wilson, and about 40 percent heard it from the “survey.” Figure 4.13 also shows that 24 respondents heard about the term “landscape architecture” from either a “relative” or a “friend.” The next question asked students: “What comes to mind when they hear landscape architecture?” Figure 4.14 shows the most frequent words students wrote include “landscape, landscaping, plants, designing, buildings, yard, and landscapes.” Figure 4.15 pulls a few quotes from the Ag-Ed participant responses. As a follow-up question, the survey posed the question: “Would you ever consider a career in landscape architecture?” Forty-three total Ag-Ed students answered with “unlikely, very unlikely, or no response.” Thirty-five percent of students were “undecided” on the likelihood while only 8 total Ag-Ed students responded “likely” to consider a career in Figure 4.16. The full list of Ag-Ed students’ responses along with the complete survey are located in Appendix F.

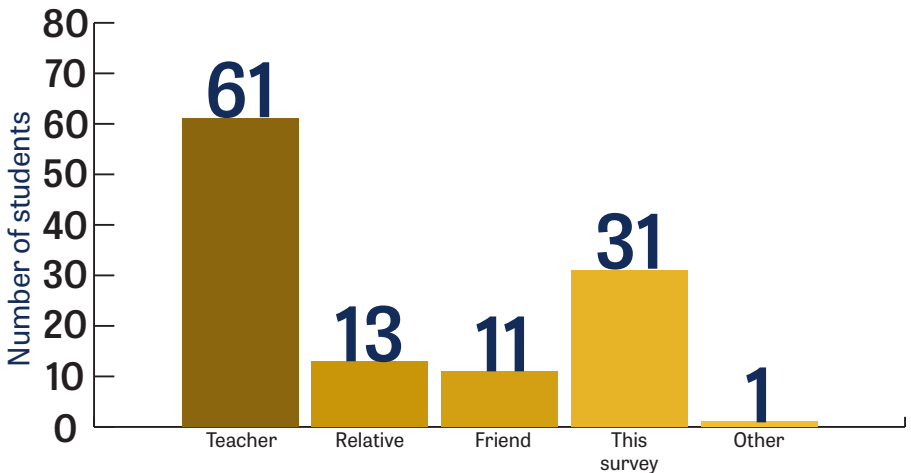
The final question posed to all Ag-Ed students focused on the students’ views on the possible relationship between agriculture and landscape architecture. Most Ag-Ed students believed that the two industries were “probably” or “definitely” related. Twenty-eight percent of the respondents answered that landscape architecture and agriculture are “maybe” related to one another. Only two students felt that agriculture was “probably not” related to landscape architecture. Figure 4.17 depicts the results of this question.

### “Are you familiar with the term ‘landscape architecture’?”



**Figure 4.12** | Ag-Ed student landscape architecture familiarity. (Author 2016)

### “If you have heard about landscape architecture, from who have you heard it from?”



**Figure 4.13** | Source of students' landscape architecture familiarity. (Author 2016)



Would you ever consider a career in landscape architecture?

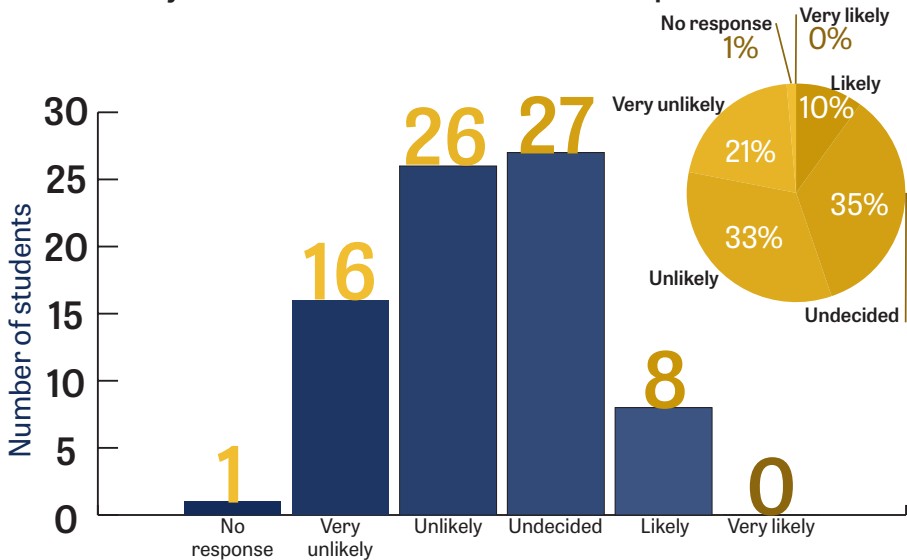


Figure 4.16 | Landscape architecture career consideration. (Author 2016)

Do you think agriculture and landscape architecture are related?

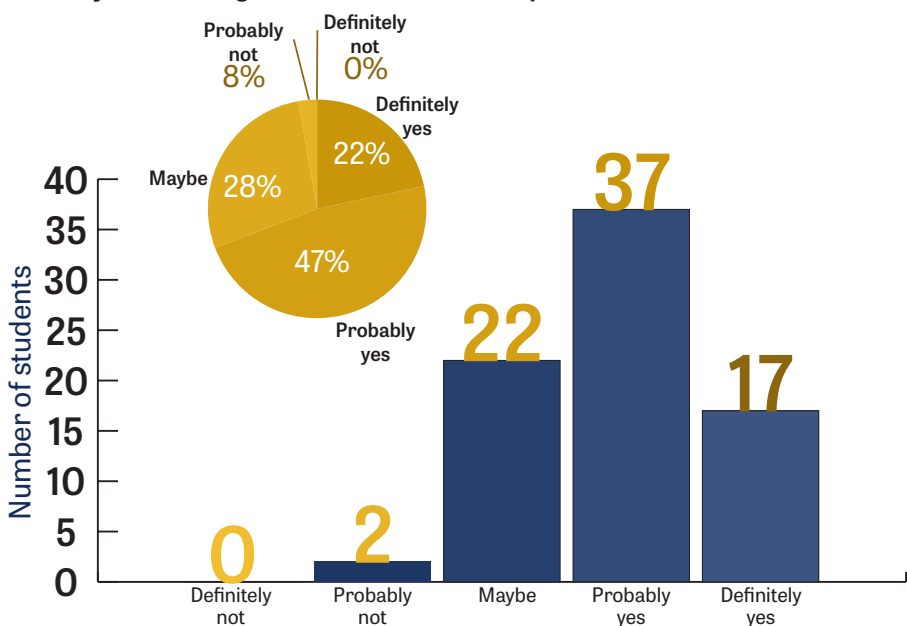


Figure 4.17 | Landscape architecture and agriculture relationship. (Author 2016)

## **Reflection on the Landscaping and Horticulture course**

Within the same survey, students who currently are taking the Landscaping and Horticulture course and those who have taken the course were asked questions reflecting on aspects of the course taught at Lennox High School. Based on the results, the Ag-Ed students seemed to enjoy creating, drawing, and designing their own plan as their final project. Many students wrote about working on the memorial garden at the high school as a hands-on learning experience. Also, these students seemed to enjoy the critical thinking and problem solving aspects of design using the principles of design and careful selection of plant species for balance and order. However, the next question asked the students what they would change about the Landscaping and Horticulture course. Several students would not change the course from what Mr. Wilson is teaching now. Some students expressed an interest in working on their designs for a longer period of time and actually implementing their own designs. A few respondents mentioned using digital software, including 3D software, to complete projects. As seen in Figure 4.18, one of the two students wrote about going to places to have a “visual example” of a “cool” landscape. Students were also asked whether or not they applied classroom material beyond school. One student said they apply Landscaping and Horticulture class to their part-time job. Another student explained a situation about their family moving to a new house and helping with selecting plants for the new landscape around the house. Two students mentioned garden benches and planting beds at their house. Also, one student mentioned that they were a part of the Lennox Sundstrom nursery and landscape CDE team that went to the National FFA Convention.

In preparing for the workshop, current and past Landscaping and Horticulture students were also asked about the differences between landscapes, landscaping, and landscape architecture in the initial survey. As seen in Figure 4.19, answers were varied in detail and well thought out. Thirteen students,



mostly students currently taking the Landscaping and Horticulture course, understood the general meaning of all three terms. About the same number of students either wrote “I don’t know” or did not respond to the question. In essence, the audience for the workshop were split in their understanding of the differences between landscapes, landscaping, and landscape architecture.

## “We could go places that have certain plants or cool landscapes to have a visual example”

**Figure 4.18** | Student’s quotes on how the course could improve. (Author 2016)

“Landscapes are the lay of the land, landscaping is putting plants in a front yard to make it look nice, and landscape architecture is making a plan.”

“Landscapes are the end product, landscaping is working on a product, and landscape architecture is designing the product .”

“Landscapes refer to the actual ground, landscaping refers to the work done on said ground, and landscape architecture refers to any construction or buildings on the landscape.”

“Landscapes are grounds, landscaping is shaping the grounds, and landscape architecture is designing grounds.”

“Landscapes is the area of land untouched by man / Landscaping is the look of the natural land, for hills and rock amount / Landscape architecture is how to change the land to use it .”

**Figure 4.19** | Students’ views about the differences between terms. (Author 2016)



## Workshop with Students

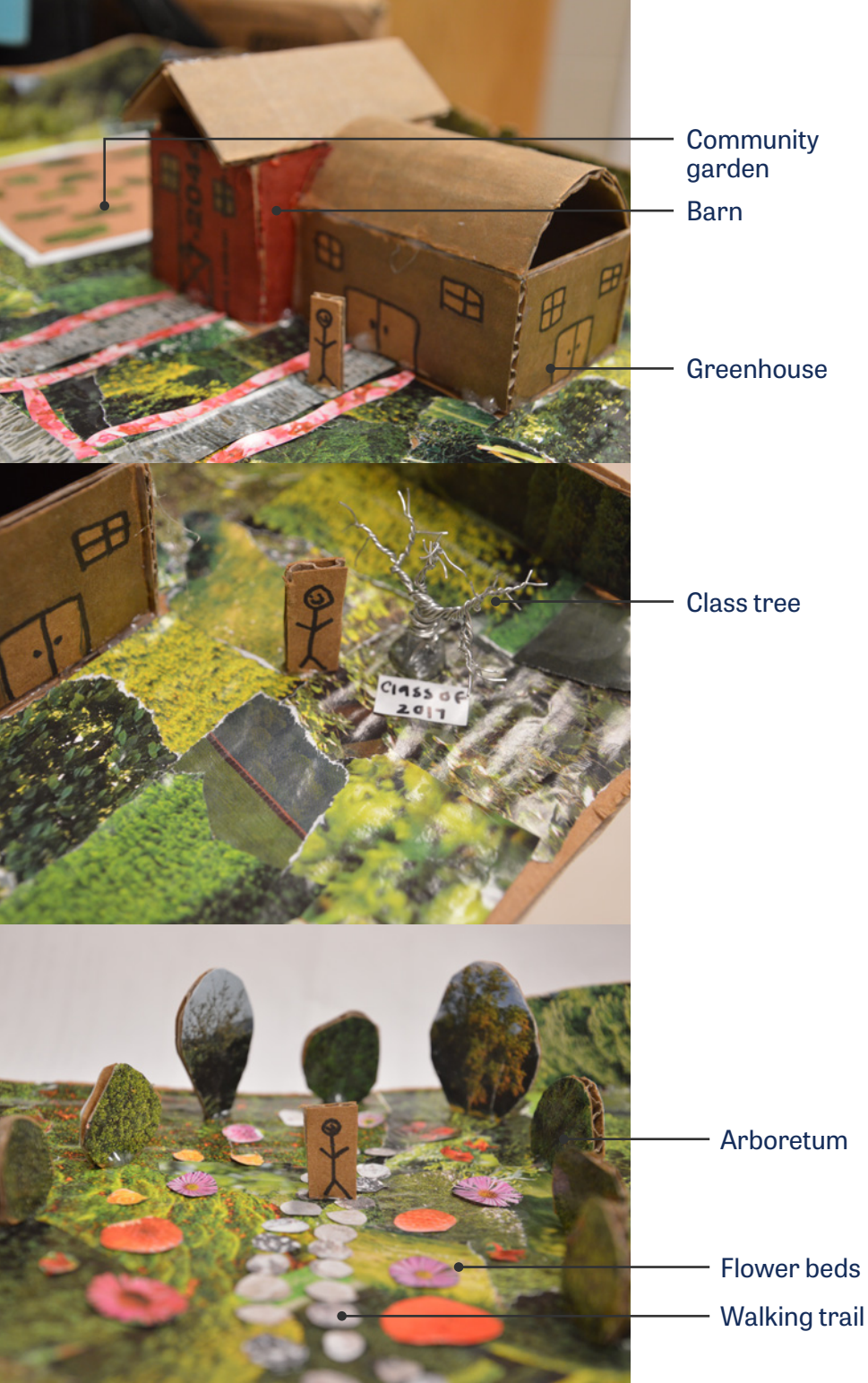
### Overview

The goals of the workshop with Lennox High School Landscaping and Horticulture students were to present a breadth of information about landscape architecture, to provide catalytic ideas for an outdoor learning environment, and to hopefully spark an interest in the landscape architecture profession among students. This section presents work produced by the Landscaping and Horticulture students for their own outdoor learning environment as well as their reflection on their experience during the workshop.

