

Exploring Indigenous entanglements in extension, land, and agriculture: An Oklahoma case study

by

Jann S. Hayman

B.S., Oklahoma State University, 2005
M.Ag., Oklahoma State University, 2007

AN ABSTRACT OF A DISSERTATION

Submitted in partial fulfillment of requirements for the degree

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College of Education

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Manhattan, Kansas

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Abstract

There is an extensive and complex history of agricultural and educational systems within the United States. Indigenous peoples maintained highly developed agricultural systems prior to colonization. After colonization, Indigenous and European systems converged in a battle of power that lasted for centuries. Today, there are 573 federally recognized Native nations in the United States (Bureau of Indian Affairs, 2019) and 39 federally recognized Native nations within the state of Oklahoma (Oklahoma Historical Society, n.d.). The agricultural history of each tribe is unique and European influence is found throughout. This research focuses on the agricultural history and current agricultural systems and educational programs of four Oklahoma-based Native nations: the Choctaw Nation, Muscogee (Creek) Nation, Osage Nation, and Quapaw Nation. Additionally, the study looks at educational opportunities created by the College of the Muscogee Nation. This study seeks to understand the histories of these five settings related to the development of agriculture, specifically as it relates to agricultural education. Using TribalCrit (Brayboy, 2005; Daniels, 2011; Writer, 2008) and Osage ribbon work (Dennison, 2012; Hayman, RedCorn, & Zacharakis, 2018; RedCorn, 2016; RedCorn, in press) as the theoretical frameworks, this multiple-case study seeks to understand the complex entanglements that not only existed historically, but currently exist in respect to the development of Indigenous specific agricultural education programs.

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Approved by:

Major Professor
Jeffrey Zacharakis, Ed.D.

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road, but one that was worth every minute of it. Thank you to each person that supported me along the way. I hope this dissertation makes you proud.

Dedication

I dedicate this work to my children, Blake and Jake. This work was started with Blake's future in mind, knowing that I wanted a positive place for her on our reservation. Jake was born during my doctoral journey and he only added to the importance of the need for a better and brighter future. Blake and Jake, do not ever stop learning and dreaming. You are the agricultural future of our Osage people.

Exploring Indigenous Entanglements in Extension, Land, and Agriculture: An Oklahoma Case Study

CHAPTER 1: INTRODUCTION

Background

Before Europeans stepped onto North American ground, Indigenous peoples ranged across the vast continent. More specifically, there were numerous Indigenous nations who were central to the prairie regions. The Plains Indians spanned from the Saskatchewan River Basin in Canada to the Rio Grande River in southern Texas (Carlson, 1998; Holder, 1970). Plains Indians can be classified into two groups: hunting people of the high plains and horticulture people of the eastern prairies (Carlson, 1998; Holder, 1970). The following map illustrates the general range of each of the Indigenous nations within the Plains.

Figure 1.1

The Plains and Some Western Indians. (Carlson, 1998, p. 3)



Figure 1.1. The Plains and Some Western Indians (Carlson, 1998, p. 3)

The two Plains Indian groups, the hunting people of the high plains and the horticultural people of the eastern plains, have several distinguishable characteristics. These characteristics are general and cannot collectively cover each Indigenous tribal group. To begin, the first type of people, the hunting people of the high plains, hunted large game. After the Europeans brought horses to North America, some of the horses escaped and Indigenous peoples quickly utilized them to better hunt the large herds of bison (Branch, 1929; Calloway, 1982; Carlson, 1992). Hunting bison provided food and materials to sustain Indigenous communities. Because of their reliance on large game, the hunting people lived in mobile tipis to follow the herds (Branch, 1929; Carlson, 1998; Holder, 1970). The hunting people were also a society of warriors (Carlson, 1998; Ewers, 1997). These Indigenous peoples spanned from the far northern plains in Canada to the southern plains to the Rio Grande. To the far north, the nations included the Blackfeet, Plains Cree, and Assiniboin. Along the present day United States – Canada border resided the Crow, Lakota, and Gros Ventre. Across the central plains lived the Cheyenne and Arapaho. To the south, the Kiowa, Kiowa Apache, Lipan, Comanche and Tonkawa resided in the southern plains (Carlson, 1998).

The second type of people is the horticulture people of the eastern plains. The horticulture people lived on the eastern edge of the plains and included the Missouri River Valley. These Indigenous peoples, like the hunting people, hunted bison but also included semi-sedentary farming (Branch, 1929; Carlson, 1998; Holder, 1970). Their villages were more permanent, giving them the opportunity to engage more with farming. Some crops that were grown included beans, pumpkins, squash, melons, and maize (Carlson, 1992; Ewers, 1968). Farming allowed these nations to be able to barter with the nomadic nations to obtain important items, such as animal hide and meat (Ewers, 1968; Ewers, 1997). The nations that were located

closer to the Missouri River Valley utilized canoes to navigate the river systems (Carlson, 1998). The horticulture people spanned from the forest areas of Canada to present-day Texas. The nations residing in to the north in Canada include Ojibwa and Cree. The Santee, Yankonai, and Santee inhabited the prairie-plains between the Missouri river and the Mississippi River. The Quapaw tribe inhabited present-day Arkansas and the Pawnees inhabited present-day Nebraska. Farther to the south, the Ponca, Omaha, Iowa, Missouri, Oto, Kansa and Osage nations resided within the tallgrass prairie country (Carlson, 1998).

Together, the horticulture people of the eastern plains and the hunting people of the high plains were similar in many aspects. Though each of the individual nations varied, the people living on the Great Plains resembled each other more than they resembled the nations residing in the woodlands, the plateaus, or the Southwest (Carlson, 1998). Together, the Plains Indian nations shared similar personalities, worldviews, and religions (Carlson, 1998).

As the horticulture people of the eastern plains engaged with farming, they were utilizing the world around them to supply food and resources to their people. The story of The Three Sisters captures how the horticultural Indigenous peoples historically interacted with agriculture. The story of The Three Sisters:

A long time ago there were three sisters who lived together in a field. These sisters were quite different from one another in their size and way of dressing. The little sister [bean] was so young that she could only crawl at first, and she was dressed in green. The second sister [squash] wore a bright yellow dress, and she had a way of running off by herself when the sun shone and the soft wind blew in her face. The third [corn] was the eldest sister, standing always very straight and tall above the other sisters and trying to protect them. She wore a pale green shawl, and she had long, yellow hair that tossed about her

head in the breeze. There was one way the sisters were all alike, though. They loved each other dearly, and they always stayed together. This made them very strong.

One day a stranger came to the field of the Three Sisters – a Mohawk boy. He talked to the birds and other animals – this caught the attention of the three sisters. Late that summer, the youngest and smallest sister disappeared. Her sisters were sad. Again the Mohawk boy came to the field to gather reeds at the water's edge. The two sisters who were left watched his moccasin trail, and that night the second sister – the one with the yellow dress – disappeared as well.

Now the Elder Sister was the only one left.

She continued to stand tall in her field. When the Mohawk boy saw that she missed her sisters, he brought them all back together and they became stronger together, again. (NSU, n.d.)

The story of The Three Sisters is foundational among many horticultural Indigenous and while this illustration is not specifically a tribe of the Midwest, the Three Sisters is a common phrase across horticulture in Native communities. The Three Sisters illustrates the importance of agriculture within Native communities and also for managing the resources (Kruse-Peebles, 2016). Corn provides support for the beans; beans pull nitrogen from the air into the soil; and the leaves of the squash create shade for the soil, keep the soil cool, and prevent weeds (Boeckmann, 2019). As in the story, it was only when the three sisters were together that they were strong. Early Indigenous peoples knew the importance of managing the agricultural resources. This story depicts the importance of farming these three crops together as illustrated in a traditional story, which is a common way to pass down knowledge within Indigenous communities.

Every Native nation has uniquely different histories as they moved throughout the continent and settled to their present day location. Movements of Indigenous communities were both voluntary and also sometimes by force through settler-colonialism. Despite each unique history, it is true that Indigenous peoples were the first agriculturalists in the Western Hemisphere (Carlson, 1992; Carlson, 1998; Hurt, 1987). After European colonization, there was a movement to assimilate Indigenous peoples. Allotment was a significant part of this move to assimilate and was also thought to provide a “sense of ownership” (Hurt, 1987, p. 136) of the land to further situate Native Americans to become self-sufficient through agriculture. Ultimately, the Europeans viewed allotment and agriculture as solutions to make Native Americans civilized (Burns, 2004; Hurt, 1987; Lomawaima, 1999; Lomawaima & Ostler, 2018), which also created disruptions in their worldviews as it relates to relationships with land and resources.

Even though Indigenous peoples were subjected to assimilationist efforts to forcibly disconnect them from their languages, cultures, and worldviews, there were instances in which Native nations strategically navigated and negotiated their entanglements with settler-colonialism (Smith, 2012). Negotiating is described as identifying and pursuing long-term goals, which includes decisions related to natural resources (Smith, 2012). In negotiating spaces, nations are able to assert control of resources to meet the needs of their respective nations. Some examples of Indigenous success with agriculture are: Flathead Tribe in Montana raising fruit trees; Potawatomi farmers in Kansas growing corn, oats, rye, and wheat, while using Shorthorn cattle for herd upgrades; Cheyenne River Nation in South Dakota weathering the severe winter of 1886 better than non-Indigenous ranchers (Hurt, 1987). In these cases, the Indigenous peoples strategically leveraged the resources available to them and excelled.

Further, some Indigenous peoples recognized how allotment and the push for Eurocentric agriculture was evolving around them, and how these actions could either destroy their community or it could be embraced and be re-imagined to create a new Indigenous specific reality. These Indigenous peoples realized they “would have to change if the community were not to be splintered by the forces of this extraordinary time” (Iverson, 1995, p. 2). It was at this time that many Indigenous peoples took the European agricultural methods and modified them to fit their unique Indigenous place-based contexts. Ranching became a way to create a uniquely Indigenous form of agriculture, because not only could ranching provide an economic benefit, it also held a cultural component; in addition to Indigenous peoples being connected to the land, they had a significant relationship with horses. Since Spanish explorers first came to North America, the history of the Plains Indians has been strongly connected to horses to the extent that it became the new “traditional” (Hurt, 1987, p. 2). Since ranching corresponded with the use of horses, this became a natural opportunity for Indigenous peoples to remake a European agricultural system to become uniquely their own (Iverson, 1995). Further, ranching supported the traditional strength of community by being able to feed their people through the distribution of beef, teach responsibility to their children, and encourage reciprocity.

Whether nations were farming the Three Sisters or ranching, they were engaged with agriculture and their community. Through the process of colonialism, there has always been an engagement of Eurocentric agriculture and place based Indigenous approaches to agriculture. As settlers migrated west across the continent, systems of assimilation were created. In response, Indigenous peoples adapted and their agricultural systems were fractured. Specifically, there is little research available on how settler-colonial entanglements manifest themselves in

Extension programs and agricultural education administered by Native nations, particularly within four Oklahoma based nations that are part of this study.

In sum, Indigenous peoples have historically been engaged with agriculture and have continued to maintain those practices. As agricultural practices are passed down generationally, there is an inevitable educational component. However, there is a gap in literature that does not depict these agricultural education systems. For this reason, there is a need to explore the current Indigenous agricultural education systems. This dissertation focuses on exploring the agricultural education systems that exist within four Native nations and the College of the Muscogee Nation in Oklahoma.

Problem Statement

There is a significant gap in literature related to Indigenous agricultural educational program development, with a specific focus on Native nations. Since there is limited related literature, little to no support exists for educators who are seeking to create new Indigenous agricultural education programming. Understanding the development of Indigenous specific agricultural education programs can lead to future program development.

Significance of the Study

There are 573 federally recognized Native nations within the United States (Bureau of Indian Affairs, 2019). Of those, 39 federally recognized Native nations are located within the state of Oklahoma (Oklahoma Historical Society, n.d.). Each of these nations have a unique culture and history. Additionally, each nation has a unique history as to how they came to be located in Oklahoma. This study seeks to understand the histories related to the development of agriculture, specifically as it relates to agricultural education. Through filling the gap in literature on the effects of settler-colonial entanglements within Extension systems and tribally

administered agricultural education programs, the information created out of this study can be utilized to guide other Native nations to develop agricultural education programming.

Purpose of the Study

The purpose of this study is to explore the efforts that four Oklahoma Native nations, the Choctaw Nation, Muscogee (Creek) Nation, Osage Nation, and Quapaw Nation, as well as the College of the Muscogee Nation, as they have created Indigenous-specific agricultural education programs in an effort to understand implementation of those programs that benefit their people.

Research Questions

The following research questions will guide this inquiry:

1. What is the agricultural history of these four Oklahoma Native nations?
2. What processes led to the development of agricultural education programs within four Oklahoma Native nations?
3. In what ways have Cooperative Extension programs influenced the development of Indigenous agricultural education programs?
4. How have these four Oklahoma Native nations and the College of the Muscogee Nation implemented their existing agricultural education programs?

Theoretical Frameworks

My study is situated in the epistemology of constructionism, which focuses on people constructing meaning based on the world around them (Bhattacharya, 2017; Crotty, 1998). Constructionism further claims that, “meanings are constructed by human beings as they engage with the world they are interpreting” (Crotty, 1998, p. 43). Therefore, constructionism is the most effective epistemology to situate the study.

Within the epistemology of constructionism, the study is situated in a critical race theoretical framework. Critical race theory was first founded by Derrick Bell, which focused on civil rights discourses (Kim, 2016). Within critical race theory, Brayboy laid the foundation for TribalCrit (Brayboy, 2005; Daniels, 2011; Writer, 2008). TribalCrit realizes that colonization is endemic to society, yet Indigenous peoples continually seek tribal sovereignty and self-determination. Additionally, assimilation is at the core of policies related to government and education. Despite the efforts to assimilate Indigenous peoples, current realities must be understood to look towards the future (Brayboy, 2005). Specifically, TribalCrit looks at tribal identity, the relationship of power and culture, while including traditional stories and knowledge (Daniels, 2011).

Another important contributor to the Indigenous theoretical framework is Smith (2012). Smith frames the unique differences of Indigenous research, specifically related to culture, values, language, space, and power structures. These differences support the foundation that researching Indigenous peoples require a specific framework that accurately takes these positions into account, with TribalCrit being the Indigenous frame for this study. Indigenous peoples are situated in a complex and unique space and TribalCrit offers a way to understand those complex spaces. Therefore, TribalCrit provides the most appropriate theoretical lens for understanding the unique lived experiences of Indigenous peoples within this study.