### Plant Science

The plant science group used cardboard and magazines to showcase their ideas as seen in Figure 4.20. The main ideas they presented include:

- Barn for a classroom
- Greenhouse for growing plants for floriculture, nursery and landscape, and natural resources CDEs
- Community garden for sharing with community folks
- Class tree with plaque for future generations
- Arboretum designed with the trees in the nursery and landscape, and natural resources CDEs



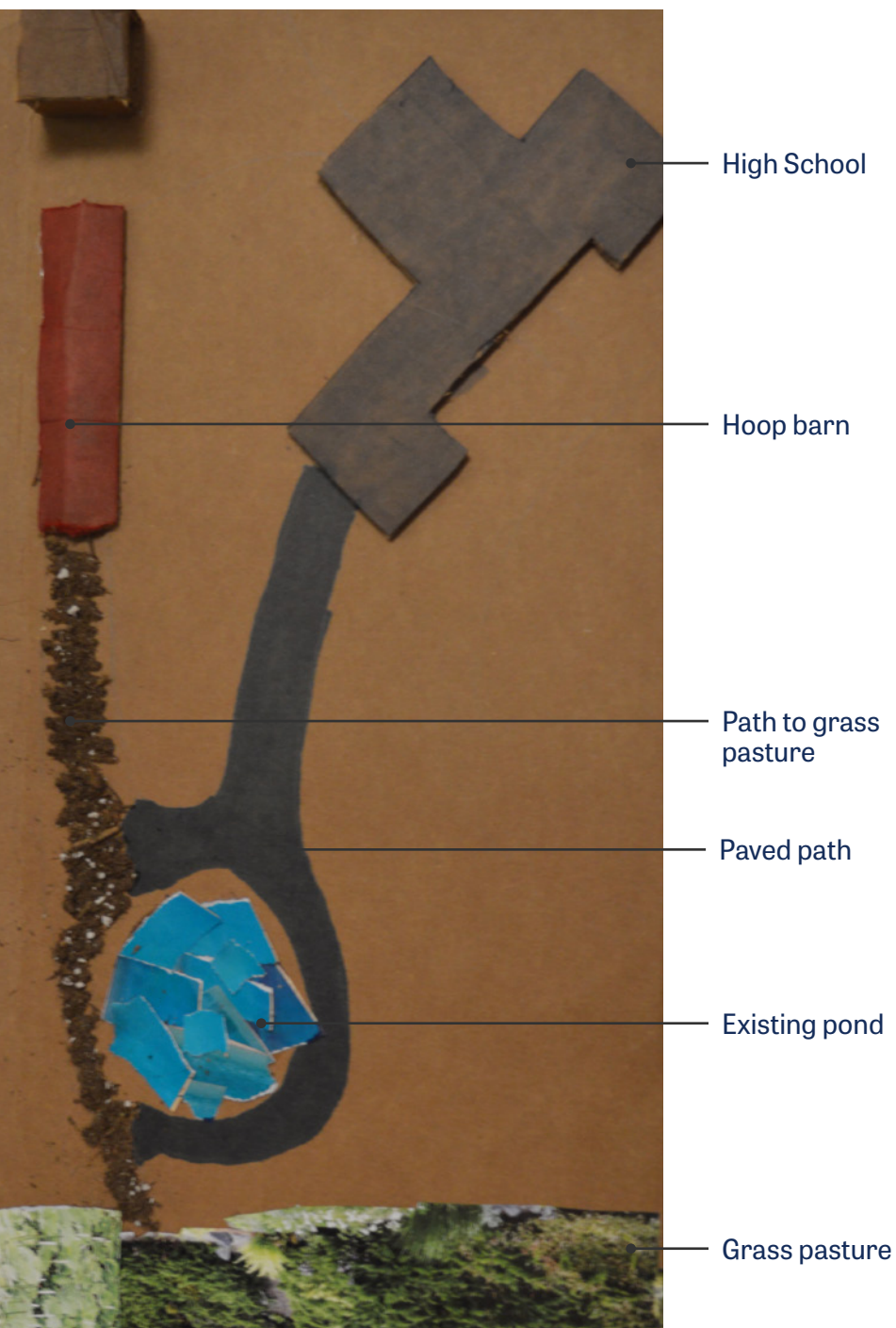
**Figure 4.20** | Environmental group cardboard and magazine model. (Author 2016)

## Animal Science

The animal science group used cardboard, markers, magazine scraps, and soil media to showcase their ideas as seen in Figure 4.21 and 4.22. The main ideas they presented focused on a hoop barn built with Sioux Steel as a display for potential customers and for practice in the Welding course. This group mentioned limiting the livestock to sheep, goats, and poultry, but allow for horse riding on dirt trails around the site. They also suggested using the south area as a grazing ground for sheep and goats. The group also proposed housing SAE projects over summer months for students who do not have the resources to keep livestock at their home.



**Figure 4.21** | Animal science team presenting their project. (Author 2016)



**Figure 4.22** | Plan view of the animal science team's ideas. (Author 2016)



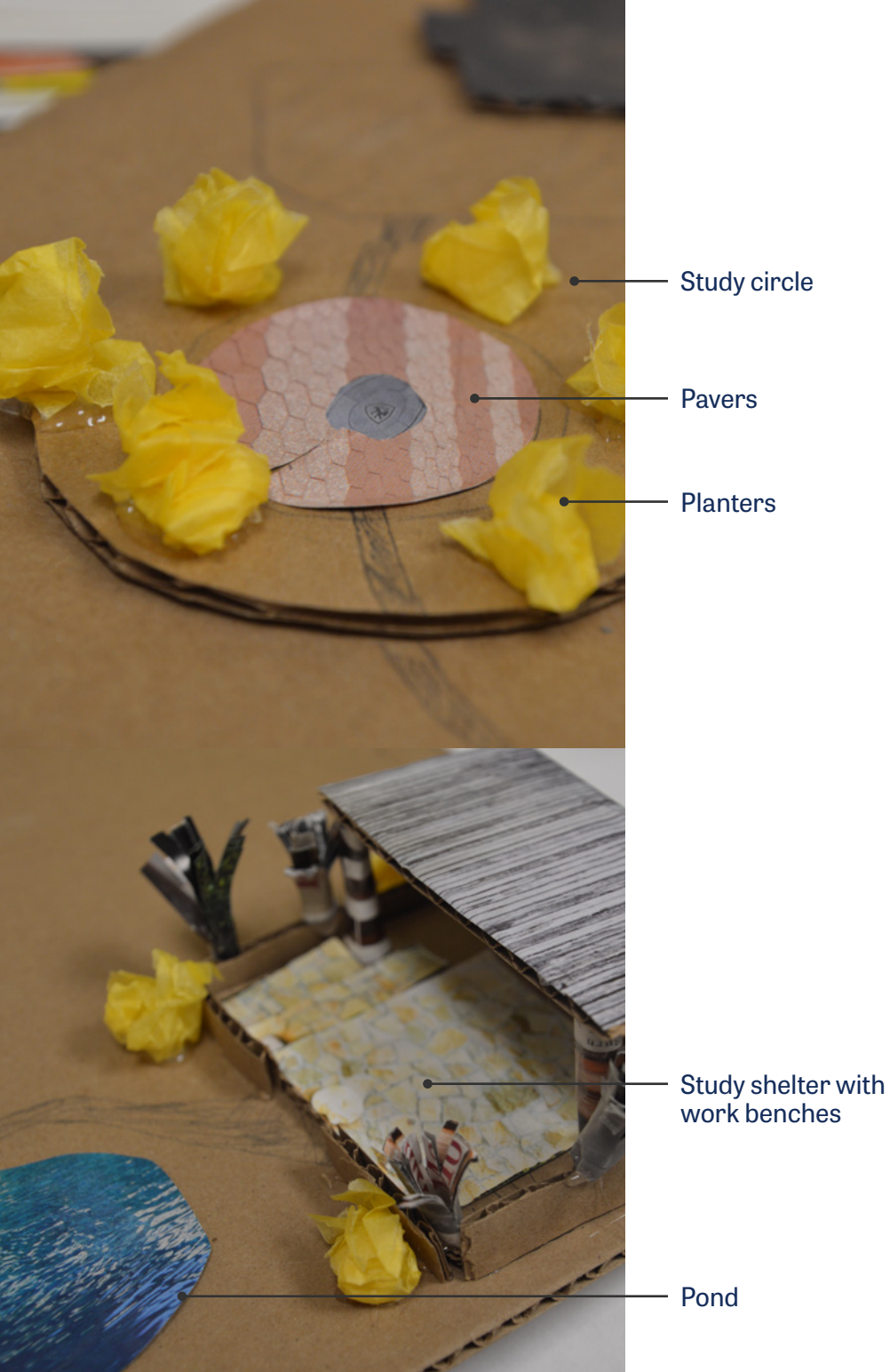
## Fabrication

The fabrication group used cardboard, magazines, marker, and trace paper to showcase their ideas as seen in Figures 4.23 and 4.24. This team proposed smaller ideas that were more feasible to implement and partner with local businesses. The main ideas they proposed include:

- Study circle with benches and planters-paving materials provided by Midwest Landscaping
- Study shelter/lean-to with work benches to be built with Woods Technology courses, and Welding courses with Sioux Steel as a partner
- Partner with Flowers by Bob to provide flowers in planters
- Partner with Gage Bros to pour concrete areas



**Figure 4.23** | Fabrication group presenting their ideas. (Author 2016)



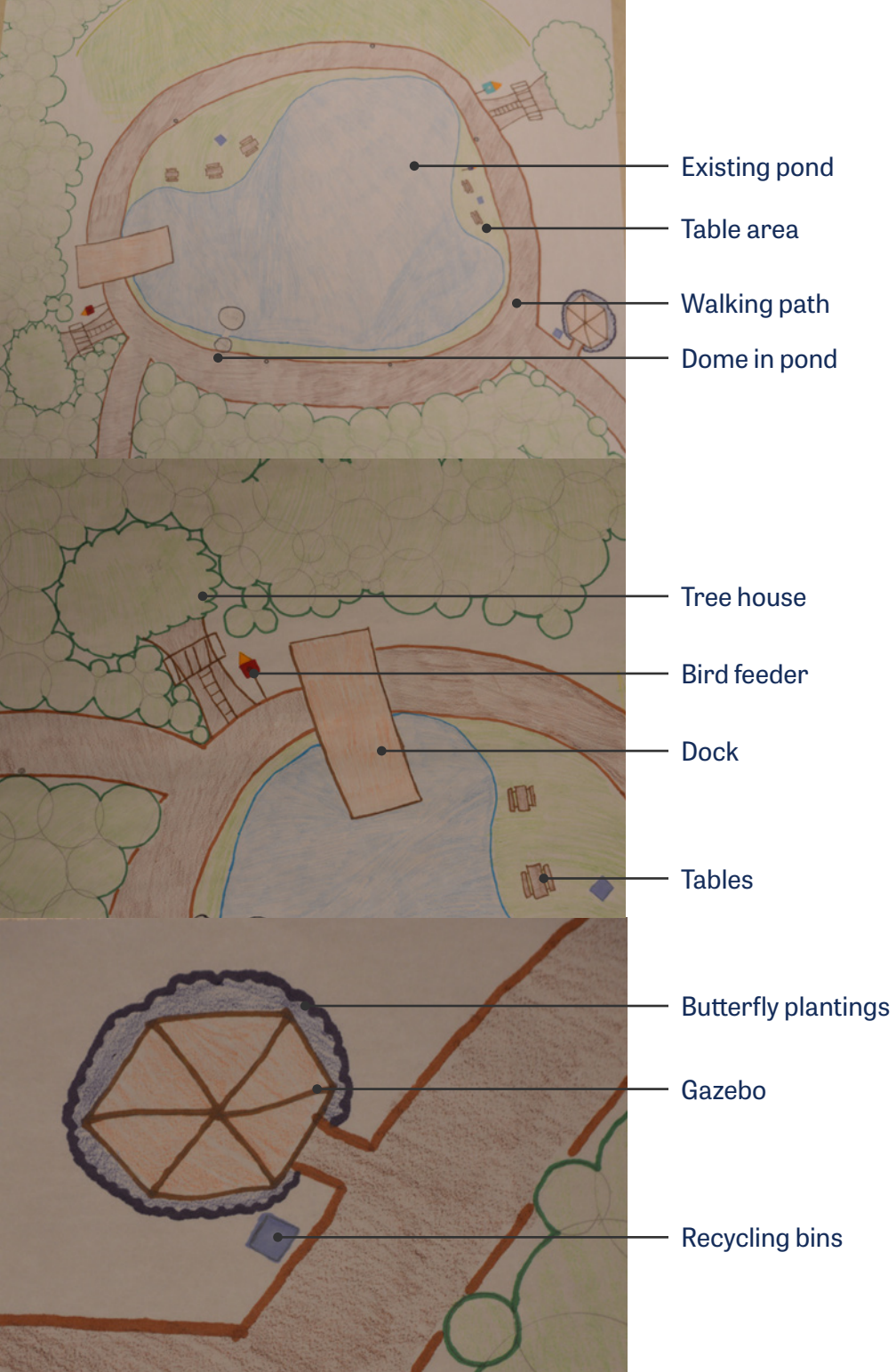
**Figure 4.24** | Fabrication group's cardboard 3D model. (Author 2016)

## **Environmental Science**

The environmental science team used poster paper, marker, and colored pencils to showcase their ideas as seen in Figure 4.25. This team proposed a variety of small and large creative projects. Their proposed ideas include:

- Gazebo built with Boy Scout troops with lilac shrubs to attract butterflies and display butterfly facts
- Benches and tables built by the Woods Technology class
- Burrowing system under pond: hands-on learning, CDE training, fish identification in dome
- Scavenger hunt: seasonal, posts with information like the Outdoor Campus in Sioux Falls
- Classes: physical education-safe fishing and runs, biology-test water and go on nature walks
- CDEs: Nursery and landscape tree identification
- Sports: cross country runs
- Many trash cans and recycling bins with lids
- Dock: rebuild and paint
- Tree houses for bird watching
- Bird feeders and fruit feeders
- Flowers to attract butterflies and hummingbirds
- Areas for birthday parties or gatherings
- Partnerships with 4-H, Boy Scouts, and Good Samaritan

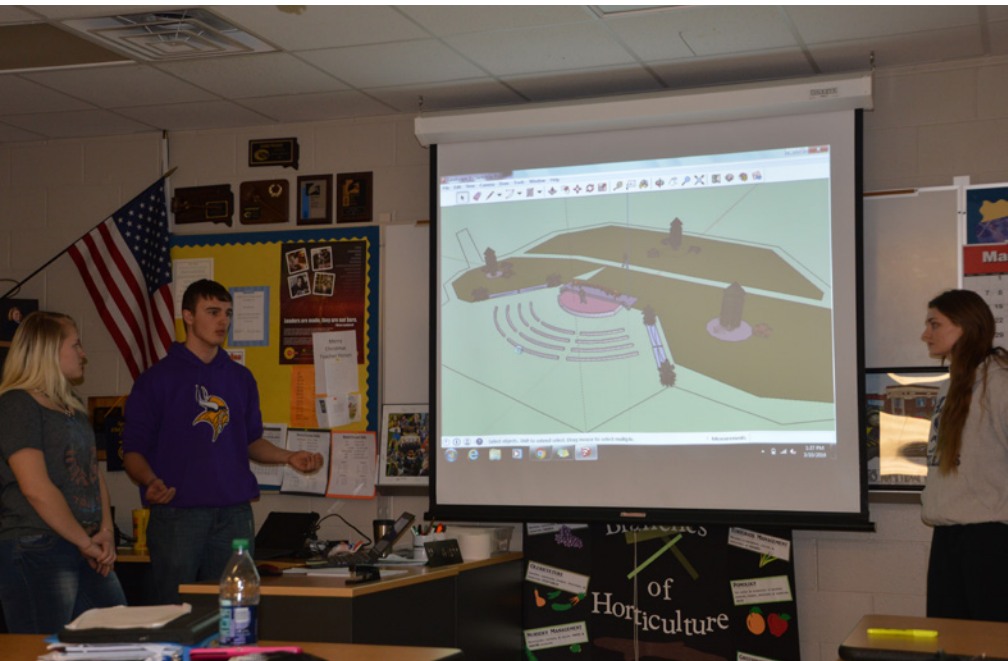




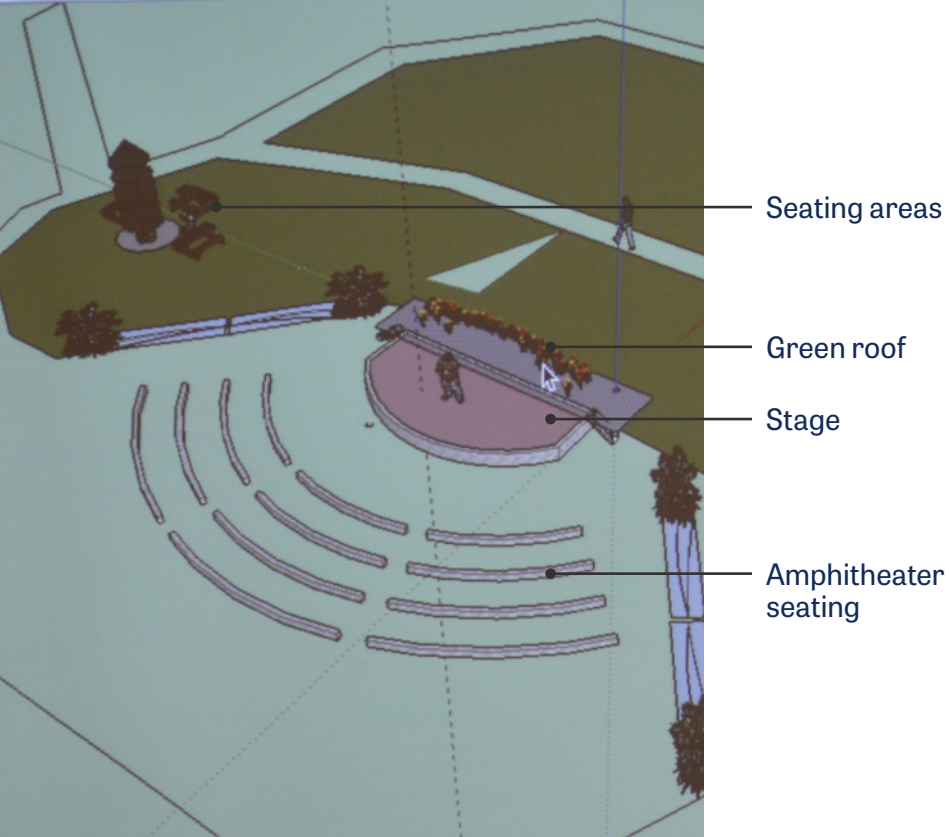
**Figure 4.25** | Environmental science drawing showing their ideas. (Author 2016)

### **Agricultural Services/Education**

Students in the agricultural services/education team worked first on trace paper and then in Sketchup to create a 3D model as shown in Figure 4.26 and 4.27. Their main idea focused on a sunken amphitheater as a physical classroom for teaching and gathering outside of class. Amenities that the team proposed with the amphitheater were various seating areas, a green roof over the top of the stage area, and space and materials for a projector to be available for community events. They wanted this space to be available for students to use during lunch and other school events. This team also suggested partnering with Tipton Construction to aid with the excavation of the amphitheater.



**Figure 4.26** | The agricultural services/education group presenting. (Author 2016)



**Figure 4.27** | Sketchup model showcasing the group's ideas. (Author 2016)

## Summary

Each group approached the outdoor learning environment project differently using a variety of mediums including cardboard, poster paper, and 3D model in Sketchup. The different scales of ideas produced by the Landscaping and Horticulture students provided several opportunities for incremental implementation in the future. The participating students are pictured as a class with their projects in Figure 4.28.



**Figure 4.28** | Landscaping and Horticulture workshop participants. (Wilson 2016)

# Post-Workshop Survey

## Introduction

The Landscaping and Horticulture students, who participated in the workshop, took a post-workshop survey to reflect on their experiences in the workshop and to revisit their view of the landscape architecture profession. Results of the survey were compared with the pre-workshop survey to identify changes in their understanding of landscape architecture.



## Student workshop reflection

As a component of the post-workshop survey, Landscaping and Horticulture students were asked questions about what they enjoyed, how the workshop could be improved, their group experience, how the workshop could improve the Landscaping and Horticulture course, what ideas they felt were feasible, and which ideas they felt were unrealistic to implement.



The Landscaping and Horticulture workshop participants expressed their joy in having control and designing their own project that could help benefit Lennox High School. Some students also enjoyed working hands-on in 3D with cardboard and the Sketchup software instead of just a flat piece of paper, which they only work two-dimensionally for their final project in the Landscaping and Horticulture class. Many students also wrote about working with their group members in a positive collaborative effort. While some students did not express any disappointments in the workshop, the major complaint that other students had was that they wished the workshop lasted longer than three days. A few students expressed their interest in going more in depth into the details of the outdoor learning project. A couple of students felt that the researcher was not particularly specific on the expectations or outcomes of the workshop. Some respondents mentioned that future classes should focus on one area at a time instead of the whole site. Figure 4.29 expresses a few statements written by the students in the post-workshop survey about their landscape architecture experience.

**“I liked the part when we got to actually build something that a landscape architect would build. It was pretty fun also that it might be used to help Lennox High School. ”**

**“I enjoyed creating a 3D version of our design that we came up with.”**

**“Well if there was more time [, I] think we could have went into more detail into the projects that we made.”**

**“Working with the new computer program and thinking about a way to improve our school’s landscape ”**

**Figure 4.29** | Students’ reflection on the workshop. (Author 2016)

All of the students who completed the post-workshop survey were also asked if the workshop could enhance the Landscaping and Horticulture class. Every student agreed that the workshop would enhance the course by being more creative with designing, providing real world experience, and being able to continuously build on a project year after year. Several respondents mentioned that it would allow students to break from the normal course content and allow for a new way of learning material. One student wrote, "It could enhance it by providing a greater understanding of what landscape architecture is and how it fits in with everyday life."

Respondents were also asked about which ideas they saw being implemented in the outdoor learning environment. Below is a list of the ideas they wish to see built in the future.

- Community garden
- Amphitheater
- Relationships with the community
- Greenhouse to study plants for CDEs
- Tables and benches for eating
- Outdoor learning building
- Arboretum
- Paths through site
- Pond renovations
- Planting class trees
- Being able to have animals

On the other hand, respondents felt that some ideas were not feasible including the underwater dome, the tree houses, and the amphitheater. Most students were concerned about when these ideas would be implemented. Several students mentioned that the amphitheater was the best idea but it may cost too much to build in the long run and may not be used to its fullest potential. Also, one student wrote that the treehouses would have to be implemented once the trees are big enough.