The second theoretical framework for this study is Osage ribbon work (Hayman, RedCorn, & Zacharakis, 2018; RedCorn, 2016; RedCorn, in press). Osage ribbon work is a pattern of rayon taffeta that is used on traditional regalia, including shawls, blankets, and clothing (Dennison, 2012). Osage ribbon work is a unique way of framing the complex environments and entanglements that are faced by Indigenous communities. Like Osage

describe ribbon work, various threads of learning and lived experience that exists within Native nations can each act as a single ribbon. All of these ribbons are woven together to create Indigenous programs, taking on a variety of forms. Thus, ribbon work is an appropriate framework for explaining the programmatic complexities that surround Indigenous agricultural education.

The theoretical frameworks that have been identified, TribalCrit and ribbon work, effectively frame the foundation for the research purpose for this dissertation. These frameworks not only address the Indigenous complexities, but also incorporate the unique complexities of Indigenous programming. While TribalCrit provides an appropriate lens for the study, Osage ribbon work provides a more comprehensive view of the cases as they implement agriculture and agricultural education programs within an entangled settler-colonial and Indigenous context.

Methodological Framework

The methodology within these frameworks for articulating this study is through case study. The epistemology, theoretical frameworks, and methodology situate the case study to best understand the development of Indigenous agricultural education programs.

Role of Qualitative Research

The term “research” is inherently a colonial term and not historically correlated to Indigenous thought (Denzin & Lincoln, 2008; Smith, 2012). Research within Indigenous populations has historically been problematic. Specifically, research has a negative connotation because of the nature in which data has been collected. Research historically has been conducted within Indigenous populations by scientists who may have been hoping to help the greater good from a Eurocentric point of view, but did not take into consideration what was good for the people they were doing research *on*, but not *with* (Smith, 2012). Therefore, researchers were no

different than “other visits by inquisitive and acquisitive strangers” (Smith, 2012, p. 3).

Knowing how research often resonates within Indigenous communities, qualitative research has the foundation to offer ways to navigate these complexities. Qualitative research specifically looks to gain an understanding of the environment without disturbing the natural setting (Merriam, 1998).

Saldana (2011) defines qualitative research as “an umbrella term for a wide variety of approaches to and methods for the study of natural social life” (p. 4), which means that qualitative researchers are interested in the meaning of people’s lives. Qualitative research seeks to specifically construct and see that meaning through the eyes of the participants (Scott & Morrison, 2005), and facilitate the researcher’s understanding of specific cultural situations and can also open up creative spaces that are unique to the research study (Saldana, 2011).

Qualitative research offers the specific focus and tie to culture and otherness, which can create an understanding of complex social and cultural situations. The methodology is situated within qualitative research that can allow for the navigation of cultural complexities and the framework that will be utilized with this study is case study.

Case Study

This study uses qualitative case study research, which has epistemological roots in anthropology and sociology (Bhattacharya, 2017). Yin (2009) defines case study as “an empirical inquiry that investigates a contemporary phenomenon with its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 18). A case study allows the researcher to answer the research questions through in-depth inquiries (Bhattacharya, 2017; Creswell & Poth, 2018; Hays, 2004). Case studies often set the foundation for future decision-making by understanding specific situations (Hays, 2004). As this

study seeks to understand Indigenous agricultural education program development, results from the study may have future implications on program development.

Within a case study, there are three forms as depicted by Merriam (1998) and Hamilton and Corbett-Whittier (2013): particularistic, descriptive, and heuristic. This case study aligns with the descriptive case study. Characteristics of a descriptive case study include:

- Illustrate the complexities of a situation – the fact that not one but many factors contributed to it
- Have the advantage of hindsight yet can be relevant in the present
- Show the influence of personalities on the issue
- Show the influence of the passage of time on the issue – deadlines, change of legislators, cessation of funding, and so on
- Include vivid material – quotations, interviews, newspaper articles, and so on
- Obtain information from a wide variety of sources
- Cover many years and describe how the preceding decades led to a situation
- Spell out differences of opinion on the issue and suggest how these differences have influenced the result
- Present information in a wide variety of ways...and from viewpoints of different groups.

(Merriam, 1998, p. 30-31)

All of these points describe the characteristics that effectively situate this study to be a descriptive case study. As the case study focuses upon Indigenous agricultural education, there are many factors and documents that exist which can aid in the collection of data to effectively describe the case.

For this study, the type of case study that will be utilized is the multiple-case study, or

also known as a collective case study (Creswell & Poth, 2018; Merriam, 1998). A collective case study allows an issue to be studied, while using multiple cases to identify the issue. The multiple-case study is to be replicated across all the individual cases. The use of multiple cases strengthens the robustness of the research (Merriam, 1998; Yin, 2018). For this case study, four cases have been identified to best illustrate the issue.

A case study becomes especially important when it is situated around a case that is unique. More specifically, the importance resonates with a situation that would not otherwise be studied or be accessible (Merriam, 1998). This study seeks to understand a situation, Indigenous agricultural education, that is not readily described in available literature and further, has not been widely researched.

Setting

The setting for this study is four federally recognized Native nations within the state of Oklahoma. These nations include the Quapaw Nation, Muscogee (Creek) Nation, Osage Nation, and the Choctaw Nation. In addition to these four Oklahoma Native nations, an additional setting is the College of the Muscogee Nation.

Quapaw Nation

The first Native nation is the Quapaw Nation. Historically, the Quapaw Nation resided next to the Atlantic Ocean and co-existed with the Osage, Kaw, Ponca, and Omaha nations. The Quapaw people first came in contact with European settlers in 1673, when French explorers traveled down the Mississippi River and came across Quapaw villages, north of the Arkansas River (McCollum, n.d.). Shortly after that, in 1699, the Quapaw experienced a blow to their people when they suffered a smallpox epidemic. After this epidemic, only 300 warriors remained (Quapaw Tribal Ancestry, n.d.).

After ceding the Quapaw land in 1818 and 1824, the Quapaw people made an arduous trek to the Caddo land in Louisiana. This trek is called the Quapaw “trail of tears” (Oklahoma Historical Society, n.d.). After affirming the previous cessation of land, the Quapaw people were able to relocate to a reservation established in Indian Territory in 1834. This reservation was 96,000 acres and was located north of the Cherokee Nation and east to Missouri.

Shortly after, in 1837, Lame Chief moved a group of Quapaw people to the Neosho River in Kansas, close in proximity to the Osage people. Ultimately, Lame Chief in 1891 moved with the Osages to Osage Nation Indian Territory in Oklahoma. The treaty of 1833, establishing the Quapaw reservation, included language that the Quapaw reservation was only good if the people resided there. By 1880, most of the Quapaw people were living on Osage lands and only 49 lived on the reservation. At that time, the Quapaw people living on the reservation adopted others into the tribe. After the adoptions, 100 people resided on the reservation, with most of the true Quapaws still living in Osage lands. By 1889, the Quapaws living on Osage land went back to the Quapaw reservation. Not too long after that in 1893, the Quapaw people saw a division of their reservation lands into 200-acre allotments, with an additional 40 acres being added in 1894. (Quapaw Tribal Ancestry, n.d.).

At the beginning of the twenty-first century, the Quapaw nation had approximately two thousand citizens. Of that, about one-quarter lived within thirty miles of the headquarters in Quapaw. Today, the Quapaw Nation continues to be headquartered in Quapaw, Oklahoma and have approximately three thousand citizens. The Quapaw’s current jurisdiction is synonymous with Ottawa County, Oklahoma (NAFOA, n.d.).

Muscogee (Creek) Nation

The second Native nation is the Muscogee (Creek) Nation (MCN). Historically, the MCN spanned the entire southeastern region of the United States, including Alabama, Florida, Georgia, and South Carolina (Muscogee Creek Nation, 2016). At the time of European settlement, there were two central geographic areas for the MCN people, the Upper Creeks and Lower Creeks (Isham & Black, n.d.; Muscogee Creek Nation, 2016). The Lower Creeks were geographically closer to the Europeans, which resulted in a higher rate of intermarriage and a much different social and political order. The Upper Creeks were geographically farther away from European settlement, so they were overall much less affected and remained more traditional than the Lower Creeks (Muscogee (Creek) Nation, 2016).

The 19th century brought the removal of many Indian nations. The MCN leaders exchanged their homelands for land in Indian Territory (Oklahoma) in the removal treaty of 1832. For those that had not already moved to their new land, the U.S. enforced approximately 20,000 MCN people to make the move in 1836 and 1837. Another traumatic event for the MCN people occurred following the Civil War when approximately 3.2 million acres were ceded back to the government under the reconstruction treaty of 1866. At this time that land accounted for about half of the MCN land base (Muscogee (Creek) Nation, 2016).

Subsequently in 1898 Congress passed the Curtis Act. The Curtis Act was focused on dismantling the governments of the Five Civilized Tribes, including the MCN and allotment of land. The early 20th century brought the conclusion of the allotment of MCN lands. However, the attempts toward dismantling of the government did not occur and remained intact throughout this period. During the 1970's, the MCN drafted and adopted their own constitution and revitalized their National Council (Muscogee (Creek) Nation, 2016).

Today, the MCN is headquartered in Okmulgee, Oklahoma. The MCN is one of the Five Civilized Tribes and is the fourth largest Native nation in the United States with 86,100 citizens (Muscogee (Creek) Nation, 2016).

Osage Nation

The third Native nation is the Osage Nation. Historically, the Osage's range included the fork of the Ohio River to the Mississippi and beyond. By 1750, the Osage people had partial control of Missouri, Arkansas, Kansas, and Oklahoma. By 1800, there were approximately 1,000 Osage people living within Oklahoma. After this point, between 1804 and 1850, the Osage experienced four land cessions: 1808, 1818, 1825, and 1839 (Burns, 2004). During this time, the Osage's loss of land resulted in over 151 million acres (Dennison, 2017). These cessions land were significant to the Osage people, who maintained a cultural worldview based on the relationships between the sky and earth. Additionally, each cession further reduced the Osage's responsibility to protect the land as well as decreased the food base for Indigenous peoples (Burns, 2004).

In 1839, the U.S. government forced the Osage people to move to the Kansas part of Indian Territory, and 1871 brought another removal of the Osage people from Kansas to Oklahoma. The Osage land was purchased in 1871 from the Cherokee Nation for \$1,099,137 (Osage Nation, n.d.a). This displacement resulted in a tremendous loss of life for the Osage people, one that "almost destroyed the Osage people" (Burns, n.d.). It is estimated that one in four Osage people died within the first year after arrival to the new reservation (Burns, 2004). This was partly due to a shortage of food as non-Osages took control of tribal crops and overhunted wild game (Burns, 2004).

In the late 1800's, the Osage people continued to rely on hunting and gathering for sustenance, but also utilized agriculture and trading for economic sustainability. During this time, the commissioner of the Indian affairs called the Osages the "richest people on earth" (Burns, n.d., par. 8). The allotment of the Osage land occurred in 1906. The Osage allotment included 640 acres per person and, unique to the Osage Nation, included the separation of the mineral estate for the benefit of the Osage people. This separation was the start of a profitable history with the petroleum industry. With the ownership of the mineral estate came great wealth during the 1920's. During this time of great wealth also came great hardship. This period was known as the Osage Reign of Terror and was most famous for the murders of Osage people for their wealth and oil rights (Burns, n.d.).

In 2004-2006, the Osage Nation underwent a government reform effort. This reform resulted in transferring from the Osage Tribal Council to a three-branch government, consisting of executive, legislative, and judicial branches (Dennison, 2012; Osage Nation, n.d.c; RedCorn, 2020a). Today, the Osage nation is headquartered in Pawhuska, Oklahoma. The jurisdictional boundary of the Osage Nation is synonymous with Osage County, Oklahoma and is approximately 1.5 million acres. The Osage Nation has a membership of over 21,000 citizens (The Osage Nation Today, 2018).

Choctaw Nation

The last Native nation is the Choctaw Nation. The Choctaw were forced into Indian Territory around 1831. Around that time, approximately six thousand Choctaw people arrived and another five thousand more arrived through 1833 (Kidwell, n.d.). Prior to moving to Indian Country, there were three traditional districts east of the Mississippi River. As the Choctaw

people moved west, the names of these three districts were retained: Pushmataha (southwest), and Apukshunnubbee (southeast), and Moshulatubbee (northeast), (Kidwell, n.d.).

In 1838, the Choctaw nation began adopting a new constitution to reestablish their government. Within this constitution, each of the three districts had a Chief and those individuals formed an executive branch, along with a legislative branch and a judicial branch (Kidwell, n.d.). The enforcement arm was a “lighthorse” (Five Civilized Tribes, 2021; Kidwell, n.d., para. 3). A few years later, in 1842, a new constitution that created a bicameral legislature was adopted.

During World War I, the Choctaw people were the first to use their native language to help during the war. Choctaw men were heard talking on a battlefield in France in their native language and the idea was created to have these Choctaw men communicate in order to circumvent spies on transmissions. The first code talkers were nineteen Choctaw soldiers (Choctaw Nation, n.d.). During World War I, there were many Choctaw Nation men who fought for the United States, yet citizenship of Indigenous peoples did not occur until 1924 (Choctaw Nation, n.d.). In addition to the Choctaw Nation’s role in World War I as code talkers, other languages from Native nations were also utilized in these efforts, including Osage, Muscogee (Creek), and Quapaw (Archambeault, 2008).

In 1970, an Act authorized the Choctaw Nation to select their Principal Chief by popular vote. The first election was held in August, 1971 (Five Civilized Tribes, 2021). Today, there is a Chief and Assistant Chief. The Assistant Chief is an appointed position by the Chief and confirmed by the Tribal Council (Five Civilized Tribes, 2021). The Choctaw Nation’s headquarters is located in Durant, Oklahoma, and the jurisdiction is eight counties. As of 2011,

there were more than 200,000 enrolled Choctaw Nation members (Southern Plains Tribal Health Board, 2021).

College of the Muscogee Nation

An additional setting situated within this study is the College of the Muscogee Nation, located in Okmulgee, Oklahoma. The development of the institution began through a foundation from the Muscogee (Creek) Nation. This foundation was established through the 1866 Creek Treaty, in which the United States recognized that the Muscogee (Creek) Nation had the right “to erect buildings within the Creek country for educational purposes” (College of the Muscogee Nation, 2012, p. 9; College of the Muscogee Nation, 2014; College of the Muscogee Nation, 2016, p. 11). The creation of the College of the Muscogee Nation was through a relationship between the institution and the Muscogee Nation. This relationship is expressed in Article XIII in the Constitution of the Muscogee Nation that provides legal status of the facility to create higher learning opportunities that meet the “educational needs, first and foremost, of the citizens of the Muscogee Nation. The primary responsibility of the tribal government for the College is to provide funding and services for the benefit of Native students” (College of the Muscogee Nation, 2012, p. 5; College of the Muscogee Nation, 2014; College of the Muscogee Nation, 2016). Through the support of the Muscogee Nation government, the institution has the foundation to create educational opportunities to benefit Indigenous students.

The institution was established in 2004 by the Muscogee (Creek) Nation’s National Council and later as a 1994 land-grant institution in the 2014 Farm Bill (Ohio State University, 2019). After an extensive process of interviews, establishing eligibility and site visits, the College of the Muscogee Nation received accreditation on November 3, 2016 (College of the Muscogee Nation, 2020b). In a letter from R. Bible, College of the Muscogee Nation President,

it is stated that “with this accreditation we will not stop growing but will continue to build and develop this college for the primary purpose of providing quality education for our students” (Bible, 2016, para. 4). Through gaining accreditation, the College of the Muscogee Nation is situated in a position to provide educational opportunities that focus on the needs of their people.

The development of the initial fifteen (15) acre campus initially began with \$10 million provided by the Muscogee (Creek) Nation (College of the Muscogee Nation, 2012). This support helped move the development of the campus forward. Since that time, the campus has grown to over 30 acres (College of the Muscogee Nation, 2016). In the design of the campus, there are specific cultural aspects of the Muscogee (Creek) Nation integrated into the design. To begin, Muscogee (Creek) language is integrated into the marquee sign and the signs throughout campus. This language component “unites the past, present and future of the college of the Muscogee Nation” (College of the Muscogee Nation, 2012, p. 10). Additionally, the campus is designed in a circular pattern to create a center that can be used for cultural activities. There is also pergola located on campus that represents traditional arbors within the Muscogee (Creek) Nation. To complete the aspect of culture, there is also a garden that is intended to showcase plants that are native to the Muscogee (Creek) Nation. The goal for integrating these design details are to create an atmosphere inclusive of culture for the College of the Muscogee Nation (College of the Muscogee Nation, 2012; College of the Muscogee Nation, 2014).

As the College of the Muscogee Nation has become accredited and the campus established, student enrollment began. The first classes were held in Fall 2004, with 74 students enrolled. From there, the enrollment increased and by Spring 2012, there were one hundred eighty-three (183) students enrolled (College of the Muscogee Nation, 2012). Of those students, 176 (96%) were Native American and of those, 158 (86%) were citizens of the Muscogee

(Creek) Nation (College of the Muscogee Nation, 2012). In the fall of 2013, the College of the Muscogee Nation had a student enrollment of one hundred ninety-one (191) students (College of the Muscogee, 2014). In 2013, the demographics of the students' population were 190 students (99%) were Native American. Of those, 167 students (87%) were citizens of Muscogee (Creek) Nation (College of the Muscogee Nation, 2014). The enrollment has grown to 204 students in 2019 (Data USA, n.d.). From the first class in 2004, student enrollment within the College of the Muscogee Nation has climbed steadily over the years.

In terms of enrollment, the college of the Muscogee Nation is open to any student. While any student is welcome, Indigenous students are asked to include a tribal citizenship card at the time of enrollment. The College of the Muscogee Nation has created an educational environment that is able to utilize "the Mvskoke language and culture to enrich the learning environment. CMN offers small class sizes, diversity, affordable tuition with scholarship and grant opportunities, and a Native emphasis in the curriculum" (College of the Muscogee Nation, 2020c, para. 1). Students enrolled in the educational institution are able to gain an education with a specific Indigenous framework.

In conclusion, the Muscogee (Creek) Nation, Choctaw Nation, Quapaw Nation, and Osage Nation each have unique histories that connect them to their present-day Oklahoma land base. Each Native nation has its own connection with agriculture, both historically and presently. Additionally, the College of the Muscogee Nation has created educational pathways that focus on Indigenous specific curriculum. The agricultural history and current educational programming of these four Native nations and the College of the Muscogee Nation provide some insight to Indigenous agricultural education within the context of Oklahoma.

Limitations

This study seeks to understand the development of Indigenous agricultural education programs within four Oklahoma Native nations. Therefore, the first limitation is related to the scale of the study. The study is limited to four nations in Oklahoma and does not seek to generalize the knowledge captured in the study as related to other nations within the state of Oklahoma or across the United States.

The second limitation is based on the knowledge that currently exists. It can be speculated as to what the historical intentions were in Indigenous agricultural education development, but the study is limited to the artifacts and interviews that can be acquired presently. As an example, the Osage people have an oral history. Unlike the Cherokees that were well versed in both Cherokee and English languages, the Osage did not have a written language until more recently, and what was written down was tied to English phonetics and therefore inconsistent. However, the Osage people have stories that have informed the understanding of history. For this study, it is important to be flexible in using sources of data that are available, whether written or oral. Furthermore, one cannot assume that the individuals knowledgeable in each nation's more recent agricultural education developments are also historical experts or keepers of traditional knowledges. Sometimes, cultural protocols also limit how traditional stories and knowledges may be shared, and therefore these are limitations that need to be acknowledged.

Subjectivity

Subjectivity encompasses the qualities found within the researcher that could affect an objective study. As a researcher, it is important to know one's own subjectivities and continually evaluate those subjectivities in relation to the study. This continual introspection helps the

researcher to create a study of the utmost quality in the most objective way. Below are my subjectivities related to this research.

To begin, I am a member of the Osage Nation and was raised in Osage County, Oklahoma, the current reservation purchased by the Osage. I became a tribal member when the Osage Nation constitution was ratified to expand membership to include descendants of the original allottees (Tulsa World, 1994). Up until this time, Osage membership was limited to only individuals that owned a headright related to the Osage mineral estate. I specifically remember this time. I was about 12 years old and my father was so excited that we could apply for Osage membership after the passage of the new constitution. My grandmother was already an Osage member, but she had headrights that were passed down to her from her parents. I grew up knowing that I was Osage and was able to officially gain tribal membership. This was a significant milestone in my personal understanding about my indigeneity. I was not raised in a traditional Osage home, but I was raised to be proud of my heritage. As an adult, I wanted to learn the traditional ways of my Osage people. At 29 years old, I received my Osage name, Gra-to-me-tsa-he, and worked with my family to create my regalia so I could participate in our traditional Osage dance, the In-lon-schka. I believe I am a lifelong learner, especially related to my Osage heritage, and continually seek to better understand the ways of my people.

In 2005, I graduated from Oklahoma State University with a Bachelor's degree in Agriculture Education and a minor in Animal Science. Personally, agriculture changed my life. I have fond memories of growing up surrounded by Hereford cattle and of my grandfather setting me atop his most gentle cow when I was a very young child. As I grew older, I found my niche during my high school years and wanted to be a facilitator to help children have the positive experiences I had. I began my career with the Osage Nation in November of 2006 as a

Natural Resource Specialist. The small description of the position was very vague and did not provide a large amount of detail on what the job entailed. I went to the interview and afterwards, still was not certain what the job was. The best way I could sum up what the job was that it was the tribal version of the state Cooperative Extension Service. I thought this was my chance to help Indigenous children create that connection with agriculture.

Later I was promoted as administrator of the Osage Nation Department of Natural Resources. Nearly thirteen years later, I am still trying to create opportunities for agricultural education. Over the years, I have a much better understanding of the obstacles ahead of me, but I always ask myself why these obstacles exist. My goal is to create opportunities to help children become connected to agriculture and have the positive experiences I had as a youth. However, it is apparent that there are dynamics at play that can hinder these programmatic developments. In particular, I also recognize that educational systems did not help me center Osage cultures and languages, and that has contributed to my history of being raised in non-traditional contexts, and I wonder what might be possible if we better incorporate Osage cultures and languages into our agricultural education systems.

Personally, I have specific experience in what a positive agricultural program can do for children. I seek to create agricultural programming for Indigenous youth and seek to facilitate a greater environment for educational change. Through this study, I merely hope to create a better understanding of development of agricultural education programs within the tribal communities and use that knowledge to foster future Indigenous agricultural educational programming.

Operational Constructs

1. Allottee – Any Native American whose land or an interest in land is held in trust by the United States or whose title subject to federal restriction (US Legal, 2019)

2. Allotment – the forced conversion of communally held tribal lands into small parcels for ownership by individual Native (NCAI, 2020, p. 14)
3. Case study – An intensive, holistic description and analysis of a bounded unit (Hamilton & Corbett-Whittier, 2013)
4. Constructionism – Qualitative inquiry that focuses on people constructing meaning based on the world around them (Bhattacharya, 2017; Crotty, 1998)
5. Decolonizing methodologies – Methodologies that focus on a more critical understanding of the underlying assumptions, motivations, and values that inform research (Smith, 1999)
6. Fee simple land – Land that is owned completely, without any limitations or conditions (Cornell Law School, 1992a)
7. Five Civilized Tribes – Consisting of the Cherokee, Choctaw, Chickasaw, Creek and Seminole nations, this group had cultural, political, and economic connections prior to removal in the 1800s (Frank, n.d.)
8. Fractionated land – Resulting from allotment, land in Indian Country may be held in title by multiple individuals (U.S. Department of the Interior, n.d.)
9. Headright – The right to receive quarterly distribution of funds derived from the Osage Mineral Estate and is federally protected (Osage Nation Minerals Council, 2018).
10. Indian Country – All land within the limits of any Indian reservation under the jurisdiction of the United States government; all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and; all Indian allotments (Cornell Law School, 1992b)

11. Indigenous peoples – Populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization (Spring, 2016, p. 22)
12. Mineral Estate – The oil, gas, and other minerals sub-surface of the approximately 1.47 million acre Osage Reservation (Osage Nation Minerals Council, 2018)
13. Reservation – An area of land reserved for a Native nation under treaty or other agreement with the United States, executive order, or federal statute as permanent tribal homeland, where the federal government holds title to the land in trust on behalf of the tribe (U.S. Department of the Interior Indian Affairs, n.d.)
14. Restricted land – Any land in which the title is held in the name of an Indian or Indian tribe subject to restrictions by the U.S. against alienation (NCAI, 2020; US Legal, 2016)
15. Settler colonialism – Societies where settlers have remained politically dominant over Indigenous peoples (Nash, 2019)
16. Sovereignty – Having the legal authority to self-govern (NCAI, 2020)
17. Self-determination – The right to autonomy or self-government in matters relating to their internal and local affairs, as well as ways and means for financing their autonomous functions (NCAI, 2020, p. 9)
18. Trust land – Land accepted by the federal government to be protected and be under the jurisdiction of the United States of America for the benefit of an individual Indian (Cherokee Nation, 2018; NCAI, 2020)

Summary

In this chapter is a summary of background, problem statement, significance of the study, purpose of the study, research questions, operationalization of constructs, limitations, and the

role of the researcher. Additional is a brief description of the relevant theoretical frameworks and methodology that help guide this study. This information forms the foundation for this case study that seeks to understand Indigenous specific agricultural education program development.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter provides an overview of literature for the foundation of this multiple-case study. It is important to first understand the progress of Indigenous agriculture through time. Moving on from a foundational understanding of Indigenous agriculture, it is next imperative to review the development of agricultural education. The development of agricultural education must be understood in order to look at Indigenous agricultural education. Once the educational systems are reviewed, the next system to understand is tribal governance. Finally, theoretical frameworks are reviewed in order to understand the ones that best situate this study.

A History of Indigenous Agriculture

Indigenous peoples have been involved in agriculture as long and as far back as their history on the North American continent (Carlson, 1992; Carlson, 1998; Hurt, 1987; Kipp, 1988; Lewis, 1994; Wessel, 1976). Due to the diverse climactic conditions, soil types and geographic conditions, it would be difficult to generalize the full landscape of Indigenous agriculture (Doolittle, 1992). For the purposes of Indigenous agriculture, the history of the areas with relevant histories to the four nations chosen for this study is further explored. In the Midwest, archaeologists have documented evidence of domesticated crops in the Lower Tennessee River Valley as early as 2280 B.C (Hurt, 1987) and 250 B.C. in the Plains Woodlands (Lewis, 1994). The first beginnings of agriculture consisted of a rudimentary process of removing weeds around the desired crops, then shifted to planting and cultivating the crops (Hurt, 1987). It has been documented that by A.D. 1000, Indigenous peoples had created a complex agricultural system of three crops – squash, beans, and corn (Fritz, 2019; Hurt, 1987), which are presently known as The Three Sisters.

About 800 A.D., crops began shifting from diverse plots to a more extensive field system. As an example, while the population of Indigenous peoples in the area of Ohio, the Mississippi River Valley, and the Upper Great Lakes continued to rise, more emphasis was put on farming. During the Mississippian period from A.D. 900 to A.D. 1600, corn was more prevalent (Herndon, 1967; Hurt, 1987; Scarry & Scarry, 2005; Waselkov, 1977). Within this time, Indigenous peoples sought to plant two crops by staggering the planting times. This ensured that at least one crop would be harvested, with an additional crop being possible. Through this method of cultivating two corn crops, there was a greater possibility of increased corn production to sustain the people through the winter months. The corn of choice was the northern flint corn, which exhibited a shorter growing season (Hurt, 1987; Waselkov, 1977). The northern flint variety is one variety that Indigenous peoples taught Europeans to grow and also the one that is foundational to modern varieties (Hurt, 1987).

In addition to corn, areas along the Georgia coast also cultivated beans. Archaeological evidence shows that Indigenous peoples rotated their crops, which increased productivity (Herndon, 1967; Hurt, 1987). Adequate soils to grow crops were not readily available, so it was important to maximize what was accessible (Hurt, 1987; Waselkov, 1977). Like the cultivation of crops along the Georgia coast, other Indigenous peoples utilized riparian areas for crops. Unlike upland areas, these fertile areas along rivers and streams were easier to manage because of the soft soil.

Throughout the region, Indigenous women were the primary caretakers of crops (Burns, 2004; Carlson, 1992; Fabussa, 2012; Fritz, 2019; Herndon, 1967; Hurt, 1987; Kipp, 1988; Lewis, 1994; Scarry & Scarry, 2005; Spring, 2016). This is largely based on the dependence of men to acquire meat through hunting and fishing expeditions. Since women were the primary caregivers

in their homes, they were more able to take care of the plants while the men were away (Herndon, 1967; Hurt, 1987). Indigenous women designed and re-designed tools that assisted in the cultivation of crops, which included shell or scapula hoes, antler rakes, and digging sticks (Lewis, 1994). Crops were an integral part of the survival of Indigenous peoples throughout this area of the continent. Crops assisted in the survival of Indigenous communities through winter months when food was scarce. Over time, these people began with a rudimentary crop system to the integration of multiple crops, such as The Three Sisters.