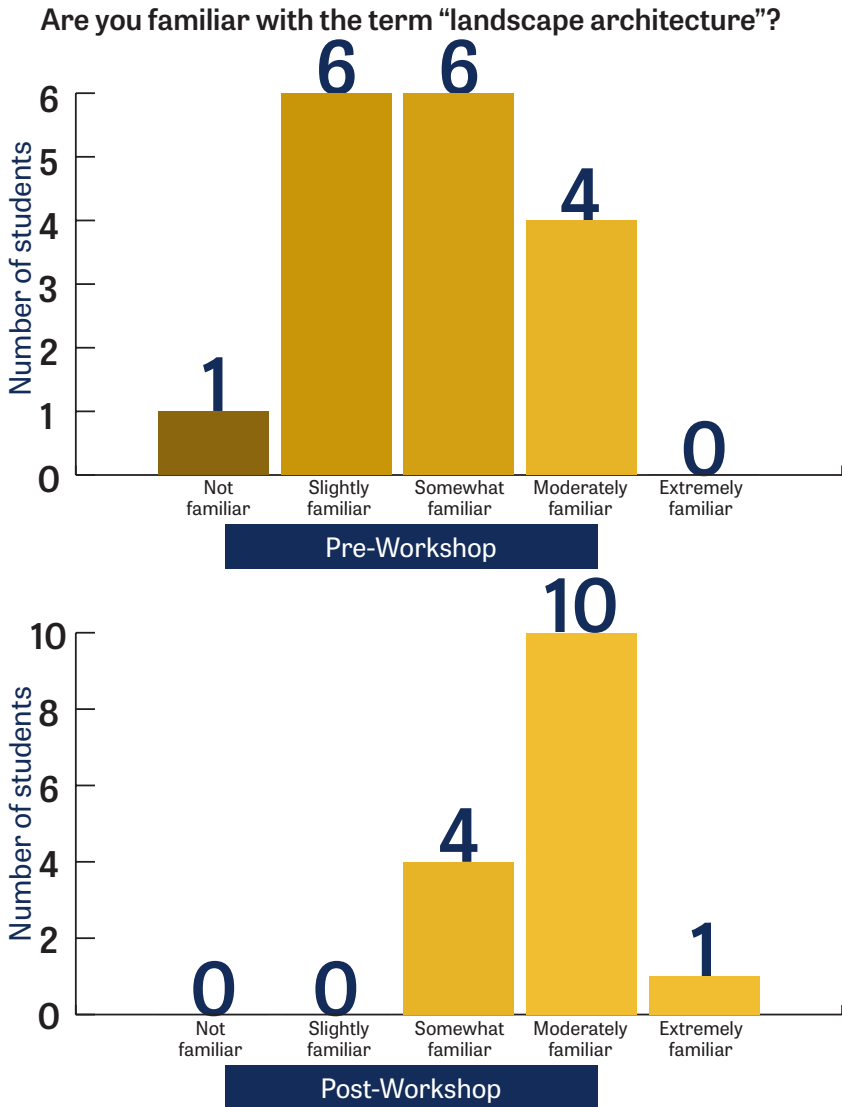
### **New landscape architecture understanding**

In addition to reflecting on their workshop experiences, the Landscaping and Horticulture students were also surveyed on their new thoughts about landscape architecture. Before the workshop, these students were “slightly, somewhat, or moderately familiar” with the term landscape architecture. After the workshop, the majority of respondents felt that they were more “moderately familiar” with the term as seen in Figure 4.30. Students were also asked again what they think of when they hear landscape architecture. Their responses became more refined after the workshop activities as shown in Figure 4.31. In addition, most students either “agreed or strongly agreed” that they see built landscapes differently after the workshop. The majority of these students also “agreed” that they see natural landscapes differently after participating in the workshop.

The Landscaping and Horticulture workshop participants were asked if they would consider a career in landscape architecture just like the pre-workshop survey. There was not much change between the surveys as seen in Figure 4.32. However, two more students responded that they would “likely” consider a career in landscape architecture.

Like the pre-workshop survey, the post-workshop survey again asked the Landscaping and Horticulture students’ views on the possible relationship between agriculture and landscape architecture. Most Landscaping and Horticulture students believed that the two industries were “probably, definitely, or maybe” related in the pre-survey. The post-workshop survey revealed that the students believe agriculture and landscape architecture are related as seen in Figure 4.33.





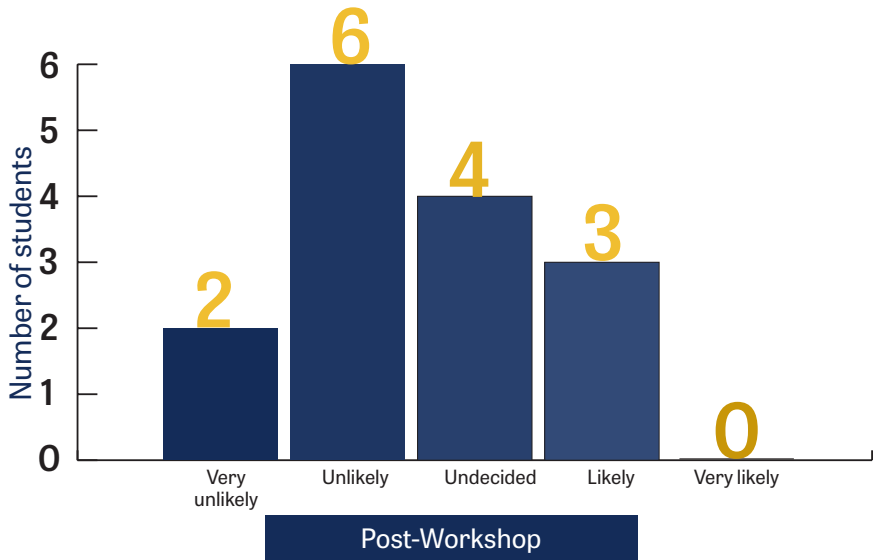
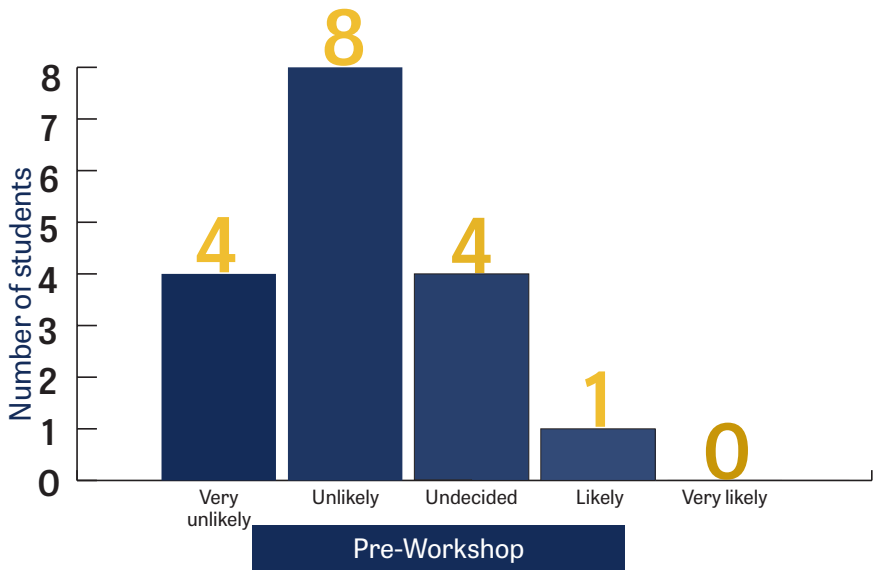
**Figure 4.30** | Landscape architecture familiarity survey comparison.(Author 2016)

**“I think of building things to help people in there everyday life through the means of making it easier for them to travel from place to place, and helping the appearance and functionality of an area.”**

**“Landscape architecture deals with creativity, planning, skill, and patience.”**

**Figure 4.31** | Quotes from students about landscape architecture. (Author 2016)

Would you ever consider a career in landscape architecture?

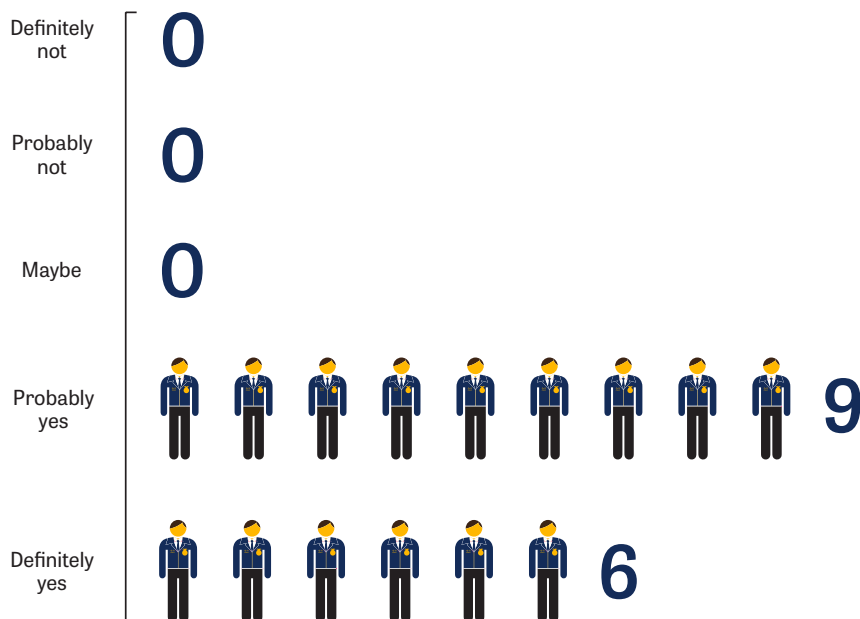


**Figure 4.32** | Landscaping and Horticulture students' likelihood of pursuing a career in landscape architecture. (Author 2016)

Summary

Overall, the participating Landscaping and Horticulture students expressed that the workshop was enjoyable and let them be more creative with designing landscapes. Mr. Wilson and the students hope this type of activity can continue in the future. Many of the students wish that their ideas will be implemented and built upon by future classes to help benefit Lennox High School as a “legacy project” of their own. After the workshop, the Landscaping and Horticulture students had a better understanding of the landscape architecture profession and an interest in learning more about what the profession has to offer students in agriculture.

Do you think agriculture and landscape architecture are related?

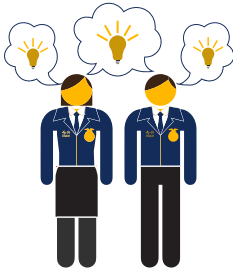
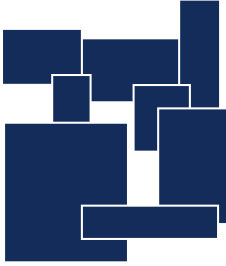


**Figure 4.33** | Landscaping and Horticulture students' opinion on the agriculture and landscape architecture relationship. (Author 2016)



## Conceptual Master Plan and Photomontages

In Figure 4.34, a conceptual master plan was designed with the intention of being flexible as students continually design the details of each Ag-Ed area. Fabrication, plant science, and animal science were all located closer to the Ag-Ed classroom. The mechanical tools for fabrication, the greenhouse, and the barn all need electrical power unless the site contains solar power. The plant science and animal science areas were grouped together to allow for a greenhouse and a barn to be connected. Services/education was located nearby the fabrication, plant science, and Ag-Ed classroom for accessibility. Activities occurring in this area can spill over into fabrication and plant science areas if needed for demonstrations. Animal science was given a temporary pasture location until Lennox develops the sports practice fields in the future. The environmental science area was made larger to help protect and explore the three ecosystems on site: wetland, pond, and tall-grass prairie. A potential arboretum could be located on the eastern fringe of the environmental science area. A main pedestrian path connects all areas and provides access for walking and running throughout the site. On the west side of the fabrication, services/education, plant science, and animal science areas, a larger path would provide truck and trailer access to a barn located in the animal science area.





**Figure 4.34** | Conceptual master plan to guide future development. (Author 2016)

The first area recommended for implementation is the fabrication area and main pathways. With partnerships, the fabrication area and paths could be completed within a year or two. Once the fabrication area is built, it would provide the workspace needed to complete the other Ag-Ed areas. Pathways would also guide future implementation and provide immediate accessibility to those areas when equipment is necessary. The remaining areas of plant science, animal science, and environmental science all have a variety of small and large projects that could be implemented over time. Table 4.3 shows an implementation list of the small and large projects developed in the workshop with the Landscaping and Horticulture course.

Implementation List			
Item	Implementation Year	Partnership(s)	Years to Complete
Community garden	1	Master Gardeners, CSA, 4-H	1
Amphitheater	10	Construction businesses	1
Bird feeders	1	Intro to Ag Course	1
Greenhouse	5	Master Gardeners, CSA, 4-H	1
Tables and benches	2	Industrial Technology classes, Welding	1
Class trees	1	Each Ag-Ed graduating class	-
Gazebo	6	Boy Scouts, Industrial Technology classes	1
Tree houses	15	Boy Scouts, Industrial Technology classes	2
Observation stand	5	Industrial Technology classes, Welding, construction businesses	1
Shelter work area	1	Sioux Steel, Welding	1
Pathways	1	Landscaping companies, paving companies	1
Arboretum	5	Nurseries, landscaping companies, Landscaping and Horticulture	15
Barn	5	Sioux Steel, construction companies	1

**Table 4.3** | Conceptual implementation list to spark future development of the outdoor learning environment. (*Author 2016*)

As a reflection of the Landscaping and Horticulture students' workshop effort, photomontages were conceptually developed by the researcher and are shown in Figure 4.35, Figure 4.36, Figure 4.37, Figure 4.38, and Figure 4.39. These represent the areas of environmental science, plant science, fabrication, and education/services. The ideas generated in the workshop were combined with ideas from the researcher to creatively express the possibilities of the outdoor learning environment. This allowed for more opportunity to spark the interests of those who could become potential partners in the development of the outdoor learning environment.