By the mid eighteenth century, the Cherokee, Chickasaw, Creek, and Choctaw people continued to see agriculture success (Hurt, 1987; Kipp, 1988). These communities had small gardens in addition to larger communal gardens (Hurt, 1987; Scarry & Scarry, 2005). The smaller gardens were usually fenced to protect the crops from the horses and wildlife. Their corn was seeded in early spring, specifically when the wild fruits became ripe. This was done in order for the birds to not solely rely on their crops for food and fruit would also be a possible food source. In addition to corn, pumpkins, sunflowers, tobacco, potatoes, peaches, cabbage, peas, leeks, garlic, and beans were commonly planted in the communal gardens (Hurt, 1987). The Cherokee men were unique in that they were heavily involved in the agricultural activities. They would help clear the land, plant, and harvest crops (Hurt, 1987). Even though the Cherokee men helped with planting and harvesting, women continued to be the primary caretakers of agricultural crops.

By this time, European agricultural practices had been introduced to Indigenous communities. Some of the practices that were adopted included the management of cattle, hogs, and chickens. The Cherokee and Creek people engaged with the Europeans during this time, specifically as a way to sell the surplus crops that were produced. Not only were the Cherokee

and Creek doing well with agriculture, the Quapaw were as well. In 1699, one explorer described the Quapaws as “living on nothing scarcely but Indian corn” (Hurt, 1987, p. 35) which was said to grow up to twenty feet high.

As settler expansion grew, contention for land ownership arose. To Indigenous peoples, land not only provided sustenance, it also shaped their sense of place and identity (Lewis, 1994; NCAI, 2020). Ownership of the land was a foreign concept to Indigenous peoples. Europeans viewed land as wilderness that needed to be tamed and they view that it was their responsibility to enact systems to do so (Lewis, 1994). Ultimately, the federal government applied an allotment policy to Indigenous peoples. The result of this allotment policy for Indigenous communities is they lost the land they knew and were provided with new land that the federal government gave to them. The government viewed allotment as a way to treat Indigenous peoples the same as Europeans settlers by allowing them to own land that could support an agricultural life (Burns, 2004; Hurt, 1987; Lewis, 1994). However, Indigenous peoples were not accustomed to the concept of owning land. What ultimately resulted is that Indigenous peoples were moved to a new location they were not familiar with, especially in relation to their agricultural practices and their local place-based worldviews. Thus, the government sought to teach Indigenous peoples how to farm their new land (Hurt, 1987).

The federal government organized a treaty with the Creek in 1790 (Hurt, 1987; Lewis, 1994) and Cherokee in 1791 (Hurt, 1987; Malone, 1957) for the government to provide agricultural tools and education. Regarding these and other treaties, Secretary Knox wrote in 1792, “We would be greatly gratified with the opportunity of imparting to you all the blessings of civilized life, of teaching you to cultivate the earth, and raise corn; to raise oxen, sheep, and other domestic animals, to build comfortable houses, and to education your children, so as ever

to dwell upon the land” (Hurt, 1987, p. 97). In that vein, federal legislation was passed in 1793 that appointed agents to live among Indigenous peoples and provide agricultural instruction.

By 1801, President Thomas Jefferson reported to Congress that the Cherokee women were learning to how spin and weave, while the men were learning how to raise livestock; and the Creek were learning to raise sheep, were fencing their fields, established peach orchards, and were growing cotton (Hurt, 1987). To further express the desire for agriculture, President Jefferson wrote to the Cherokee tribal leaders in 1806 congratulating them on the efforts the Cherokee people were making in response to transitioning from hunting and fishing to farming (Spring, 2016).

In an effort to promote agriculture within Indigenous communities, Congress created the Civilization Fund to be used for assimilating Native nations through teaching of Eurocentric farming methods (Burns, 2004; Firkus, 2010; Hurt, 1987; Lomawaima, 1994; NIEA, n.d.). The language found within this act promotes education “for the purpose of providing against further decline and final extinction of the Indian tribes...to instruct them in the mode of agriculture suited to their situation, and for teaching their children in reading, writing, and arithmetic” (Tyler, 1973, p. 45). Although there was no mechanism to distribute funds under the Civilization Fund, churches and other charitable organizations were able to request funds to build schools for Indigenous students. The federal government had in mind that through Indigenous peoples becoming Eurocentric agriculturalists, they would naturally take on a more European lifestyle and move towards White notions of being “civilized”, even though they had advanced and complex systems of agriculture prior to contact.

As schools were being developed, they included a focus on agriculture. Indigenous boys were taught to plow, plant and harvest crops, and tend to cattle and hogs. Indigenous girls were

taught to process meat, spin, weave, and keep house. The Cherokee mission school in, Brainerd, Tennessee, established in 1817, enabled the government to successfully instill European agricultural practices (Bergherm, 2003; Hurt, 1987). By 1834, there were sixty established mission schools, with a combined attendance of approximately 1,700 students (Hurt, 1987).

As Native nations, the Creek and Cherokee had adopted many Eurocentric approaches to agriculture and became intertwined with American agricultural economic systems by the late 1830s. By 1835, approximately 93 percent of Cherokee households engaged with agriculture and 89 percent produced corn (Wishart, 1995). In 1837, the Creek sold around \$40,000 in corn and were able to keep enough back for their people. The Creek at this time lived in houses and had gardens, orchards, cattle, and chickens (Hurt, 1987). The Cherokee lived on approximately 1,000 farms. Some Cherokee sold their produce to the army at Fort Gibson, sometimes earning as much as \$60,000 annually. At this time, the Cherokee people were raising cattle, sheep, hogs, cotton, corn, peaches, potatoes, peas, beans, and melons (Hurt, 1987; Wishart, 1995). Cherokees residing in Georgia had such extensive peach orchards that the excess was fed to the hogs (Wishart, 1995). The Creek and Cherokee nations were two of the most financially successful nations by 1860 and this is mostly attributed to their success in agriculture prior to European settlement (Hurt, 1987).

In addition to the Cherokee and Creek, the Choctaw experienced agricultural success. In the beginning, the Choctaw challenges related to not having the appropriate implements for agriculture. The federal government did not immediately provide the Choctaw with an appropriate level of support or implements (Hurt, 1987). However, despite these initial challenges, the Choctaw started experiencing success and in 1833, the Choctaw harvested forty thousand bushels of corn and fifty thousand bushels of corn subsequently in 1836 (Hurt, 1987).

In addition to corn, the Choctaw proved themselves successful in growing cotton and raising cattle. By the end of the 1940s, the Choctaw rivaled the productivity associated with non-Indigenous farms (Hurt, 1987).

While some nations were successful in agriculture, there were many nations that did not experience the same success. Oftentimes, other nations did not see the same success because the environment that they historically utilized was not the same as the one where the allotment placed them (Carlson, 1982; Hurt, 1987; Lane, 1960). Even though there were active efforts to teach Indigenous peoples agriculture, the practices were European and often not suitable for agriculture in North America. Another unforeseen challenge was that Europeans were asking men to do the agricultural work, work traditionally completed by Indigenous women (Hurt, 1987). This caused Indigenous men to feel degraded and as a result were less willing to learn agricultural techniques. This also meant that the agricultural skills of Indigenous women were left un-utilized, since they were often historically the primary agricultural workers (Burns, 2004; Carlson, 1992; Herndon, 1967; Hurt, 1987).

During the late 1860s, the Great Plains nations were having a difficult time trying to acclimate to agriculture. These people were not historically engaged with agriculture like some of the other nations and relied heavily on subsistence hunting and gathering (Hurt, 1987). The Osages, specifically, continued to heavily rely on subsistence hunting and gathering (Bailey, n.d.; Burns, 2004; Rollings, 2004; Will & Hyde, 1964). While some nations were having a hard time with agriculture during this era, the Cherokee continued to see agricultural success. In 1872, the Cherokees had recovered from the Civil War and that year raised 80,000 bushels of potatoes, 97,500 bushels of oats and wheat, 2.9 million bushels of corn, tended 9,000 sheep, 16,000 horses, 75,000 cattle, and 160,000 hogs (Hurt, 1987).

In 1872, the Osage purchased their reservation from the Cherokees for 70 cents per acre (Burns, 2004; Rollings, 2004). This purchase was ratified in June, 1872 by Congress. The land was purchased as fee simple, but was held in trust by the federal government (Burns, 2004). With this acquisition, the Osage gained the grazing resources on the land and naturally focused on ranching instead of agriculture. By the 1880s, ranchers also realized that the prairie region of Indian Territory provided some of the best grazing opportunities on the continent. White ranchers at this time were grazing Indigenous lands, even though they often did not have proper leases (Hurt, 1987; Iverson, 1995; Rollings, 2004). In 1883, the Cherokees leased approximately 6 million acres to the Cherokee Strip Livestock Association. The Osage also leased approximately 380,000 acres of their reservation (Burrill, 1972; Hurt, 1987; Rollings, 2004).

Another problem was the location of Indian Territory. Indian Territory was located directly between the southern plains of Texas and the plains from Kansas northward (Burrill, 1972). Cattleman would drive their cattle to the north where they would be fattened before slaughter. On the way north, cattlemen would often take advantage of grazing the tallgrass prairie in Indian Territory (Burrill, 1972). A Cherokee chief stated that the “large herds will often move but from three to five miles per day and zigzag all over the country, so that they take in their course the finest grazing; so that, while only claiming to pass through, they actually spend the greater portion of the summer and autumn in grazing over the Indian country” (Burrill, 1972, p. 527). Due to a lack of fences around large acreages, it was not uncommon for white ranchers to absorb unmarked Indigenous cattle into their herds on the way to sale. The Sac and the Fox stated that whites “come at will, go at will, and do as they please, there being no law to intimidate them, nor force for local protection. Armed generally with two 45-caliber revolvers and a Winchester, they are ‘monarchs of all they survey,’ and a dispute is studiously avoided by

the natives” (Hurt, 1987, p. 130). The Bureau of Indian Affairs agents sought to help Indigenous peoples get their cattle back in these instances, but they were not always successful.

In 1887, the Dawes Act, introduced by Massachusetts’ Senator Henry L. Dawes, was passed (Burns, 2004; Burrill, 1972; Carlson, 1982; Hurt, 1987; Lewis, 1994; Lewis, 1995; Lomawaima, 1994; Rollings, 2004; Szasz, 1999; Tyler, 1973). At this time, the Five Civilized Tribes and the Osage were exempt from this policy, but the Dawes Act did not exempt them from future allotment (Burrill, 1972; Carlson, 1982; Wessel, 1976). In fact, the Osage were highly opposed to allotment and was the last nation in Oklahoma to accept allotment (Burns, 2004). The Dawes Act enabled the allotment of 160 acres to each head of household on a reservation that contained land suitable for agriculture (Brown, 2011; Carlson, 1982; Hurt, 1987; Kipp, 1988; Lewis, 1995; Lomawaima, 1994; Rollings, 2004). In areas where land was not suitable for agriculture, the allotted land was doubled to allow for a focus on livestock. Under the act, each allottee had to make their land selections within four years. When land was not selected the government assigned it to individuals who had not made a selection. Additionally, the federal government held the allotted land in trust for 25 years (Brown, 2011; Carlson, 1982; Hurt, 1987; Lomawaima, 1994). During this 25-year period, Indigenous peoples could not change ownership of the land through leasing, selling, or willing (Carlson, 1982). The Dawes Act also contained an advantage for white farmers, because white settlers had the opportunity to acquire any land that was not allotted.

In 1891, the Dawes Act was amended to allow Indigenous landowners to lease their land. However, in order to do so, the Indigenous landowner had to get approval from the Secretary of the Department of Interior (Brown, 2011; Carlson, 1982; Hurt, 1987). For the Osage tribe residing in Indian Territory leasing was a challenge. In the late 1800s, it was difficult to

renegotiate lease agreements. At this time, the Osage land was overrun by white cattlemen. It was said that a “Texas steer has more rights upon the Osage reservation than the graduates of Indian schools” (Hurt, 1987, p. 143). The tallgrass prairie, consisting of bluestem, allowed for cattle to fatten quickly during the spring and winter well (Burns, 2004). The profits that the Osage, along with other Native nations at this time, were entitled to was often lost due to a disregard for legitimate leases.

The trajectory for Indigenous agriculture changed with the appointment of a new Bureau of Indian Affairs Commissioner in 1933 (Hurt, 1987; Iverson, 1995; Lewis, 1994; Lomawaima, 1994; Szasz, 1999). Commissioner John Collier had a much different view on Indigenous agriculture. Up to this point, Indigenous peoples were taught agriculture with a European foundation, which inherently sought to destroy tribal life. Under Collier’s administration, he sought to support Indigenous agriculture within the constructs of their own ethnocentric world. Collier acted quickly on his reform and the cornerstone of this reform was a new agricultural policy (Hurt, 1987; Lewis, 1994). During the 1920’s, Collier’s reformation and coordination with Hubert Work resulted in the Meriam Report issued by the Institute of Governmental Research of the Brookings Institution (Carlson, 1982; Szasz, 1999).

The Meriam Report was issued in February 1928 (Carlson, 1982; Hurt, 1987; Kipp, 1988; Lewis, 1994; NIEA, n.d.; Reyhner & Eder, 2004; Spring, 2016; Szasz, 1989; Szasz, 1999). Upon the release of this report, it became obvious that the efforts to teach agriculture to Indigenous peoples Eurocentric agricultural practices were problematic and destructive. This report detailed that the tactics used to teach agriculture were insufficient. Further, the report stated the need for individual agricultural education programs within each reservation (Hurt, 1987). Through a lack of experienced teachers and a focus on production instead of instruction,

students did not receive the training they needed to be successful in agriculture. The Meriam Report determined that the agricultural education provided to Indigenous peoples was insufficient and efforts needed to be made to create effective educational programs.

Additionally, the Meriam Report included that there was too much emphasis on the need to own land and not enough focus on utilizing the land in a positive way. In many cases the land allotted to individuals was unfit for agricultural crops. Allotment was viewed as a way to encourage cropping while emphasizing the ownership of land. In reality, allotment fractionated the landscape (Banner, 2005; Brown, 2011; U.S. Department of the Interior, n.d.). Indian country was now broken down into land titles that were held in fee simple, restricted, and trust. Landowners included Indigenous individuals, non-Indigenous individuals, nations, states, and the federal government (Banner, 2005). Not only did this create a problem, fractured ownership creating another problem for Indigenous landowners. As original allottees died, the land title was distributed among the descendants (Brown, 2011; U.S. Department of the Interior, n.d.). Therefore, Indigenous land could be owned by multiple people, which would then become contested (Brewer et al., 2016). For example, a tract of land in South Dakota in the late twentieth century had 439 owners (Banner, 2005). For a lease payment on this land, the smallest share would receive one penny every 177 years (Banner, 2005). While allotment had goals of supporting Indigenous agriculture and of land ownership, what transpired was a negative effect on adopting agricultural practices. By 1930, mostly due to the complicated land ownership created by allotment, there was less Indigenous agriculture than in 1910 (Banner, 2005).