# Animal Science

High School

Animal  
demonstrations

Barn with solar  
panels

Facilities for small  
animals

Grassy area for  
sheep or goats

Gravel trail

**Figure 4.35** | Conceptual photomontage showcasing animal science ideas from the students and the researcher. (Author 2016)

# Environmental Science



**Figure 4.36** | Conceptual photomontage showcasing environmental science ideas from the students and the researcher. (Author 2016)



# Fabrication

Study shelter with  
work benches

Study circle

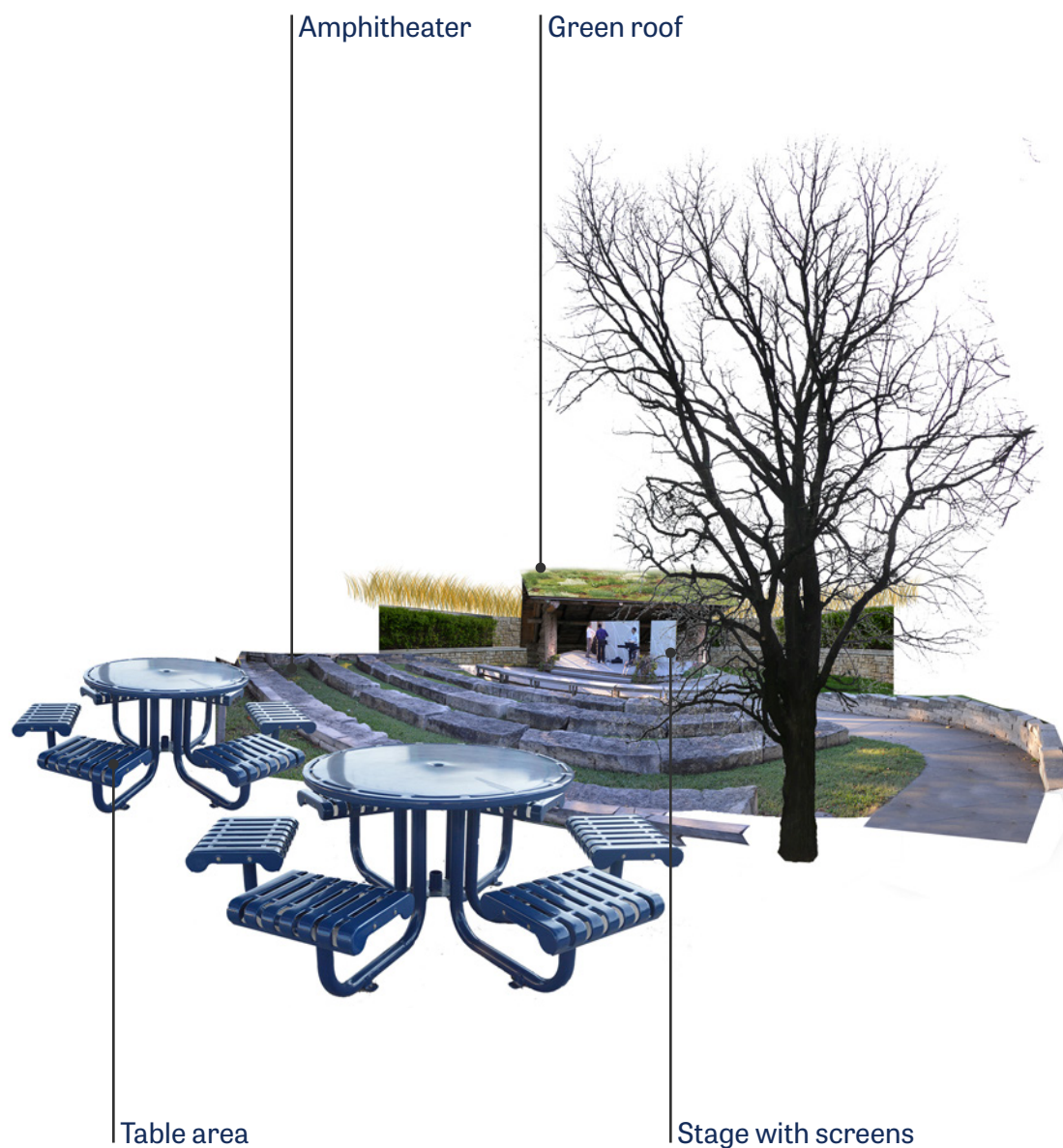


Pathway with  
various pavers

Metal artwork

**Figure 4.37** | Conceptual photomontage showcasing fabrication ideas from the students and the researcher. (Author 2016)

# Agricultural Services/ Education



**Figure 4.38** | Conceptual photomontage showcasing agricultural science/education ideas from the students and the researcher. (Author 2016)

# Plant Science



**Figure 4.39** | Conceptual photomontage showcasing plant science ideas from the students and the researcher. (Author 2016)

# 05

## CONCLUSION

Subquestions

Stake holder, client and agencies relationship

Limitations

Future research

Final thoughts





# 05

## CONCLUSION

### **How do current Ag-Ed students view the profession of landscape architecture?**

Ag-Ed students currently see landscape architecture more as landscape design. The students who have not taken any type of landscaping course responded in the initial survey that they view landscape architecture as “gardening” or “landscaping a yard.” Students currently taking the Landscaping and Horticulture course interpret landscape architecture as “designing the land or landscapes.” These students have a better understanding that landscape architecture extends beyond the yard. In the initial survey, students who have already taken the Landscaping and Horticulture course focused primarily on the arrangement of materials on the land. This is due to the content and nature of the Landscaping and Horticulture course. The primary focus of the course is more on residential design, plant identification, and landscape contracting. Residential design is a major sector of landscape architecture, however, landscape architecture expands



beyond to parks, trails, plazas, and many other types of projects that help protect the health, safety, and welfare of the public. If students are presented the opportunity to learn about all aspects of landscape architecture, they might become more interested in how it can contribute to the agriculture industry.

### **What kind of intervention(s) can make Ag-Ed students more aware of the landscape architecture profession?**

This research focused on surveys and workshop as ways to gauge and bring awareness to Ag-Ed students. The surveys reveal that students have “somewhat” of an understanding of the landscape architecture profession. As a result of the workshop, some Ag-Ed students want to learn more about the profession and how it contributes to cities and neighborhoods in order to protect the public’s health, safety, and welfare. Other ways that landscape architects can interact with Ag-Ed students are through promotional materials including brochures, posters, and videos that showcase the similarities between landscape architecture and agriculture. Brochures and posters could be displayed in local Ag-Ed classrooms and in a booth at state conventions. Videos made specifically for an Ag-Ed student audience could be shown at state conventions much like the inspiring video “I want to be a landscape architect” from the Be a Landscape Architect Team of The Landscape Institute.

### **How can the outdoor learning environment support current and future curriculum as it changes over time?**

In order to cater to current and future Ag-Ed curricula, the outdoor learning environment will evolve over time to meet new needs while design elements will provide a foundation and canvas for future development. Instead of implementing designs all at once, an incremental approach will reflect changes in the Ag-Ed student population and curriculum. Under the direction of the agricultural educator, the students can design a different Ag-Ed area every year to guide the future direction of the outdoor

learning environment. As long as national Ag-Ed educational objectives are met, the outdoor learning environment can specialize and tailor to the requirements of the state standards.

### **Stake holder, client and agencies relationship**

Persons involved in this project included Lennox High School and South Dakota Ag-Ed officials. Mr. Jim Wilson, agricultural educator and my father, was the first point of contact to assess if this project would be applicable to his Ag-Ed program. During the planning stages of the project, contact and communication with Lennox High School officials Principal Chad Allison, Assistant Principal Kory Williamson, and Superintendent Kirk Easton were vital to the project's success. Their support and understanding contributed to how the outdoor learning environment could impact the Lennox School District as a whole. State Ag-Ed officials Tiffany Sanderson, Director of the Division of Career and Technical Education (CTE), and Michelle Nelson, Career Development Specialist in the Division of CTE, were contacted to get their support and data to complete the study.

### **Limitations**

The major limitation to this research involves the complex process of working with human subjects under eighteen years old. Coordination and cooperation between Lennox High School officials, Jim Wilson, K-State officials, and the researcher were needed to complete the study smoothly. Much planning was needed to obtain parent and guardian consent to participate in the activities. This limitation also did not allow enough time to expand the study to multiple schools within South Dakota and other states.

Limitations for the workshop included time, location, and weather. Time was limited to only three days of activities. Several Landscaping and Horticulture students noted in the post-workshop survey that they would have liked the workshop to continue for more

class periods. Even though each class period was 85 minutes long, more time could have been used for brainstorming and designing in more detail like the students wanted. Therefore, the results of the workshop were meant to be more conceptual and to spark further design detail in future classes. Time management and planning were also essential leading up to the workshop due to the distance between Lennox, South Dakota and Manhattan, Kansas. Limited site photos were taken by Jim Wilson before the snow fell in South Dakota. When visiting the site in the winter, snow covered the entire southeastern part of South Dakota. During the workshop, the weather again became a hindrance when walking on the site with the students. So, a brief description of the site and map were given to students.

### Future Research

This study could be expanded to more Ag-Ed programs for future research. These Ag-Ed programs could be in South Dakota or in other states across the United States. Comparing Ag-Ed programs that do and do not offer a landscaping course would provide a holistic study to see how students view landscape architecture with and without exposure in the classroom.

A framework for landscape architecture interaction with Ag-Ed students would also be beneficial for the American Society of Landscape Architects (ASLA). This framework or guidelines for interaction could provide ASLA with the necessary knowledge and tools to relate to and understand Ag-Ed students. During this particular research study, guidelines were not able to be developed due to time constraints.

In order to further strengthen the threads between agriculture education and landscape architecture, a study on how landscape architecture can contribute to other courses, beyond the Landscaping and Horticulture course, in the Ag-Ed curriculum could be conducted on the national, state, and local levels.

## Final Thoughts

I do not believe this project would have been successful if it had not been for my personal connection to Lennox Ag-Ed program through my father Mr. Wilson. As an alumni of the program, I understood what experiences Lennox Ag-Ed students go through as an active member. This project allowed me to look at the Ag-Ed program from an outside perspective through a landscape architecture lens, but my background still gave me a better understanding than someone who does not have an agricultural background.



**Figure 5.1** | South Dakota FFA Nursery/Landscape CDE State Individual Winner 2009 (*Wilson 2009*)

# 06

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Table Citations



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## 01 Introduction

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### 03 Methodology

**Figure 3.1** | Wilson, Erin. 2016. Methods used in research. Adobe InDesign and Illustrator.

**Figure 3.2** | Wilson, Jim. 2016. Presenter pointing to own work on the back wall of the classroom. Photograph.

**Figure 3.3** | Wilson, Jim. 2016. Interaction with the environmental science group. Photograph.

**Figure 3.4** | Wilson, Erin. 2016. Agricultural services/education team. Photograph.

**Figure 3.5** | Wilson, Jim. 2016. Fabrication team brainstorming ideas. Photograph.

**Figure 3.6** | Wilson, Erin. 2016. Environmental science team presenting their ideas. Photograph.

**Figure 3.7** | Wilson, Erin. 2016. Agricultural services/education group presenting their model. Photograph.

**Figure 3.8** | Wilson, Erin. 2016. Plant science team explaining their barn and greenhouse. Photograph.

**Figure 3.9** | Wilson, Erin. 2015. Example photomontage. Photomontage using and modifying the following images in Adobe Photoshop:

- Wilson, Erin. 2010. FFA Camp. Photograph.
- Wilson, Erin. 2010. Las Vegas Springs Preserve. Photograph.
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- Wilson, Erin. 2013. Arbor Day Farm Barn. Photograph.
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## 04 Findings

**Figure 4.1** | Wilson, Erin. 2016. Methods that led to the findings of the research. Adobe InDesign and Illustrator.

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**Figure 4.14** | Wilson, Erin. 2016. Words used to describe landscape architecture. Adobe InDesign and Illustrator.

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- Figure 4.20** | Wilson, Erin. 2016. Environmental group cardboard and magazine model. Photograph.
- Figure 4.21** | Wilson, Erin. 2016. Animal science team presenting their project. Photograph.
- Figure 4.22** | Wilson, Erin. 2016. Plan view of the animal science team's ideas. Photograph.
- Figure 4.23** | Wilson, Erin. 2016. Fabrication group presenting their ideas. Photograph.
- Figure 4.24** | Wilson, Erin. 2016. Fabrication group's cardboard 3D model. Photograph.
- Figure 4.25** | Wilson, Erin. 2016. Environmental science drawing showing their ideas. Photograph.
- Figure 4.26** | Wilson, Erin. 2016. The agricultural services/education group presenting. Photograph.
- Figure 4.27** | Wilson, Erin. 2016. Sketchup model showcasing the group's ideas. Photograph.
- Figure 4.28** | Wilson, Jim. 2016. Landscaping and Horticulture workshop participants. Photograph.
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- Figure 4.30** | Wilson, Erin. 2016. Landscape architecture familiarity survey comparison. Adobe InDesign and Illustrator.
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- Figure 4.32** | Wilson, Erin. 2016. Landscaping and Horticulture students' likelihood of pursuing a career in landscape architecture. Adobe InDesign and Illustrator.
- Figure 4.33** | Wilson, Erin. 2016. Landscaping and Horticulture students' opinion on the agriculture and landscape architecture relationship. Adobe InDesign and Illustrator.
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- Wilson, Erin. 2016. Wichita Zoo bison deck. Photograph.