As Collier moved forward with his reformation, he focused on three things: guaranteeing the land for future generations, soil preservation, and providing federal aid to create an economic base that supports self-sufficiency in Indigenous communities (Hurt, 1987). To support these

goals, Collier created the Indian Civilian Conservation Corps (Indian CCC). This new agency's focus was to restore Indigenous lands and train the people to utilize their lands in the most effective way (Hurt, 1987; Senate, 1940). In 1933, the Indian CCC had received an appropriation of almost \$5.9 million and work was planned for reservations in Arizona, New Mexico, Oklahoma, Montana, South Dakota, and Washington (Hurt, 1987). During the first year, the Indian CCC built 746 reservoirs, developed 719 springs, constructed 12,931 check dams/stock watering ponds, and also eliminated 44,052 head of non-essential livestock (Hurt, 1987).

World War II caused many difficulties for Indigenous peoples. Prior to the war, there were approximately fourteen thousand Indigenous families residing in Oklahoma who were engaged with subsistence agriculture. After the war, many Indigenous peoples faced impoverished conditions (Hurt, 1987; Hurt, 2008). During this time, many landowners requested to sell their land through the Department of Interior (Hurt, 1987). Another unfortunate situation that happened due to the war were cuts in funding to the Indian CCC. During the time the program was in existence, \$72 million had been spent in restoring lands on seventy reservations (Hurt, 1987; Hurt, 2008).

At the conclusion of World War II, Collier resigned from the Bureau of Indian Affairs. After Collier's resignation, the efforts to work for the benefit of Indigenous peoples ceased. Old conflict quickly emerged and the poor relationship between Native nations and the federal government resumed (Hurt, 1987). As tribal relations and opportunities continued to decline, the number of Indigenous ranchers and farmers also declined. By the end of the 1950s, most of Quapaw, Cherokee, Creek, Chickasaw, Choctaw, Arapaho, and Cheyenne land holdings were leased to white farmers (Hurt, 1987). By 1970, only 11.2 percent of the Indigenous population

was engaged with agriculture.

Collectively, Indigenous peoples are the largest land-owning groups in the United States. As of 1980, Indigenous peoples controlled 52 million acres, with forty-two million being in tribal ownership (Burns, 2004). This number has grown to 56 million acres of reservation or trust land and 100 million acres under Indigenous control in 2020 (NCAI, 2020). Moving forward, Native nations have made efforts to both re-acquire their land and to increase agricultural initiatives. The Osage Nation recently re-acquired approximately 43,000 acres for \$74 million (Overall, 2016). Upon re-acquiring the land, Chairman of the Osage Minerals Council Everett Waller stated, “The tribe claimed virtually all of Osage County before the federal government forced allotment in the early 1900s...we had one home, and this was it. Our ancestors walked on this land. Our warriors died for this land. And today, this land is ours again” (Overall, 2016, par. 12). Like the Osage, other nations are seeking to build their land base and restore the historical agricultural practices.

There has been a historic entanglement of Indigenous nations and agricultural education. Speaking about settler-colonial education as it intersected with Indigenous education systems, Lomawaima (1995) describes this as a “500 year-old battle for power: first, the power to define what education is--the power to set its goals, define its policies, and enforce its practices--and second, the power to define who native people are and who they are not” (p. 331). Each Indigenous nation has a unique history with agriculture and education. This research will further engage the Quapaw Nation, Choctaw Nation, Muscogee (Creek) Nation and Osage Nation on their specific agricultural histories. In addition to understanding their unique agricultural histories, this research seeks to understand the agricultural education component as they increase their agricultural initiatives and educate their people.

Background in Agricultural Education

The interest of agriculture in North America began immediately at the time of European settlement (True, 1929). Europeans had been developing agricultural science, publications, and societies to study agriculture in Europe, so settling a new continent was an exciting opportunity to study and learn agricultural systems in another environment. Europeans coming to America also realized the importance of agricultural education upon arrival in North America, because agriculture was to be their main source of sustainability (Wheeler, 1948). This section provides a background for agricultural education after European settlement, the impact on Indigenous land, and concludes with the efforts Cooperative Extension is making on engagement with Indigenous communities.

A Historical Background

An early plan for learning agricultural practices in North America was first created by James Ogelthorpe before sailing to America. This plan included three main components: i) Using the agricultural practices of the Indians who inhabited Georgia; ii) Establishing an experimental farm for trying out new crops and discovering effective cultural methods; and iii) Providing special instructors and training in agriculture for all the colonists (Moore, 1987; Wheeler, 1948). Early on, the Yamacraw tribe provided education to settlers on how to grow such crops as beans, melons, fruit, and maize. As early as the 1600s, agricultural experiments were being performed in Virginia, the Carolinas, and Georgia (Knoblauch et al, 1962; Wheeler, 1948). Within these experimental gardens, trees and plants of many kinds were planted. These were the first instances of Eurocentric agricultural experiment stations within the North American continent (Wheeler, 1948).

As time passed, it became apparent that there was a need to secure funding to develop state agricultural colleges. Several states implemented formal teaching of agricultural skills through the establishment of public institutions. These states included New York, Virginia, Michigan, Connecticut, Maryland, Pennsylvania, Georgia, Ohio, Wisconsin, Massachusetts, Vermont, and Illinois. The efforts facilitated by these states led to the development of the land grant act of 1862 (True, 1929). The land grant act of July 2, 1862, authored by Justin Smith Morrill (House of Representatives, 1987; Moore, 1987; Stein, 2017; True, 1929; Walters, 1909; Wheeler, 1948), provided grants of land to states to assist in financing the creation of colleges that specialized in agriculture and mechanic arts. Each state was granted 30,000 acres for each congressional seat (Brown, 1963; Stein, 2017; Walters, 1909; Wheeler, 1948). Upon selling the acreage, the funds acquired from the sale were utilized to establish colleges. The impact of this Act to Native nations is discussed in the following section.

In the post-Civil War era, it became apparent while agricultural production continued to rise, the established land-grant institutions were not meeting the needs of the producers. Not only did the land-grant institutions face economic and financial challenges, there was not sufficient instructional material to teach the advancement of agriculture. A professor from the Iowa State's College of Agriculture put the lack of accessibility to literature into perspective by saying, "I might as well have looked for cranberries on the Rocky Mountains as for material for teaching agriculture in that library" (Wheeler, 1948, p. 87). It was apparent that there was a need for experimental inquiries that specifically sought the creation of a knowledgebase for agriculture instruction (True, 1929; Wheeler, 1948).

Not long after, the first state agricultural experiment station was established at Wesleyan University in Middletown, Connecticut in 1875 (Knoblauch et al, 1962; True, 1929). Other

states joined the efforts to create experiment stations, including North Carolina, New York, Indiana, Alabama, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, New Hampshire, Minnesota, Ohio, Tennessee, Wisconsin, and Vermont (True, 1929). Overall, the work completed by experiment stations was on the rise and resulted in the wide distribution of agricultural publications related to these efforts.

In the effort to create experiment stations, the Hatch Act was passed on March 2, 1887 (House of Representatives, 1987; Moore, 1987; Stein, 2017; Wheeler, 1948). Under the Hatch Act, land-grant institutions were to put focus on developing the study of agriculture through experimentation by creating an experiment station in each state in association with the land-grant institution. The bill was designed to obtain funding from the sale of public lands, which followed the precedent set previously by Morrill. In the years following, experiment stations that were organized through the Hatch Act of 1887 became organized as individual departments within the land-grant universities (True, 1929). In some cases, the experiment stations became a separate organization and reported to the university. Further expansion of experiment stations required additional funding. Through the works of Henry C. Adams, the Adams Act was passed in 1906 that provided additional funding to support the research within experiment stations (True, 1929).

In 1914, the Smith-Lever Extension Act was passed (Brewer et al., 2016; Firkus, 2010; Stein, 2017; True, 1929; Wild, 2013). This act provided for additional funding for extension work at state agricultural colleges. Also, this act changed the relationship between agricultural colleges and the federal government and rural communities. Under the Smith-Lever Act, these closer relationships were one of the terms (True, 1929). This act sets forth that cooperative agricultural extension shall “consist of the giving of instruction and practical demonstrations in

agriculture and home economics to persons not attending or resident in said colleges in the several communities, and impairing to such persons information on said subjects through field demonstrations, publications, and otherwise” (True, 1929, p. 288). In completing this work, the Smith Lever Act not only set aside federal funding for extension programs, but allowed additional funds to be provided through other sources, such as counties, individuals, and counties. In response to the ever-increasing experiment stations, the Hatch Act was rewritten in 1955. The updated act includes language for distribution of funds to each state. From the inception of the Hatch Act of 1887, the funding distribution was \$570,000. As of 1987, the funding has increased to approximately \$150 million and is distributed to all 50 states and also Puerto Rico, Guam, District of Columbia, American Samoa, Micronesia, the Virgin Islands, and the Northern Marianas (House of Representatives, 1987).

Land Dispossession

To begin, it should be acknowledged that all land in North America originated from Indigenous peoples who resided there (Stein, 2017). Land-grant institutions provide important agricultural education, but they were part of settler colonialism through erasing Indigenous rights as the land-grant institutions developed (Nash, 2019). The conversation surrounding land dispossession related to the development of land-grant institutions generally occurs as an aside today, but the reality of the Morrill Act was that the development of land-grant institutions was of secondary importance related to obtaining land.

Land-grant institutions have been foundational in the continued colonization and dispossession of Indigenous land (Lee & Ahtone, 2020; Nash, 2019). One of the tenets in the Morrill Act of 1862 was allocating land to these land-grant institutions, though Indigenous land dispossession had already been occurring for many years prior to the enactment of the Morrill

Act. However, Stein (2017) argues that the accumulation of Indigenous land by the federal government was the prerequisite for the continued dispossession of land following the enactment of the Morrill Act.

One example of the dispossession of land for land-grant development was in the case of the Osage. The Osage resided on the land in Kansas up until this time. In the Removal Act of 1870, a special provision related to the Osage land (Burns, 2004; Rollings, 2004); there were three provisions include in the act that were specifically requested by Kansas: (1) to reserve sections sixteen and thirty-six for Kansas schools, (2) to secure an equivalent if these sections had already been committed, and (3) to secure these equivalents within the bounds of the Osage (Burns, 2004). Thus, Osage land granted to Kansas for the land-grant institution was purchased for \$1.25 an acre (Rollings, 2004). Using the money acquired through the sale of their land in Kansas, the Osage were able to purchase a new reservation in Oklahoma from the Cherokees at 70 cents per acre (Burns, 2004).

While it evident that the Osage people were dispossessed of their lands, it is often not so apparent for other Native nations. To help develop land-grant institutions in the East, land was often apportioned in western lands to support the efforts (Nash, 2019). An example of this relates to the Quapaw. The University of Delaware utilized land gained through the removal of the Quapaw to Arkansas for the development of their institution (Nash, 2019). Another aspect to the dispossession of Indigenous land is that even though these actions often occurred prior to the development of land-grant institutions, the Morrill Act would not have even occurred without these earlier dispossessions (Nash, 2019).

Inherent in the selling of the land for land-grant institutions was the belief that Indigenous peoples did not have a right to the land or for self-determination (Beadie et al, 2016; Nash,

2019). As the federal government created pathways to accumulate Indigenous lands for the development of land-grant universities, this created entangled spaces in current Indigenous communities, land-grant universities and the subsequent Cooperative Extension (Nash, 2019). In response to these entangled spaces, some institutions have publicly acknowledging the dispossession of land. Kansas State University have the following statement posted on their website:

As the first land-grant institution established under the 1862 Morrill Act, we acknowledge that the state of Kansas is historically home to many Native nations, including the Kaw, Osage, and Pawnee, among others. Furthermore, Kansas is the current home to four federally recognized Native nations: The Prairie Band Potawatomie, the Kickapoo Tribe of Kansas, the Iowa Tribe of Kansas and Nebraska, and Sac and Fox Nation of Missouri in Kansas and Nebraska.

Many Native nations utilized the western plains of Kansas as their hunting grounds, and others – such as the Delaware – were moved through this region during Indian removal efforts to make way for White settlers. It's important to acknowledge this, since the land that serves as the foundation for this institution was, and still is, stolen land.

We remember these truths because K-State's status as a land-grant institution is a story that exists within ongoing settler-colonialism, and rests on the dispossession of Indigenous peoples and nations from their lands. These truths are often invisible to many. The recognition that K-State's history begins and continues through Indigenous contexts is essential. (Kansas State University, n.d.)

In addition to this, Colorado State University states “our founding came at a dire cost to Native Nations and peoples whose land this University was built upon. This acknowledgement is the education and inclusion we must practice in recognizing our institutional history, responsibility, and commitment” (Colorado State University, 2020; Nash, 2019, p. 466). Taking steps to acknowledging the entangled past can create positive spaces for Indigenous people and land-grant institutions.

In light of the land acknowledgements issued by Illinois State University and Colorado State University, an Ojibwe educator responded by asserting that they are just that, a statement (Mills, 2018; Nash, 2019). It is important for land-grant universities to be cognizant of the entangled history that surrounds the creation and development of land-grant institutions. Ultimately, “the history of land-grant universities intersects with that of Native Americans and the taking of their lands” (Lee & Ahtone, 2020, para. 17). In this light, even though land acknowledgements are actively being stated, it is still important to understand the history that went into the development of land-grant institutions.

Work with Indigenous Communities

As Extension continued to develop, it became evident that there was a need to assist Indigenous peoples and their communities in agricultural initiatives. However, the Extension system was designed and implemented with a colonial mindset (Hart, 2006; Schaubert, 2001). The initial Extension programming with Indigenous peoples resulted in negative attitudes, impatience, and ultimately the negative look at Extension because the system was created in a colonial system (Hart, 2006). In that lens, Extension work in Indian Country has been historically inconsistent (Brewer et al., 2016). In light of these negative experiences and

inconsistencies, Extension began making efforts to make positive changes in reaching and working with Indigenous communities.