**Figure 4.37** | Wilson, Erin. 2016. Conceptual photomontage showcasing fabrication ideas from the students and the researcher. Photomontage using and modifying the following images in Adobe Photoshop:

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- Wilson, Erin. 2015. Oklahoma City. Photograph.
- Wilson, Erin. 2016. Neal Heidt. Photograph.
- Wilson, Jim. 2015. Lennox High School site photo. Photograph.



**Figure 4.38** | Wilson, Erin. 2016. Conceptual photomontage showcasing agricultural science/education ideas from the students and the researcher.

Photomontage using and modifying the following images in Adobe Photoshop:

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- Wilson, Erin. 2015. Blue Earth Plaza tables. Photograph.
- Wilson, Erin. 2015. Beach Museum Wall. Photograph.
- Wilson, Erin. 2015. Sunset Zoo Amp. Photograph.

**Figure 4.39** | Wilson, Erin. 2016. Conceptual photomontage showcasing plant science ideas from the students and the researcher. Photomontage using and modifying the following images in Adobe Photoshop:

- "A community garden in Montreal, Canada." 2008. Photo by Klest. Courtesy of Wikimedia Commons. Accessed 6 March 2016. [https://commons.wikimedia.org/wiki/File:Community\\_garden.jpg](https://commons.wikimedia.org/wiki/File:Community_garden.jpg)
- "BALARAT CENTER FOR ENVIRONMENTAL STUDIES NORTHWEST OF BOULDER. OPERATED BY DENVER SCHOOL SYSTEM." 1972. Photo by Bruce McAllister. Courtesy of Wikimedia Commons. Accessed 6 March 2016. [https://commons.wikimedia.org/wiki/File:BALARAT\\_CENTER\\_FOR\\_ENVIRONMENTAL\\_STUDIES\\_NORTHWEST\\_OF\\_BOULDER\\_OPERATED\\_BY\\_DENVER\\_SCHOOL\\_SYSTEM\\_\(FROM\\_THE...\\_-\\_NARA\\_-\\_552944.tif](https://commons.wikimedia.org/wiki/File:BALARAT_CENTER_FOR_ENVIRONMENTAL_STUDIES_NORTHWEST_OF_BOULDER_OPERATED_BY_DENVER_SCHOOL_SYSTEM_(FROM_THE..._-_NARA_-_552944.tif)
- mym. 2003. Vegetable garden at Ham House Estate. Courtesy of Wikimedia Commons. Accessed 6 March 2016. [https://commons.wikimedia.org/wiki/File:Vegetable\\_garden\\_at\\_Ham\\_House\\_Estate\\_-\\_geograph.org.uk\\_-\\_4530.jpg](https://commons.wikimedia.org/wiki/File:Vegetable_garden_at_Ham_House_Estate_-_geograph.org.uk_-_4530.jpg)
- "Community garden." 2008. Photo by Angelica Phoenix. Courtesy of Wikimedia Commons. Accessed 6 March 2016. [https://commons.wikimedia.org/wiki/File:2008\\_community\\_garden\\_PhoenixAZ\\_4750955867.jpg](https://commons.wikimedia.org/wiki/File:2008_community_garden_PhoenixAZ_4750955867.jpg)
- Kansas State Landscape Architecture Entourage: "Biondolilo, Jenna.2011. biondolilo\_tree\_01.psd."
- Wilson, Erin. 2015. trees.psd.
- Wilson, Jim. 2015. Lennox High School site photo. Photograph.

## 05 Conclusions

**Figure 5.1** | Wilson, Laura. 2009. South Dakota FFA Nursery/Landscape CDE State Individual Winner 2009. Photograph.

## 08 Appendices

**Figure 8.1** | Wilson, Jim. 2015. Lennox High School site photo. Photograph.

**Figure 8.2** | Wilson, Jim. 2015. Lennox High School site photo. Photograph.

**Figure 8.3** | Wilson, Jim. 2015. Lennox High School site photo. Photograph.

**Figure 8.4** | Wilson, Jim. 2015. Lennox High School site photo. Photograph.

# Table Citations

## 04 Findings

**Table 4.1** | Wilson, Erin. 2016. PS.04. Content Standards. Adobe InDesign and Illustrator. Referenced from:

- National Council for Agricultural Education (The Council). 2015. "National AFNR Content Standards." [https://www.ffa.org/SiteCollectionDocuments/council\\_afnr\\_career\\_cluster\\_content\\_standards.pdf](https://www.ffa.org/SiteCollectionDocuments/council_afnr_career_cluster_content_standards.pdf).

**Table 4.2** | Wilson, Erin. 2016. Landscape, Design, and Maintenance Core Standards. Adobe InDesign and Illustrator. Referenced from:

- South Dakota Office of Career and Technical Education (SD CTE). 2016. "State Approved Courses for Agriculture, Food & Natural Resources school year 2016-17." <http://doe.sd.gov/occte/documents/16SeqAFNR.pdf>

**Table 4.3** | Wilson, Erin. 2016. Conceptual implementation list to spark future development of the outdoor learning environment. Adobe InDesign and Illustrator.



# 07

## APPENDICES

APPENDIX A: Pre-Workshop Survey

APPENDIX B: IRB Materials

APPENDIX C: Workshop Materials

APPENDIX D: Post-Workshop Survey

APPENDIX E: Site Photos



# 07

## APPENDICES

### APPENDIX A

#### Pre-Workshop Survey

## Introduction

**Juniors, welcome to the Lennox Ag-Ed Student Survey!**

### Consent

**Title:**  
Landscape Architecture in the Ag-Ed Classroom

**Principal Investigator:**  
Howard Hahn (Primary Investigator and Contact), Associate Professor, Landscape Architecture and Regional & Community Planning, Kansas State University, [hhahn@ksu.edu](mailto:hhahn@ksu.edu)

**With collaborator:**  
Erin Wilson, landscape architecture graduate student

**Purpose Statement:**  
The goal of the survey is to understand the background of the agricultural education student population, personal career interests, learning styles, and students' perceptions of landscape architecture. After survey completion, the data will be analyzed to reveal consistencies and identify trends will be identified for improving Ag-Ed courses. The survey will show if the current curriculum aligns with student interests.

**Survey Procedure and Participation:**  
You will be asked to provide responses to several questions about your agricultural background, agricultural education experiences, learning style preferences, and awareness of landscape architecture. This survey is expected to take 20-30 minutes during class time to complete. If you choose not to participate, you will be expected to sit quietly and complete homework for this or other classes.

**Confidentiality:**  
The information that you provide in this survey will be anonymous. No personally identifiable information will be collected. The data will be stored online during the duration of this study and no longer than May 2016. Beyond that time, the information will be stored digitally by Erin Wilson for at least 5 years.

**Contact Information:**  
If you have any questions or concerns about this research project, you may contact Howard Hahn ([hhahn@ksu.edu](mailto:hhahn@ksu.edu)). If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, you may contact the Kansas State University.

**Research Compliance Office:**  
203 Fairchild Hall  
Manhattan KS, 66502  
785.532.3204  
[comply@ksu.edu](mailto:comply@ksu.edu)

**Consent:**  
Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the survey at any time. By clicking [Next](#) to start this survey, you agree to participate in a research project conducted by the investigators.

## General Background

**In this section, we would like to better understand your background.**

**What grade are you in?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior

**What is your gender?**

- ☐ Male
- ☐ Female

**Where do you live?**

- ☐ On a farm or acreage
- ☐ In town: Lennox, Chancellor, Worthing, etc.

If you answered "on a farm or acreage" in the previous question, would you stay in rural areas to carry the family farm?

	Extremely likely	Likely	Neutral	Unlikely	Extremely unlikely	N/A
If you live in town, select N/A.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Where do you see yourself living in 20 years?

- ☐ Rural areas: small town or farm
- ☐ Suburban areas: like Tea and Harrisburg
- ☐ Urban areas: Like Sioux Falls or larger

Agricultural Experience

In this section, we would like to better understand your agricultural interests.

What area(s) of agriculture excite you? (check all that apply)

- ☐ Agricultural Services: education, marketing, business, etc.
- ☐ Fabrication: welding, woodworking, etc.
- ☐ Animals: Livestock, small animals
- ☐ Crops: small and large scale
- ☐ Natural resources: environment, wildlife, conservation, etc.
- ☐ Other:

Are you going to compete in any Career Development Events (CDEs)?

- ☐ Yes: Which CDE?
- ☐ No

Does your Supervised Agricultural Experience (SAE) relate to your interests in agriculture?

- ☐ Yes
- ☐ No

In 20 years, do you see yourself working in the agricultural industry?

	Very unlikely	Unlikely	Undecided	Likely	Very likely
Please rate:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you could add a different agriculture class to Mr. Wilson's curriculum, what would you include? Why?



Learning Styles

In this section, we would like to better understand your preferred learning styles.

How do you like to learn class material?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Visual: images & pictures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aural: sound & music	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verbal: words, speech, & writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical: hands-on, tactile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Logical: use logic, reasoning, & systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solitary: study alone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social: study with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If Lennox High School provided the opportunity for you, would you do like to:	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Learn class material outside	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Practice CDEs outside	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use school grounds for your SAE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Landscape Architecture Profession

In this section, we would like understand what you know about landscape architecture.

What are the differences (if any) between landscapes, landscaping, and landscape architecture?

Are you familiar with the term "landscape architecture"?	Not familiar at all	Slightly familiar	Somewhat familiar	Moderately familiar	Extremely familiar
Please rate:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you have heard about landscape architecture, who have you heard it from? (check all that apply)

- ☐ This survey
- ☐ Teacher
- ☐ Relative
- ☐ Friend
- ☐ Other

What comes to mind when you hear "landscape architecture"?

Would you ever consider a career in landscape architecture?



Do you think agriculture and landscape architecture are related?



Landscaping and Horticulture Education

In this section, we would like to know about your current experience in the Landscaping and Horticulture class.

What have you enjoyed the most about the Landscaping and Horticulture class?

How could the Landscaping and Horticulture class be improved?

Have you applied the Landscaping and Horticulture class beyond school? How?

☐ Yes

☐ No

Do you see landscapes differently after taking the Landscaping and Horticulture class?



Did you compete in the Nursery Landscape Career Development Event (CDE) before taking the Landscaping and Horticulture class?

- ☐ Yes
- ☐ No

Does your Supervised Agricultural Experience (SAE) relate to landscape, horticulture, etc.?

- ☐ Yes
- ☐ No

After taking the Landscaping and Horticulture class, would you:

	Very unlikely	Unlikely	Somewhat unlikely	Undecided	Somewhat likely	Likely	Very likely
Compete in the Nursery Landscape CDE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider an SAE in the landscape field?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider a future career in the landscaping field?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider a future career in the landscape architecture profession?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# **APPENDIX B**

## **IRB Materials**

January 28, 2016

RE: Consent for Student Participation in Online Survey

Dear Parent/Guardian:

My name is Erin Wilson and I am a graduate student at Kansas State University in the Landscape Architecture and Regional/Community Planning department. For my Master's report, I am examining the relationship between agricultural education and landscape architecture. I am interested in the agricultural background of high school students, their awareness of landscape architecture, and their reflection on the landscape and horticulture course in the agricultural education program. Benefits of this survey and Master's report will be to develop a framework for Ag-Ed outdoor learning environments, a site design for Lennox's agricultural education program, and serve foundational information for both state and national industry organizations like American Society of Landscape Architects, National Association of Agricultural Educators, and Association for Career and Technical Education.

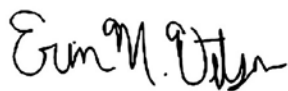
Because your child is enrolled in Mr. Wilson's agricultural classes, I am inviting them to participate in this research study by completing the survey.

The survey consists of 25 questions and I estimate that it will require approximately 20-30 minutes to complete during scheduled class time. Risks are considered to be minimal, if any. However, participants are provided with a consent response if they choose to participate in the study. Students can also withdraw from the study anytime.