In response to the challenges in reaching Indigenous peoples, Extension has made recommendations to their agents on how to better serve these communities. One important recommendation on how to serve Indigenous peoples is to first develop trust (Alves, 1993; Hart, 2006; Hoorman, 2002). Extension agents who seek to serve Indigenous communities must be accepted by the community and maintain a level of trust before progress can be made. Alves (1993) notes that developing trust takes time and a willingness to nurture a positive relationship. Time includes going to Indigenous events to be visible, continuing to facilitate programs despite the level of attendance, and continually reaching out and listening to individuals and tribal leaders (Alves, 1993; Hart, 2006; Hoorman, 2002).

Another strategy to reach Indigenous clients Alves (1993) suggests is to network through family and other tribal programs. Indigenous families are often large and extended, which can provide a positive source to networking. Indigenous educators have recognized that “the extended family is a major factor in Indian communities, which may include three or four generations in the same household” (Peppers, 1985, p. 49). An Extension agent can take advantage of individuals who are involved with Extension. By using those individuals to help create programs or events, there is a greater possibility that the extended family will become more engaged to support the individual. In addition to family networking, Extension agents can utilize existing tribal programs to further extend their reach. By collaborating with existing programs within the Native nations, the agencies can unify efforts and often create better success. As Extension agents, networking can be a positive strategy in reaching more Indigenous individuals (Alves, 1993).

The final strategy in working with Indigenous clients is persistence and sensitivity (Alves, 1993). In working to build trust and network within Indigenous communities, the most foundational aspects are persistence and sensitivity. Every Native nation is unique and therefore, cannot be generalized with other nations (Pepper, 1985). Each nation is going to view Extension differently. Extension agents working with Indigenous communities must continually work to build trust, despite the level of response or participation. Appreciating Indigenous peoples for who they are and looking at the strengths they bring can help in building trust within these communities (Alves, 1993; Pepper, 1985).

While there have been challenges along the way, it is certain that Indigenous peoples in North America were the first agricultural educators (Croom, 2008). It is also apparent that efforts are now actively being made to not only address the needs in Indian Country, but to better help Indigenous individuals build their agricultural systems. One of the ways that Extension assists Indigenous communities is through the Federally-Recognized Tribes Extension Program (FRTEP). This program administers Extension programs on tribal reservations or within tribal jurisdictional areas (United States Department of Agriculture, n.d.). Through the FRTEP program, Extension agents seek to build Indigenous communities through youth development, agricultural management, and natural resource management (United States Department of Agriculture, n.d.).

The Muscogee (Creek) Nation of Oklahoma is one Native nation that has received assistance through FRTEP to support agricultural education initiatives in conjunction with the Extension offices located in their jurisdiction. Through the Muscogee (Creek) Nation program, it is estimated that 23,000 students were reached through school enrichment programs (Indian Country Extensions, 2009). Through efforts to expand agriculture and youth development, the

Muscogee (Creek) Nation program has seen increases in the number of tribal youth enrolled in youth programs and an increase in the number of tribal adults volunteering in youth programs (Indian Country Extensions, 2009). In the case of the Muscogee (Creek) Nation, Extension has initially helped develop resources and support for Indigenous specific programs.

Like the Muscogee (Creek) Nation, collaboration with Extension creates opportunities for Indigenous programs that focus on agricultural education. These collaborations are made possible through the ongoing work that Extension is making to reach Indigenous communities. Finally, collaborations with Indigenous communities can successfully bring together Indigenous foundations to create agricultural education programs to benefit the communities.

Indigenous Education

Indigenous education systems are designed to acculturate Indigenous peoples (Brayboy & Lomawaima, 2018). Indigenous education can be looked at in two different lenses: 1) the education of Indigenous students by parents, extended families, or communities, and 2) the education of Indigenous students by colonial systems (Lomawaima, 1999). Essentially, the two sides of Indigenous education are the “education of Indian *by Indians* and the education of *Indians by others*” (Lomawaima, 1999, p. 5). While these are two very different lenses to look at Indigenous education, it is important to understand both when looking at how this relates to the education of agriculture.

Indigenous Education by Indians

The first lens of Indigenous education is the education by Indians. From an Indigenous perspective, the ultimate goal of Indigenous education is to reach a level of balance, or completeness, within each person (Cajete, 1999). For example, the Aztecs had four goals for education: (i) Education helps individuals “find their face”, meaning they find their own unique

qualities, (ii) education helps individuals “find their heart”, meaning they find their motivations and desires, (iii) education helps individuals find their kind of work, meaning they find what enables them to express who they are, and (iv) education that helps individuals to become complete, meaning that they are able to find harmony and balance in themselves (Cajete, 1999). This completeness brings together a balanced education for the Indigenous student, because there is a greater focus on the world in each aspect of the teaching.

In relation to the natural world, Indigenous education focuses on coming together within a larger context. While mainstream education focuses on nature as objects and sources of theories in science, Indigenous education has a foundation that nature is mutually supportive and communal (Cajete, 1999; Cajete, 2005; Pepper, 1985). Indigenous peoples have traditionally gained their education through direct connection with the environment (Cajete, 2005; Kawagley & Barnhardt, 1999). Additionally, there is a need for Indigenous students to know they are learning and connecting with their world (Brayboy & Lomawaima, 2018; Cajete, 2005; Pepper, 1985).

Education systems created with westernized thought are focused on students learning up to certain standards, which are predetermined to show success. Indigenous systems have been historically rooted in simple survivance (Kawagley & Barnhardt, 1999). The focus of Indigenous educational systems include:

- Spirituality is embedded in all elements of the cosmos
- Humans have responsibility for maintaining a harmonious relationship with the natural world
- Need for reciprocity between human and natural worlds—resources are viewed as gifts
- Nature is honored routinely through daily spiritual practice

- Wisdom and ethics are derived from direct experience with the natural world
- Universe is made of up of dynamic, ever-changing natural forces
- Universe is viewed as a holistic, integrative system with a unifying life force
- Time is circular with natural cycles that sustain all life
- Nature will always possess unfathomable mysteries
- Human thought, feelings, and words are inextricably bound to all other aspects of the universe
- Human role is to participate in the orderly designs of nature
- Respect for elders is based on their compassion and reconciliation of outer- and inner-directed knowledge
- Sense of empathy and kinship with other forms of life
- View proper human relationship with nature as a continuous two-way, transactional dialogue. (Kawagley & Barnhardt, 1999, p. 120-121)

Understanding these worldviews provide the foundation for Indigenous education. These points also allow existing educational systems to be properly reviewed and assessed to see if these Indigenous worldviews are being incorporated successfully. Ultimately, when working with Indigenous educational systems, it is important to understand the specific Indigenous worldviews and use those ideals to create the most relevant agricultural educational programming.

Even though Indigenous peoples have a long history of learning through their close ties to nature, there has been movement to blend old and new ways of thinking (Kawagley & Barnhardt, 1999). These new shifts not only aid in education of Indigenous peoples, but also span across other marginalized peoples who have experienced similar histories. Additionally, Indigenous education has a firm foundation in agricultural and biological diversity. Historically, native

people understand the complexities of diverse systems, including such things as biological and weather diversity. More recently, assimilationist education has hindered these knowledge systems from being passed down. Therefore, instead of Western science being the foundation of all education, Indigenous peoples can increasingly come from a perspective that their ways of being can be validated by Western science (Kawagley & Barnhardt, 1999; Pepper, 1985). Thus, the agricultural and biological systems that Indigenous peoples have utilized for millennia can be supported by modern educational systems.

An example of Indigenous knowledge systems working in conjunction with Western education systems is Haskell Indian Nations University. Haskell was founded in Lawrence, Kansas in 1884 and originally focused on agricultural education (Haskell Indian Nations University, 2017c). What began with elementary education in an effort to assimilate Native students through a boarding school model, overtime has evolved and expanded to become a modern university that is a center for Indigenous education. Curriculum within the University integrates Indigenous culture into every aspect (Haskell Indian Nations University, 2017c). This Indigenous foundation is evidenced by the University's mission statement to "build the leadership capacity of our students by serving as the leading institution of academic excellence, cultural and intellectual prominence, and holistic education that addresses the needs of Indigenous communities" (Haskell Indian Nations University, 2017b, par. 3). The mission statement supports Indigenous knowledge being at the core of the University.

In addition to the mission statement, the University's six values are represented in a circle. The circle is symbolic of a medicine wheel by representing balance, sacredness and power in the university, and spirituality and culture of Indigenous peoples (Haskell Indian Nations University, 2017a). The values represented in the circle are:

- Communication – To successfully convey ideas, opinion, information, results, or creative expression using multiple strategies
- Integrity – To conduct ourselves in ways that honor the sacrifices of tribes on which treaty and trust responsibilities are based; and to carry out our responsibilities as students, staff, faculty, administrators and regents by engaging in actions based on the highest standards of conduct
- Respect – To honor and promote the diversity of beliefs, rights, responsibilities, cultures, accomplishments of self and others, including all of our relations
- Collaboration – The willingness and ability to work successfully with others in accomplishing the goals of the university, our students, the mission of Haskell and the tribes we serve
- Leadership – The willingness to acquire the knowledge and skills required to advocate for, and to advance the sovereignty and self-determination of tribes, our university and the students we serve in a variety of diverse venues
- Excellence – to strive toward the strongest level of accomplishment in our work, in every facet of the university and community, as students, staff, faculty, administration the regents. (Haskell Indian Nations University, 2017a, par. 3)

As seen in the values that are represented in the Haskell Indian Nations University circle, Indigenous knowledge is again at the core. The relevance of the circle is supported by Black Elk, Oglala Sioux Holy Man, when he expressed that “so long as the hoop was unbroken—the people flourished” (Haskell Indian Nations University, 2017a, par. 1). Haskell Indian Nations University has ensured that Indigenous knowledge is woven throughout the mission statement,

values, and core foundations. This integration illustrates how Indigenous and Western knowledge can successfully work together, specifically through education by Indians.

Indigenous Education by Others

The second lens of Indigenous education is the education by others. This lens is framed in a colonial system, which was designed to eradicate the Indians. Specifically, colonial education seeks to ask questions such as, “What is the purpose of education? Who has the authority to teach? Who are the students? Where should this education take place? What teaching methods are most suitable? What should the curriculum cover? What are students being prepared for?” (Lomawaima, 1999, p. 6). In answering these questions, colonial educators created specific methods and theory for Indigenous communities.

The colonial worldviews as defined by Kawagley and Barnhardt (1999) are:

- Spirituality is centered in a single Supreme Being
- Humans exercise dominion over nature to use it for personal and economic gain
- Natural resources are available for unilateral human exploitation
- Spiritual practices are intermittent and set apart from daily life
- Human reason transcends the natural world and can produce insights independently
- Universe is made up of an array of static physical objects
- Universe is compartmentalized in dualistic forms and reduced to progressively smaller conceptual parts
- Time is a linear chronology of “human progress”
- Nature is completely decipherable to the rational human mind
- Human thought, feeling, and words are formed apart from the surrounding world
- Human role is to dissect, analyze, and manipulate nature for own ends

- Respect for others is based on material achievement and chronological old age
- Sense of separateness from and superiority over other forms of life
- View relationship of humans to nature as a one-way, hierarchical imperative. (p. 120-121)

These points detail the colonial foundations that exist in educational systems created by others. It is essential to understand both the colonial and Indigenous worldviews to not only understand the historical aspect of educational systems, but in creating future agricultural education systems.

There are four basic tenets of Indigenous education taught in a colonial system. These tenets are civilization, conversion, subordination, and special pedagogical practices (Lomawaima, 1999). The first tenet, civilization, is based on the premise that Indigenous peoples need to be civilized. The notion of Indigenous peoples being savage or uncivilized dates back to the first encounters from European colonists. These notions of being savage or uncivilized permeated long after colonization of North America. Part of becoming civilized is tenet 2, conversion to Christianity. Europeans believed that maintaining the natural order included Christianity as the ultimate goal. Ultimately, European ways of life and Christianity were the cornerstones to being human and civilized (Lomawaima, 1999).

The third tenet is subordination of Indigenous communities. This tenet is founded on the thought that restructuring Indigenous communities meant more control. This restructuring included relocation and resettlement through boarding schools, reservations, and homesteads (Lomawaima, 1999). The concept of Indigenous peoples being proper landowners was a foreign one and the European system was to create a sedentary community through agriculture. This so-called community was established through resettlement, which also served the ultimate purpose of extending power over Indigenous peoples (Lomawaima, 1999). Indigenous communities

ultimately posed a threat to European domination and expansion, so being able to create new communities under European control was the solution.

Additionally, Europeans wanted Indigenous peoples to be “free individuals within the liberal American nation” (Lomawaima, 1999, p. 10). Indigenous peoples were seen as being shackled by their tribal communities and only through European intervention could they assimilate into the new European based communities. Through individualizing Indigenous peoples, there was a push for creating agricultural workers, manual laborers, domestic servants, and low-skilled tradesman (Lomawaima, 1999). To assist in the effort of establishing new communities, the Bureau of Indian Affairs (BIA) created several experiments that established demonstration communities of progressive Indigenous peoples. These progressive Indigenous peoples consisted mostly of graduates from boarding schools. Collectively, these demonstration communities and other resettlement initiatives were focused on pushing Indigenous peoples to assimilate into the European society.

The last tenet is focused on the premise that civilization requires special pedagogical practices to overcome presumed Indigenous deficiencies. As early as 1665, Jesuits in New France were instructed to utilize manual labor in Indigenous education. Early missions in California identified Indigenous students by their ability to work, not by other attributes like character or intelligence (Lomawaima, 1999). Like mission schools, boarding schools also elevated manual labor over classroom learning. However, boarding schools utilized military regimentation to achieve transformation of Indigenous students to a European style life (Lomawaima, 1993). Boarding schools sought to reshape connections to society and culture, which often included agricultural education foundations that promoted a European style sedentary life through farming (Firkus, 2010; Lomawaima, 1993; McBeth, 1984).

Carlisle, established in Pennsylvania in 1879, under the direction of Richard Henry Pratt was the first United States off-reservation boarding school (Kipp, 1988; Lomawaima, 1993; Lomawaima, 1994; Lomawaima & Ostler, 2018; McBeth, 1984; NIEA, n.d.; Spring, 2016; Szasz, 1989; Szasz, 1999; Tyler, 1973). Carlisle was set up to take Indigenous children out of their natural environment and teach them how to live in a European society (Brayboy & Lomawaima, 2018; Hurt, 1987). Boys and girls were taught new roles, which were strictly defined by the European social systems; girls were trained in domesticity and boys were trained in agriculture and semiskilled trades (Lomawaima, 1993). During the time at the school, children could not speak their native languages or partake in any of their traditional cultural activities (Lomawaima, 1993; Lomawaima, 1994). Through boarding schools like Carlisle, it was thought that the cultural bonds of Indigenous children could be broken and re-linked to European society. Carlisle was created to be a pathway for Indigenous children to learn white ways (Hurt, 1987) and became a model for Indian boarding schools across the country (Lomawaima & Ostler, 2018; Szasz, 1999).