Survey/interview results will be publicly available on-line at the K-State Research Exchange (<https://krex.k-state.edu>) in approximately six months. Results may also be published and/or presented in academic venues.

If you would like to have your child participate in the survey, please sign and return the attached consent form to Mr. Wilson by Monday, February 29. To inform you concerning the types of questions to be asked, the survey can be previewed at [https://kstate.qualtrics.com/SE/?SID=SV\\_3TPe4PBmfm9vgvb](https://kstate.qualtrics.com/SE/?SID=SV_3TPe4PBmfm9vgvb). If you would like to receive a paper copy of the survey instead, or have other questions, please contact me through the information provided below.

Sincerely,



Erin Wilson  
Phone: (605) 940-3870  
Email: [erwilson11172@ksu.edu](mailto:erwilson11172@ksu.edu)

Instructor: Howard Hahn  
Email: [hhahn@ksu.edu](mailto:hhahn@ksu.edu)

**Informed Consent Form**

**Title:**  
Landscape Architecture in the Ag-Ed Classroom

**Principal Investigator:**  
**Howard Hahn** (Primary Investigator and Contact), Associate Professor, Landscape Architecture and Regional & Community Planning, Kansas State University, hhahn@ksu.edu, (785) 320-2431.

**With collaborator:**  
**Erin Wilson**, landscape architecture graduate student

**Purpose Statement:**  
The goal of the survey is to understand the background of the agricultural education student population, personal career interests, learning styles, and students' perceptions of landscape architecture. After survey completion, the data will be analyzed to reveal consistencies and identify trends will be identified for improving Ag-Ed courses. The survey will show if the current curriculum aligns with student interests.

**Study Procedure:**  
Students will be asked to provide responses to several questions about their agricultural background, agricultural education experiences, learning style preferences, and awareness of landscape architecture. This survey is expected to take 20-30 minutes during class time to complete. If students choose not to participate, they will be expected to sit quietly and complete homework for this or other classes. Non-participation will not affect a student's grade for the course.

**Confidentiality:**  
The information that you provide in this survey will be anonymous. No personally identifiable information will be collected. The data will be stored online during the duration of this study and no longer than May 2016. Beyond that time, the information will be stored digitally by Erin Wilson for at least 5 years. Information that you provide in this survey will be used to improve future course delivery and support Erin Wilson's Master's report.

**Contact Information:**  
If you have any questions or concerns about this research project, you may contact Howard Hahn. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, you may contact the Kansas State University Research Compliance Office:

203 Fairchild Hall  
Manhattan KS, 66502  
785-532-3224  
comply@k-state.edu

**Consent:**  
I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of student

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Parent or Guardian

January 28, 2016

RE: Request for Upcoming Workshop and Post-Survey Participation Consent and Image Release

Dear Parent/Guardian:

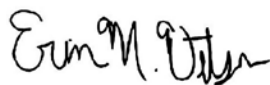
This letter is similar to one that you already received regarding an upcoming survey administered across all grade levels as part of my research. Since your student is also currently enrolled in the Landscaping and Horticulture class, additional consent and an image release is being requested for an upcoming workshop and post-survey that will be held during class time on March 4, 8, & 10, and is part of the same research effort.

My name is Erin Wilson and I am a graduate student at Kansas State University in the Landscape Architecture and Regional/Community Planning department. For my Master's report, I am examining the relationship between agricultural education and landscape architecture. I am interested in the agricultural background of high school students, their awareness of landscape architecture, and their reflection on the landscape and horticulture course in the agricultural education program. Benefits of this survey and Master's report will be to develop a framework for Ag-Ed outdoor learning environments, a site design for Lennox's agricultural education program, and serve foundational information for both state and national industry organizations like American Society of Landscape Architects, National Association of Agricultural Educators, and Association for Career and Technical Education.

The workshop will span over three 65 minute class periods on LHS Black days. The workshop consists of an introduction to landscape architecture, creative and critical thinking, and teamwork to provide input for an outdoor learning environment project (no construction will take place at this time). Students will be asked to think outside of the box for ideas and conceptual designs. Risks are considered to be minimal, if any. Students will be asked if they want to participate one week before the workshop. If they do not wish to participate, they will be assigned an alternative activity. Non-participation in the workshop/survey will have no impact on any grades.

Workshop results will be publicly available on-line at the K-State Research Exchange (<https://krex.k-state.edu>) in approximately six months. Results may also be published and/or presented in academic venues. If you require additional information or have questions, please contact me at the number or email listed below.

Sincerely,



Erin Wilson  
Phone: (605) 940-3870  
Email: [emwilson11172@ksu.edu](mailto:emwilson11172@ksu.edu)

Instructor: Howard Hahn  
Email: [hhahn@ksu.edu](mailto:hhahn@ksu.edu)

## Informed Consent Form

**Title:**  
Landscape Architecture in the Ag-Ed Classroom

**Principal Investigator:**  
Howard Hahn (Primary Investigator and Contact), Associate Professor, Landscape Architecture and Regional & Community Planning, Kansas State University, hhahn@ksu.edu, (785) 320-2431.

**With collaborator:**  
Erin Wilson, landscape architecture graduate student

**Purpose Statement:**  
This project can contribute to expanding research on the relationship between landscape architecture and agriculture. The goals of the workshop is to present a breadth of information about landscape architecture and to hopefully spark an interest in the landscape architecture profession. This workshop could provide a model for the landscape architecture interaction with secondary schools as a way to promote awareness about the profession.

**Study Procedure:**  
The researcher will come to Lennox High School for three 85 minute class periods during the Landscaping and Horticulture Course. Mr. Wilson will supervise interaction between the researcher and the participants. The first day will cover an introduction to the landscape architecture profession as well as an overview of the outdoor learning environment project. On the second day, the students will begin the design process on generating ideas for the outdoor learning environment. The final day will consist of team presentations and a post-workshop survey. The post-survey will have students evaluate workshop content, workshop structure, presenter effectiveness, future workshop implementation, and workshop takeaways. If your student chooses not to participate, an alternate activity will be provided. If your student wishes to discontinue participation at any time, they are willing to do so.

**Confidentiality:**  
The information that you provide in this post-survey portion of the workshop will be anonymous. No personally-identifiable information will be collected. The post-survey data will be stored online during the duration of this study and no longer than May 2016. Beyond that time the information will be stored digitally by Erin Wilson for at least 5 years. The information that you provide in this workshop and post-survey will be used in Erin Wilson's Master's report to determine the effectiveness of the workshop to change students' awareness of landscape architecture. Also, the information that you provide will be used to evaluate the future implementation of the workshop in the Landscaping and Horticulture class.

**Contact Information:**  
If you have any questions or concerns about this research project, you may contact Howard Hahn. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, you may contact the Kansas State University Research Compliance Office:

203 Fairchild Hall  
Manhattan KS, 66502  
785-532-3224  
comply@k-state.edu

**Consent:**  
I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of student

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Parent or Guardian



## Image Release Form

### Title:

Landscape Architecture in the Ag-Ed Classroom

### Principal Investigator:

Howard Hahn (Primary Investigator and Contact), Associate Professor, Landscape Architecture and Regional & Community Planning, Kansas State University, hhahn@ksu.edu, (785) 532-2431.

### With collaborator:

Erin Wilson, landscape architecture graduate student

### Purpose Statement:

This project can contribute to expanding research on the relationship between landscape architecture and agriculture. The goals of the workshop is to present a breadth of information about landscape architecture and to hopefully spark an interest in the landscape architecture profession. This workshop could provide a model for the landscape architecture interaction with secondary schools as a way to promote awareness about the profession.

### Study Procedure:

The researcher will come to Lennox High School for three 85 minute class periods during the Landscaping and Horticulture Course. Mr. Wilson will supervise interaction between the researcher and the participants. The first day will cover an introduction to the landscape architecture profession as well as an overview of the outdoor learning environment project. On the second day, the students will begin the design process on generating ideas for the outdoor learning environment. The final day will consist of team presentations and a post-workshop survey. The post-survey will have students evaluate workshop content, workshop structure, presenter effectiveness, future workshop implementation, and workshop takeaways. If your student chooses not to participate, an alternate activity will be provided. If your student wishes to discontinue participation at any time, they are willing to do so.

### Confidentiality:

Although images reflecting participation may be used (see below), no other personally-identifiable information related to workshop or survey results will be collected or communicated. The data will be stored online during the duration of this study and no longer than May 2016. Beyond that time the information will be stored digitally by Erin Wilson for at least 5 years. The information that you provide in this study will be used in Erin Wilson's Master's report to determine the effectiveness of the workshop to change students' awareness of landscape architecture. Also, the information that you provide will be used to evaluate the future implementation of the workshop in the Landscaping and Horticulture class.

### Contact Information:

If you have any questions or concerns about this research project, you may contact Howard Hahn. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, you may contact the Kansas State University Research Compliance Office:

203 Fairchild Hall  
Manhattan KS, 66502  
785-532-3224  
comply@k-state.edu

I, (print name) \_\_\_\_\_, hereby grant permission to Kansas State University research representatives, to take and use: photographs and/or digital images of me for use in the presentation of research, news releases, and/or education materials. These material might include printed or electronic publications, web sites, or other electronic communications. I authorize the use of these images without compensation to me.

Date \_\_\_\_\_

Signature of student \_\_\_\_\_

I, (print name) \_\_\_\_\_, parent or official guardian of (child's name) \_\_\_\_\_ hereby grant permission to Kansas State University research representatives, to take and use: photographs and/or digital images of my child for use in the presentation of research, news releases, and/or education materials. These material might include printed or electronic publications, web sites, or other electronic communications. I authorize the use of these images without compensation to me.

Date \_\_\_\_\_

Signature of Parent or Guardian \_\_\_\_\_

TO: Howard Hahn  
LARCP  
3031 Seaton

Proposal Number: 8106

FROM: Rick Scheidt, Chair   
Committee on Research Involving Human Subjects

DATE: 02/18/2016

RE: Approval of Proposal Entitled, "Landscape Architecture in the Ag-Ed Classroom:  
Cultivating the next generation of designers Activity: SURVEY."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for one year from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: 02/18/2016

EXPIRATION DATE: 02/18/2017

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated "**continuing review**" of the research. Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is not granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

☒  
☐

There is no more than minimal risk to the subjects.

There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced post-approval monitoring may be performed during the course of this approval period by URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB and / or the URCO.

TO: Howard Hahn  
LARCP  
303I Seaton

Proposal Number: 8105

FROM: Rick Scheidt, Chair  
Committee on Research Involving Human Subjects

DATE: 02/18/2016

RE: Approval of Proposal Entitled, "Landscape Architecture in the Ag-Ed Classroom: Cultivating the next generation of designers Activity: WORKSHOP & POST-SURVEY."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for one year from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: 02/18/2016

EXPIRATION DATE: 02/18/2017

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated "continuing review" of the research. Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is not granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

- ☒ There is no more than minimal risk to the subjects.  
☐ There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced post-approval monitoring may be performed during the course of this approval period by URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB and / or the URCO.

# **APPENDIX C**

## **Workshop Materials**

## Landscaping and Horticulture

Jim Wilson  
Spring 2016

### **LHS Workshop Agenda**

Presenter: Erin Wilson, landscape architecture graduate student  
Location: Lennox High School, Lennox, SD

	<b>Time</b>
<b>Day One: Friday March 4th</b>	<b>85 min</b>
1. Introduction: What is Landscape Architecture?	
a. Landscapes, Landscaping, & Landscape Architecture Discussion	10 min
b. ASLA Presentation Handout: <i>Green Since 1899</i>	
c. Video: <i>I want to be a landscape architect</i>	5 min
i. <a href="http://www.bealandscapearchitect.com/">http://www.bealandscapearchitect.com/</a>	
ii. Be a Landscape Architect Team of The Landscape Institute in London	
d. My Journey to Landscape Architecture	30 min
i. Presentation, FCC Video, Project Prints, Portfolio	
2. Project Overview	30 min
a. Project Statement	
i. Site conditions	
ii. Regions	
1. Fabrication: area for making things-welding, etc.	
2. Animals Science: livestock, small animals	
3. Plant Science: small and large scale	
4. Environmental Science: wildlife, conservation, etc.	
5. Education/Services: education, sales, business, etc.	
b. Index card handout	8 min
i. Name	
ii. Preferred role in team: leader, not leader, creative, etc.	
iii. Design region ranking: Fabrication, animals science, plant science, environmental science, and education/services	
iv. Is there anyone you prefer working with?	
3. Announcements	2 min
<b>Day Two: Tuesday March 8th</b>	<b>85 min</b>
1. Recap Project Statement	3 min
2. Announce teams	2 min
3. Design Process Overview	60 min
a. Site Inventory and Analysis (weather permitting)	
b. Site Program	
c. Design Concepts/Ideas	
d. Finalize Ideas	
4. Start planning presentations	20 min
a. Format: Collages, drawings, Pinterest, PPT, 3D model, etc.	
<b>Day Three: Thursday March 10th</b>	<b>85 min</b>
1. Finish up presentation materials	30 min
2. Present findings to class (5 minute presentations)	30 min
3. Post-Survey: reflection of experience	25 min

Landscaping and Horticulture  
Jim Wilson  
Spring 2016



## Project: Ag-Ed Outdoor Learning Environment

LHS Workshop

March 4th, 8th, & 10th 2016

*"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has." -Margaret Mead*

### Intent

The intent of the workshop is to gather ideas for an outdoor learning environment for Mr. Wilson's agricultural education classes and activities. The outdoor learning environment is meant to provide an exterior space for Ag classes and FFA activities all year long beyond the academic year. However, the outdoor learning environment also needs to serve the rest of the high school courses and the surrounding community

### What is an outdoor learning environment?

"Outdoor education is an experiential process of learning by doing, which takes place primarily through exposure to the out-of-doors. In outdoor education the emphasis for the subject of learning is placed on **relationships**, relationships concerning people and natural resources" (Priest 1986).

### Overview

It has been 10 years since Lennox High School has moved from its West 5th Avenue location to the South Main Street location on the southern edge of town. As the main building keeps expanding, the land south of the parking area has remained the same. In years past, classes such as Outdoor Science have used the ponded area to observe and study wildlife.

The landscape architecture consultant (you) has been asked to consider further expansion of the main building, Ag class content requirements, pedestrian circulation from the Ag and Industrial Technology shops to the specific areas, and rural character of the landscape.

### Situation

The outdoor learning environment is envisioned to meet current and changing needs of Lennox High School and the surrounding community. Currently, the site is mainly grassy with a wetland area on the west side of the property. This land could be better utilized to enhance student learning in agricultural education classes as well as other courses. The land must also be available for year-round use by both the Lennox Sundstrom FFA chapter and the community.



Lennox High School Aerial Image  
(Google Earth, 2016).



By Bruce McAllister, 1936-. Photographer  
(NARA record: 3823134) - U.S. National  
Archives and Records Administration,  
Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16627560>

## Program

Activity considerations:

### Ag class content

- Intro to the Ag Industry, Applied Animal Science, Landscaping and Horticulture, Ag Business and Mechanics, Welding, & Leadership and Personal Development
- Areas for class meetings, demonstrations, and projects
- FFA Week festivities: animal nursery, etc.
- Areas for student SAEs
- CDEs: practices and contests

### Other classes to consider (if applicable)

- Industrial Tech, Family & Consumer Science, and Art
- Science, Math, & Chemistry

### Community

- Gardens & Farmer's Markets
- Events-graduations, tailgating, etc.

## Outcome

In teams of four, you will be brainstorming ideas for an outdoor learning environment at Lennox High School. Each team will be assigned to one of five categories: fabrication, animal science, plant science, environmental science, and education and services. Through a creative medium, (collages, sketches, 3D models, Pinterest boards, etc.), each team will present their ideas to the class and Erin Wilson. These ideas are not absolute, but should be **creative** and **visionary**. Future Landscaping and Horticulture students will look at your work as a reference for the future design and implementation of the outdoor learning environment. Later, Erin Wilson will refine the ideas for her Master's report, future classes, and a display at the annual FFA banquet.

## Schedule

### Friday March 4th:

Introduction to Landscape Architecture presentation and introduction to project

### Tuesday March 8th:

Team assignments, introduction to the design process, and work day

### Thursday March 10th:

Finish up presentation materials, 5 minute presentations, and post-workshop survey

## Learning Objectives

Students should emerge from this workshop with:

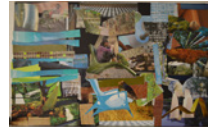
- An improved understanding and appreciation for landscape architecture
- An improved understanding of the design process
- An improved understanding of how landscape architecture relates to agriculture
- Improved ability to apply Landscaping and Horticulture knowledge and skills
- Improved ability to find creative solutions and apply critical thinking
- Improved ability to adapt programs/activities into the site



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Queensland State Archives, Digital Image ID 28611D label: 1138714, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=25321080>

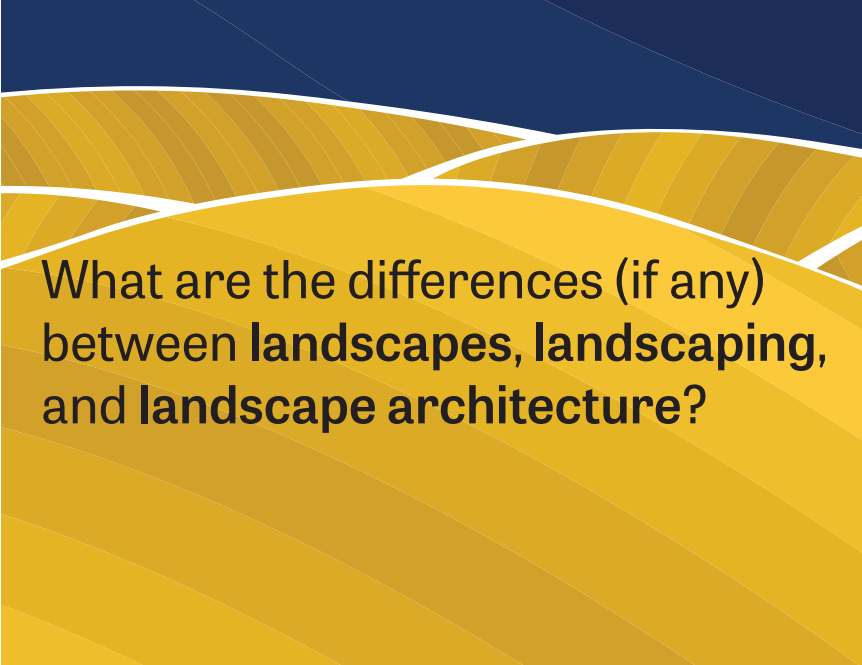


Project collage. Magazines and newspapers. Wilson 2014.



Agricultural education outdoor learning environment photomontage. Digital. Wilson 2015.

Priest, Simon. 1986. "Redefining Outdoor Education: A Matter of Many Relationships." *The Journal of Environmental Education* 17 (3): 13-15.



## What are the differences (if any) between **landscapes**, **landscaping**, and **landscape architecture**?

**landscape architecture** | *noun* | land·scape ar·chi·tec·ture

“Landscape architecture is the comprehensive discipline of land analysis, planning, design, management, preservation, and rehabilitation. The profession of landscape architecture has been built on the principles of dedication to the public safety, health and welfare; and recognition and protection of the land and its resources” (Sullivan 2014).

Sullivan, Dan. "Landscape Architecture." 2014. Whole Building Design Guide. Accessed February 24. [http://bsbc.nibs.org/design/ld\\_landscapearch.php](http://bsbc.nibs.org/design/ld_landscapearch.php)



## **landscapes** | *noun* | land·scapes

General term for natural and built landforms. Includes mountains, prairies, rivers, lakes, buildings, structures, and the transitional spaces in between.

## **landscaping** | *verb* | land·scap·ing

“The planning, laying out and construction of gardens that enhance the appearance and create [usable] space for outdoor activities around a home” (Landscaping Network 2016). The act of altering the land. Requires more expertise in horticulture and landscape design on a small scale.

“What Is Landscaping?” - Landscaping Network. 2016. LandscapingNetwork.com. Accessed February 24. <http://www.landscapingnetwork.com/landscape-design/what-is.html>.

# APPENDIX D

## Post-Workshop Survey

Introduction

Juniors, welcome to the Landscape Architecture Post-Workshop Survey!

Consent

**Title:**  
Landscape Architecture in the Ag-Ed Classroom

**Principal Investigator:**  
**Howard Hahn** (Primary Investigator and Contact), Associate Professor, Landscape Architecture and Regional & Community Planning, Kansas State University, hhahn@ksu.edu

**With collaborator:**  
**Erin Wilson**, landscape architecture graduate student

**Purpose Statement:**  
This project can contribute to expanding research on the relationship between landscape architecture and agriculture. The goals of the workshop are to present a breadth of information about landscape architecture and to hopefully spark an interest in the landscape architecture profession. This workshop could provide a model for the landscape architecture interaction with secondary schools as a way to promote awareness about the profession.

**Survey Procedure and Participation:**  
You will be asked to provide responses to several questions about your experience and reflections concerning the workshop, presentation of the workshop, and suggestions for future implementations.

**Confidentiality:**  
No personally identifiable information will be collected. The data will be stored online during the duration of this study and no longer than May 2016. Beyond that time, the information will be stored digitally by Erin Wilson for at least 5 years. The information that you provide in this study will be used in a master's report to determine the effectiveness of the workshop to change students' awareness of landscape architecture. Also, the information that you provide will be used to evaluate the future implementation of the workshop in the Landscaping and Horticulture class.

**Contact Information:**  
If you have any questions or concerns about this research project, you may contact Howard Hahn (hhahn@ksu.edu). If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, you may contact the Kansas State University.

**Research Compliance Office:**  
203 Fairchild Hall  
Manhattan KS, 66502  
785323224  
comply@ksstate.edu

**Consent:**  
Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the survey at any time. By clicking Next to start this survey, you agree to participate in a research project conducted by the investigators.

Landscape Architecture Awareness

In this section, we would like understand what you now know about landscape architecture.

After the discussion during the workshop, what do you think are the differences (if any) between landscapes, landscaping, and landscape architecture?

After the workshop, now how familiar are you with the term landscape architecture?

	Not familiar at all	Slightly familiar	Somewhat familiar	Moderately familiar	Extremely familiar
Please rate:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What comes to mind when you now hear landscape architecture?

Do you see landscapes differently after participating in the workshop?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Natural landscapes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Built landscapes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you now think agriculture and landscape architecture are related?

	Definitely yes	Probably yes	Maybe	Probably not	Definitely not	Don't know
Please rate:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Was the Introduction to Landscape Architecture presentation by Erin Wilson effective in telling you what landscape architecture is? How was it effective?

☐ Yes

☐ No

After participating in the workshop, would you:

	Very unlikely	Unlikely	Undecided	Likely	Very likely
Want to learn more about landscape architecture?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compete in the Nursery Landscape CDE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider an SAE in the landscape field?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider a future career in the landscaping field?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider a future career in the landscape architecture profession?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Workshop Experience

In this section, we would like to know about your experience in the Landscape Architecture Workshop.

What did you enjoy most about the workshop?

How could the workshop be improved?

**Did the workshop spark:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
More creativity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More critical thinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More collaboration?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Which team were you a part of?**

- ☐ Agricultural Services: education, marketing, business, etc.
- ☐ Fabrication: welding, woodworking, etc.
- ☐ Animals: Livestock, small animals
- ☐ Crops: small and large scale
- ☐ Environment: wildlife, conservation, etc.

**What worked well in the team? What didn't work well? Would you have rather worked alone?**

**Future Implementation**

**In this section, we would like to know about ideas you gained from the workshop and suggestions for future implementation.**

**Could the workshop enhance the Landscaping and Horticulture class? How?**

**How could the workshop be improved if Mr. Wilson decided to have future classes participate in one?**

**Which idea(s) do you see being implemented in the outdoor learning environment? What was your favorite?**

**In your opinion, which idea or concepts wouldn't be successful in the outdoor learning environment?**

# Presentation of Workshop

In this section, we would like to know about the presentation of the workshop.

Please evaluate the following on the content of the workshop.

	Very ineffective	Ineffective	Neither effective nor ineffective	Effective	Very effective
Clarity of content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of content: Landscape Architecture Introduction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please evaluate the following on the organization of the workshop.

	Very ineffective	Ineffective	Neither effective nor ineffective	Effective	Very effective
Appropriate use of media (video, handouts, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smooth transitions between topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Logical flow of content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please evaluate the following on the graduate student's delivery of the workshop.

	Very ineffective	Ineffective	Neither effective nor ineffective	Effective	Very effective
Professional and confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engaged with students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spoke in terms you could understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response to questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



# APPENDIX E

## Site Photos



**Figure 8.1** | Lennox High School site photo. (*Wilson 2015*)



**Figure 8.2** | Lennox High School site photo. (*Wilson 2015*)





**Figure 8.3** | Lennox High School site photo. (Wilson 2015)



**Figure 8.4** | Lennox High School site photo. (Wilson 2015)