Another illustration of a federal boarding school is the Chilocco Indian Agricultural School, which was established in Oklahoma near the Kansas line, in 1884 (Lomawaima, 1994). In the beginning, agricultural production was the focus and education was a by-product in keeping the school self-sufficient (Lomawaima, 1994). In 1907, the school increased their agricultural capacity by adding a creamery, fifty stands of bees, and one hundred Shopshire sheep (Lomawaima, 1994). As the agricultural infrastructure grew, boys were given small acreages of land to farm. The school provided all the equipment and instruction, while the boys were given one fourth of the market value (Lomawaima, 1994). By the 1930s, the school was well known for Hereford cattle, dairy cattle, poultry, and Morgan horses (Lomawaima, 1994).

This was in part due to the close relationship that the school had with Oklahoma Agricultural and Mechanical College, which was situated only a short distance away (Lomawaima, 1994). In the case of Chilocco, agricultural education focus sought to demonstrate successful assimilationist practices and became the “flagship federal school for agricultural instruction” (Bess, 2013, p. 83). This was in part due to the successful agricultural operations at the school.

Throughout the era of boarding schools, one of the goals was agricultural education as a pathway to assimilation through sedentary farming. This can be captured in a Congressional statement from 1818:

Put into the hands of their children the primer and the hoe, and they will naturally, in time, take hold of the plow; and as their minds become enlightened and expand, the bible will be their book, and they will grow up in habits of morality and industry, leave the chase to those of minds less cultured, and become useful members of society.

(Lomawaima, 1994)

This statement depicts the colonial mindset that agriculture being taught by others is a way to further assimilate Indigenous peoples into a European system. Through the efforts of a colonial system to allot Indigenous lands and create boarding schools, agriculture was at the center of these pathways in respect to creating a colonized system for Indigenous peoples.

There continue to be challenges for Indigenous students sustaining in an educational system that is directed by others. One of the challenges that continue is the incorporation of Indigenous languages, beliefs, religions, and practices. Over many centuries, Indigenous peoples have created an education system for the teaching of their children. While Indigenous peoples viewed colonial education systems as an overlay to their existing systems, Europeans pushed for a complete replacement (Szasz, 1989). Since Europeans settled the North American continent,

there has been a continual push to “purposefully and systematically” (Lomawaima & McCarty, 2002, p. 282) eradicate Indigenous foundations. Additionally, colonial agricultural education was perceived to be another way to change Indigenous worldviews and support further assimilation (Firkus, 2010). Centuries of eradicating Indigenous ways of knowing have created challenges for current Indigenous students who seek to maintain Indigenous traditions. Despite the colonial systems that created what Indigenous education looks like today, Indigenous peoples have maintained their identities, self-governance, and self-determination (Lomawaima, 1999).

In conclusion, it is important to understand Indigenous education by Indians and Indigenous education by others. Taking the time to understand both systems allow for the research to effectively understand the history behind the educational systems (Lomawaima, 1999; Szasz, 1983) as well as effectively see what agricultural education systems currently exists. As each Native nation navigates the education systems for the benefit of their people, it is important to see the intricate agricultural education systems that need to be navigated.

Tribal Sovereignty

Tribal sovereignty is essential to Indigenous agricultural education programming. Understanding the history behind the challenges of sovereignty, especially as it relates to educational sovereignty, situates the importance of this research. Native nations have made tremendous strides in asserting themselves as sovereign nations, which includes the right to self-educate (Lomawaima, 2000; Lomawaima, 2013; McCarty & Lee, 2014). This section seeks to provide an understanding of tribal sovereignty, including educational sovereignty and food sovereignty.

Native nations have resided in the North American continent long before the Europeans arrived (NCAI, 2020). Whatever the specific background was for Europeans, they quickly

identified themselves as not being Indigenous (Lomawaima & McCarty, 2002). To be considered civilized a person must be agrarian and Christian, which meant that diversity was considered a problem (Lomawaima & McCarty, 2002). Despite the negative attitude towards Native Americans, Europeans began working to find a path forward.

Early in the history of European arrival, it became understood that Indigenous nations were sovereign. Even if merely from the perspective that Indigenous nations had the power to make war, Europeans soon engaged these nations as sovereign (Echohawk, 2013). Throughout history, conflicts with American Indians were handled through treaties and negotiations (Echohawk, 2013; NCAI, 2020). Essentially, these resolutions were between two nations. Native nations were specifically identified in Article 1, Section 8 of the United States Constitution by stating, “The Congress shall have the power to...regulate with commerce with foreign nations, and among several states, and with the Indian tribes” (NCAI, 2020, p. 9). The Constitution goes on to grant authority to the President to negotiate treaties with foreign nations, individual states, and Indigenous nations (Echohawk, 2013; Lomawaima & McCarty, 2002; NCAI, 2020).

In terms of sovereignty, the United States Supreme Court ruled in 1831 that Indigenous nations were a domestic dependent nation that fall under the jurisdiction of the federal government (Burns, 2004; Echohawk, 2013; Hoover, 2017; Kipp, 1988; McCarty & Lee, 2014; NIEA, n.d.). Although Native nations were sovereign, individual Indigenous peoples were not treated as such. They were often denied legal standing in court and were treated as wards of the federal government (Lomawaima, 2013).

As domestic dependent sovereign nations, Indigenous peoples were citizens of their own nations and not of the United States. In the early history of the United States, Congress initiated

hundreds of treaties with individual Indigenous nations. Treaties occurred until 1871, at which time Congress suspended these actions. Any treaties enacted prior to 1871 were still honored and viewed as federal laws (Echohawk, 2013; Lomawaima, 2013). After 1871, business involving Indigenous nations were conducted through agreements and statutes approved by Congress (Echohawk, 2013).

Not too long after, in 1887, Congress passed the Dawes (General Allotment) Act (Burns, 2004; Burrill, 1972; Carlson, 1982; Hurt, 1987; Lewis, 1994; Lewis, 1995; Lomawaima, 1994; Rollings, 2004; Szasz, 1999; Tyler, 1973). This Act was designed to break up tribal land and assimilate Indigenous peoples into white society (Echohawk, 2013). The Dawes Act undermined many Indigenous reservations and set land aside to individual tribal members. Although the Indigenous individuals had land provided to them, they were severely limited on what they could do with it. Land that was not in fee simple was, from the beginning, a severe hindrance in building up Indigenous livelihoods because they could not even simply build homes. Restrictions associated with restricted and trust land statuses blocked the ability to achieve home mortgages to construct homes on these lands (Lomawaima, 2013).

In light of Indigenous peoples that served in World War I, Congress passed the Indian Citizenship Act in 1924. This act gave United States citizenship to all Indigenous peoples (Echohawk, 2013; Spring, 2016). Although this seems like a positive step towards Indigenous sovereignty, this was not the intent of this act. At this time, there were conversations surrounding how to effectively manage the Indigenous populations. United States citizenship was a way to address other concerns: federal handouts reducing initiative, cultural differences being dangerous for societal homogenization, and exercising of power (Lomawaima, 2013). One important component of citizenship was the ability to own fee simple land, which was already a

right held by United States citizens. Although there was a legal component to owning fee simple land, the Indigenous continued to own their land in either restricted or trust status. The status of the land did not change, even after the passing of the Indian Citizenship Act (Lomawaima, 2013). Therefore, while Indigenous peoples were now United States citizens, it continued to be a complicated path forward.

Ten years later, Congress passed Indian Reorganization Act in 1934 (Echohawk, 2013; NIEA, n.d.). Throughout the short history between the time Europeans set foot on the North American continent until this time, Indigenous peoples had lost two-thirds of their land. Most of this loss was due to the allotment process (Echohawk, 2013). The Indian Reorganization Act stopped the allotment of lands and recognized the sovereignty of Indigenous peoples. Europeans had discouraged Native nations to continue with their own governance and fall under the federal government through assimilation. Under this Act, nations were encouraged to adopt their own governance systems. It was acknowledged that the assimilation process had failed Indigenous peoples and it was time to govern themselves.

By 1953, Congress implemented a policy of termination and reversed the previous Indian Reorganization Act. Under the termination policy, the federal government sought to further assimilate Indigenous peoples and make them to be like every other American citizen (Echohawk, 2013). Essentially, the termination policy dissolved Indigenous tribal governments, sought for the nations to sell their land, and move Indigenous peoples into communities with other white United States citizens. Indigenous communities that were targeted first were the more successful ones. More than 100 Native nations were terminated before this period ended in 1970 (Echohawk, 2013; NIEA, n.d.).

In 1970, United States President Richard Nixon asserted that the termination policy was

wrong and a new Indigenous policy should be created. Following Nixon's declaration, a policy of self-determination was created. Under this policy, Native nations were recognized as being sovereign and able to govern themselves (Echohawk, 2013; NIEA, n.d.). Continuing in the era of self-determination, Indigenous communities gained the ability to create and maintain their own governance system. This included the development of additional systems for the benefit of their Indigenous peoples, including education systems.

The period of self-determination ended in 2000 and the Nation-to-Nation period began. President Clinton issued Executive Order 13175 in 2000 to consult and coordinate with Indian tribal governments to strengthen the government-to-government relationships (NCAI, 2020; RedCorn, 2020b). This period has allowed Native nations to build upon federal policy to strengthen their nations independently of the federal government (NCAI, 2020). The federal government's role in tribal sovereignty is protect self-governance, assets, lands, resources, and treaty rights (NCAI, 2020; NIEA, n.d.).

Tribal sovereignty at its very core is to govern and "protect and enhance the health, safety, and welfare of tribal citizens within tribal territory" (NCAI, 2020, p. 23). Each Native nation has the ability to determine the governance structures that best suit their needs and to create the infrastructure necessary to provide for their citizens. An important component of exercising sovereignty is land. Not only does the land provide economic and subsistence opportunities, it holds cultural and spiritual significance (NCAI, 2020). Land is how Indigenous peoples identify themselves (Lewis, 1994).

Related to land and tribal sovereignty, a significant step in sovereignty occurred with the United States Supreme Court ruling in *McGirt v. Oklahoma* in July 2020. The Court stated that there can be no question that Congress established a reservation for the Creek Nation, it's equally

clear that Congress has since broken more than a few of its promises to the Tribe. Further, the Court held that Congress has never withdrawn the promised reservation (*McGirt. V. Oklahoma*, 2020, p. 42.)

The United States Supreme Court ruling in *McGirt* held that the Creek Nation reservation was never disestablished. The practical impact of this ruling is that the State of Oklahoma does not have criminal jurisdiction over crimes listed in the Major Crimes Act committed by Native Americans throughout a large part of Oklahoma. This shifts criminal jurisdiction over Major Crimes Act crimes committed by Native Americans to tribal courts and to the federal court and away from the state court system. This was a paramount ruling supporting tribal sovereignty. The impact of this decision is unclear in the sense that *McGirt v. Oklahoma* may be expanded to apply to other nations in Oklahoma who have never had their reservations disestablished. In addition to *McGirt vs. Oklahoma*, the Oklahoma Court of Criminal Appeals ruled in October 2021 that the Quapaw Nation is, at this time, the sixth Native nation to have an intact reservation (Killman, 2021). The total impact of this landmark decision on tribal sovereignty remains to be seen. Ultimately, the Oklahoma Native nations see this decision as a giant step forward for tribal sovereignty in Indian country.

To further expand upon sovereignty, there are three main components: Self-determination, self-government, and self-education (Brayboy & Lomawaima, 2018; Lomawaima, 2013; Lomawaima & McCarty, 2002). Since European settlement, the needs and goals of Indigenous peoples have been set forth by non-Indigenous people. Native nations are acutely aware of the layers of sovereignty that weave together for daily existence. These Indigenous nations could define sovereignty as “proactively planning, governing, and educating in a broad context that percolates far beyond reservation boundaries” (Lomawaima, 2013, p.

345). This definition of sovereignty distinguishes nations as asserting actions in all areas of life for the Indigenous specific development of systems for the benefit of their people.

Educational Sovereignty

In the vein of tribal sovereignty, education sovereignty, or self-education, is also an essential component (Lomawaima, 2000; Lomawaima, 2013; McCarty & Lee, 2014). Indigenous peoples are inherently different than other minority groups that reside in the United States. Being sovereign, Indigenous peoples have rights to self-governance. Education in Indigenous communities have had a long history with the federal government determining what is best for Indigenous peoples through pedagogy, creating curricula, and instruction policies (McCarty & Lee, 2014). In terms of education sovereignty, as both Indigenous tribal and United States citizens, both governments are accountable for the students served. Since European colonization, Indigenous peoples have continually sought to be taught in a westernized educational system. These systems, which are not centered in Indigenous systems, are not designed to promote sovereignty.

In terms of sovereignty, it is important to note that educational sovereignty is continually interacting with other sovereignties. As federal, state, Indigenous nations, and other entities interact, there is no complete and total sovereignty. There continues to be a need to balance these sovereignties with accountability to the Indigenous community (McCarty & Lee, 2014). At the core of educational sovereignty is the need to create Indigenous specific educational systems that promote the culturally responsible curricula for the development of Indigenous students.

Food Sovereignty

In addition to educational sovereignty for Native nations, another important component

for nations is food sovereignty. Throughout history, Indigenous communities have successfully engaged with agriculture. These agricultural systems have been broken down after European settlement. Some of the ways these systems were broken include the destruction of food during acts of war, as well as interrupting the knowledge of food to subsequent generations of Indigenous peoples (Hoover, 2017). These efforts to breakdown the food systems were performed in an effort to make Indigenous peoples more reliant on the federal government (Hoover, 2017). Despite the efforts to break the food systems of Indigenous, these people have worked to create a new future for these systems.

Today, Native nations have set the foundation for food sovereignty efforts. Food sovereignty is defined as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems” (Budowle, R., Arthur, M.L., & Porter, C. M., 2019, p. 146; Hoover, 2017, p. 32). Food sovereignty, at the core, is the right to manage all aspects of food systems in a way that benefit a community, specifically the Indigenous community (Ricart, 2020). This management of food systems include the ability to “celebrate their traditional food culture as a part of their nationhood, and controlling land upon which food is grown, and how it is grown” (Ricart, 2020, p. 380). Through food sovereignty, nations are in uniquely situated to create food systems that benefit their people.

Further, food sovereignty is the ability of Native nations to integrate culture into the tribal food systems. For many nations, food is at the center of the tribal customs. There are often traditions that surround food, including how and where the food is produced, as well as how it is harvested, processed, prepared, and served. These traditions create each tribe’s unique identity. In light of the importance of food for Indigenous communities, the United Nations Declaration

on the Rights of Indigenous Peoples states that:

Indigenous peoples have the right to maintain, control, protect, and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestation of their sciences, technologies and cultures, including...seeds, medicines, knowledge of the fauna and flora. (United Nations, 2007, p. 22)

In alignment with the rights of Indigenous peoples as detailed by the United Nations, food sovereignty supports that each Native nation has unique cultures that intertwine with food. As American Indians have a close integration with culture and food, these sovereign nations also have the authority to make the decisions necessary to ensure these systems are created and managed in a way that benefit their tribal communities (Hoover, 2017; Ricart, 2020).

In conclusion, sovereignty is a critical component to Native nations. Sovereignty is the foundation of sovereign nations. Ultimately, “if nations were still required to assimilate and erase their ancestral roots, there would virtually be no sovereignty or nationhood—tribes would cease to exist” (Ricart, 2020, p. 379). Sovereignty, especially educational and food sovereignty, is what allows nations to make the appropriate decisions necessary to support their Indigenous communities.

Decolonizing Theoretical Frameworks

Methodology describes how the research is designed, how data is gathered and analyzed, as such there is a reasonableness to what research methodology is used in each project (Smith, 1999). In response to working with Indigenous peoples, there is an intersection with the research world that can be a complicated space. Decolonizing methodologies allows the researcher to interact in these spaces, especially by contextualizing the problem and the implications for the respective participants (Smith, 1999). The decolonizing theoretical frameworks identified are

Red pedagogy, insurgent research, Transformational Indigenous Praxis Model, Indigenous postcolonial theory, TribalCrit, and Osage ribbon work.

Red pedagogy

Red pedagogy is a pedagogy that is situated between Western theory and Indigenous knowledge (Grande, 2008). Red pedagogy seeks to identify the communities that we live in as revolutionary agents where we reinvent ourselves to validate Indigenous culture in relation to social and power (Grande, 2008). Miseducation of Indigenous peoples have been occurring since Europeans stepped foot on the North American continent. Red pedagogy is a space for the engagement to remember, redefine and reverse the devastation of the first colonial encounter (Grande, 2008).

Within red pedagogy, an important component is to continually analyze colonialism throughout the process. For example, as Indigenous educators seek to incorporate Indigenous knowledge into the curriculum, it is also imperative to concurrently seek to reform the institutional structures itself (Grande, 2008). Working within red pedagogy, educators acknowledge that only through specifically taking action against colonialism and dismantling the European education system can progress for Indigenous education take place.

The foundation for red pedagogy is revolutionary critical praxis. The principles for revolutionary critical praxis include being a collective process, it must work to identify the root of economic oppression and class exploitation, is systematic with concrete circumstances, is participatory through community members and others, and is a creative process (Grande, 2008). In response to these principles, red pedagogy raises questions related to the intersection of Indigenous identity, the historical realities of Indigenous life, Indigenous sovereignty, and the view of land and natural resources. In response to these issues, red pedagogy seeks to define the

spaces between European and Indigenous worldviews (Grande, 2008).

Additionally, red pedagogy argues that any efforts that do not have a clear understanding of Indigenous sovereignty will not support tribal sustainability (Grande, 2008). Deloria (1999) describes these complex situations,

Although the loss of land must be seen as a political and economic disaster of the first magnitude, the real exile of the tribes occurred with the destruction of ceremonial life (associated with the loss of land) and the failure or inability of white society to offer a sensible and cohesive alternative to the traditions, which Indians remember. People became disoriented with respect to the world in which they lived. They could not practice their old ways, and the new ways which they were expected to learn in a constant state of change because they were not part of a cohesive view of the world but simply adjustments which whites were making to the technology they invented. (p. 247)

As stated previously, red pedagogy seeks to remember, redefine and reverse colonialism. It seeks to restructure systems while including Indigenous knowledge in the process. This pedagogy seeks to create a space that takes the struggle of Indigenous identity towards a relationship with sovereignty, intellectual property, and resources.

There are seven precepts that help define red pedagogy. These precepts are that red pedagogy is 1) a pedagogical project, 2) is rooted in Indigenous knowledge and praxis, 3) is informed by critical theories of education, 4) promotes an education for decolonization, 5) is a project that interrogates democracy and Indigenous sovereignty, 6) actively cultivates praxis of collective agency, and 7) is grounded in hope (Grande, 2008). In alignment with these seven precepts, red pedagogy offers a space to reimagine what it means to be Indigenous in a European society (Grande, 2008). Ultimately, red pedagogy is about Indigenous survivance through

moving from responding to colonialism to actively being present against colonialism (Grande, 2008).

Insurgent Research

Insurgent research is a theoretical framework that is grounded within an Indigenous worldview. This framework is “situated within a larger Indigenous movement that challenges colonialism and its underpinnings and is working from within Indigenous frameworks to reimagine the world by putting Indigenous ideals into practice (Gaudry, 2011; Pewewardy, Lees & Clark-Shim, 2018).

There are four guiding principles of insurgent research. These four principles are: (1) research explicitly employs Indigenous worldviews, (2) research orients knowledge creation towards Indigenous peoples and their respective communities, (3) researchers have a responsibility towards the Indigenous community and participants, and (4) research promotes community-based action that targets direct action towards colonial interference (Gaudry, 2011). Using the insurgent research model, researchers have a direct responsibility towards Indigenous peoples.

The first principle orients knowledge creation towards Indigenous peoples and their respect communities. Within insurgent research, it is understood that Indigenous ways of knowing are valid and are not subject to European worldviews. Additionally, Indigenous knowledge consisting of such things as creation stories, oral traditions, and cosmology are viewed as truths (Gaudry, 2011). Indigenous knowledge does not require European approval or validation and these truths are able to “stand on their own” (Gaudry, 2011, p. 118).

The second principle orients knowledge creation towards Indigenous peoples and their respective communities. Research has been historically performed with a Eurocentric mindset on

or about Indigenous peoples. There continues to be research on Indigenous peoples where the researchers are non-Indigenous. Insurgent research provides the foundation for research to be completed by Indigenous people for Indigenous people (Gaudry, 2011). In creating opportunities for change within Indigenous systems, insurgent reaches out to the communities and people within these systems.

The third principle has a responsibility towards the Indigenous community and participants. Waziyatawin portrays a powerful example of responsibility:

Imagine a scholar sitting before a room full of elders from the culture he has been studying after his first book on them has just been published. Imagine him having to be accountable for his methodology, his translations, his editing, his terminology, his analysis, his interpretation, and his use of their stories. While a discussion like this between a scholar and his subjects of study may never occur in this formal forum, the dialogue will occur somewhere else. (Gaudry, 2011, p. 122)

This depiction is one that could happen when Indigenous researchers conduct research within Indigenous communities. Unlike European centered research, the responsibility of the researcher is to the Indigenous community (Gaudry, 2011). Additionally, insurgent researchers have a responsibility towards combatting further colonial dysfunction while facilitating harmonious relationships within Indigenous communities.

The fourth and final principle promotes community-based action that targets direct action towards colonial interference. Through focusing the research towards Indigenous action, a space can be created to empower individuals (Gaudry, 2011). Specifically, it is important to focus the research towards action. The ultimate goal of insurgent research is to “produce a better and freer life for community members” (Gaudry, 2001, p. 125). Properly engaging the Indigenous

community requires the researcher to be willing to make sacrifices for the ultimate betterment of the community. Together, all four principles provide the framework for utilizing Indigenous knowledge as the foundation for creating new systems.

Transformational Indigenous Praxis Model

The Transformational Indigenous Praxis Model (TIPM) was developed to promote cultural consciousness and critical awareness for educators (Pewewardy, Lees & Clark-Shim, 2018). The TIPM is framed in a scaffolding platform and seeks to restore Indigenous consciousness while bridging the gap between European and Indigenous knowledges (Pewewardy, Lees & Clark-Shim, 2018). Further, the TIPM helps to understand the development of Indigenous and critical consciousness.

Within the TIPM, there are four stages located on the scaffolding platform. They are: Stage 1 – Contributions Approach, Stage 2 – Additive Approach, Stage 3 – Transformation Approach, and Stage 4 – Cultural and Justice Action (Pewewardy, Lees & Clark-Shim, 2018). These stages recognize that as people develop their Indigenous consciousness, they can move within or vertically between stages. The first stage includes people who are dysconscious of racism. These individuals are completely unaware of the challenges faced by Indigenous peoples, both historical and present. The second stage consists of individuals who are beginning to understand colonial and Indigenous frameworks. These individuals have moments of critical awareness, but they are not actively putting their realizations into practice. The third stage includes individuals who seek to decolonize, both in systems and other individuals. Within this stage, individuals are actively considering ways to enact systemic change. The last stage includes people who are actively engaging with decolonial and critical awareness thinking. In

this last stage, individuals are acting as mentors to help others through the TIPM (Pewewardy, Lees & Clark-Shim, 2018).

Using the TIPM, educators move vertically through the tiers of the scaffold as they become increasingly decolonial and critically aware in their thoughts and actions. While the TIPM is a framework to support decolonization and the steps to Indigenize educational systems, it is not designed to be a diagnostic tool that encompasses every Indigenous need. It is designed to be a foundational source to support the creation of Indigenous specific systems and enhanced critical consciousness (Pewewardy, Lees & Clark-Shim, 2018).

Indigenous Postcolonial Theory

Battiste (2004) defines Indigenous Postcolonial Theory as “an aspiration, a hope, not yet achieved” (2004, p. 1). This definition of postcolonial is the foundation for understanding the historical oppression and colonization, while subsequently creating the framework for reimagining the boundaries that exist for Indigenous peoples (Battiste, 2004). Within this framework, one of the primary foci is to challenge the Eurocentric education systems. Therefore, this framework seeks to not only decolonize Indigenous education, but to plan educational sovereignty. Educational sovereignty can be achieved when the Eurocentric education systems are deconstructed by Indigenizing curriculum and restoring Indigenous knowledges (Battiste, 2004; Pewewardy, Lees & Clark-Shim, 2018).

TribalCrit

TribalCrit emerged from Critical Race Theory (CRT), which began in the 1970s in response to addressing how the law applies to minority groups. Later on, in the 1990s, CRT shifted to addressing how education interfaced with minority groups (Brayboy, 2005). What

CRT lacked was a specific focus on Indigenous groups. Thus, Brayboy (2005) developed Tribal Critical Race Theory, or TribalCrit (Daniels, 2011; Writer, 2008).

TribalCrit seeks to address the complicated space of Indigenous peoples within a European colonial society (Brayboy, 2005; Pewewardy, Lees & Clark-Shim, 2018). TribalCrit also contends that colonialism is endemic to society and the importance of looking at Indigenous peoples as both a cultural group and as sovereign nations (Pewewardy, Lees & Clark-Shim, 2018). The tenets of TribalCrit are: (1) colonization is endemic to society, (2) U.S. policies toward Indigenous peoples are rooted in imperialism, White supremacy, and a desire for material gain, (3) Indigenous peoples occupy a liminal space that accounts for both the political and racialized natures of our identities, (4) Indigenous peoples have a desire to obtain and forge tribal sovereignty, tribal autonomy, self-determination, and self-identification, (5) the concepts of culture, knowledge, and power take on new meaning when examined through an Indigenous lens, (6) governmental policies and educational policies towards Indigenous peoples are intimately linked around the problematic goal of assimilation, and (7) tribal philosophies, beliefs, customs, traditions, and visions for the future are central to understanding the lived realities of Indigenous peoples, but they also illustrate the differences and adaptability among individuals and groups (Brayboy, 2005, p. 429). Specifically, TribalCrit looks at tribal identity, the relationship of power and culture, while including traditional stories and knowledge (Daniels, 2011).

The primary tenet of TribalCrit is that colonization is endemic to society. Colonization in this context includes European thought, power structures, and knowledge structures (Brayboy, 2005). In respect to Indigenous education, Lomawaima & McCarty (2002) state that:

The goal has been “civilization of American Indian peoples...[which] assumes that what is required is the complete and utter transformation of native nations and individuals: replace heritage languages with English, replace “paganism” with Christianity, replace economic, political, social, legal, and aesthetic institutions. (p. 282)

In this vein, the goal of colonization has been to change Indigenous peoples to be more European in thought, appearance, and actions. Within colonization it is also apparent that the awareness in mainstream society for Indigenous experiences is lacking (Brayboy, 2005). The images that drive what mainstream society views as being Indigenous are historical in nature and does not accurately depict what Indigenous peoples are today. Further, the colonization that exists is so deep-rooted that Indigenous peoples do not always recognize that they are altering their way of thinking or being to fit into mainstream society (Brayboy, 2005).

TribalCrit offers a framework that supports creating education systems by exposing inconsistencies (Brayboy, 2005). TribalCrit seeks to more fully understand the needs of Indigenous communities, which can lead to changes within the education system and the greater society (Brayboy, 2005). In fulfilling this goal, it is also necessary to mention the importance of conducting research with an Indigenous conscious mindset. In centering research on Indigenous ways of knowing, Indigenous peoples are able to assert self-determination and sovereignty (Brayboy, 2005). TribalCrit creates a framework for Indigenous students and education systems to interact in a way that benefits each other, but ultimately supports the success of Indigenous students through implementation of Indigenous based knowledges (Brayboy, 2005).

Osage Ribbon Work

Osage ribbon work is an Osage specific framework that can explain the complex relationships between Indigenous peoples and European worldviews (Hayman, RedCorn, &

Zacharakis, 2018; RedCorn, 2016; RedCorn, in press). Osage ribbon work is explained by Dennison (2012) as:

born out of the eighteenth-century trade with the French, is perhaps the ideal metaphor for colonial entanglement. Using the raw material and tools obtained from the French, Osage artists began by tearing the rayon taffeta into strips and then cutting, folding, and sowing [sic] it back together to form something both beautiful and uniquely Osage. In picking up the pieces, both those shattered by and created through the colonial process, and weaving them into their own original patterns, Osage artists formed the tangled pieces of colonialism into their own statements of Osage sovereignty. Osage ribbon work reminds us that it is possible to create new and powerful forms out of an ongoing colonial process (p. 6)

Osage ribbon work is actively incorporated today in many aspects of the culture, including shawls, blankets, and clothing. Like Osage describe ribbon work, each entanglement that exists within the Indigenous systems can each act as individual ribbons. All of these ribbons are woven and actively reshaped through Indigenous creativity and perspectives to create Indigenous specific programs.

Osage ribbon work further creates a space to understand the complex environments within Indigenous education systems. Osage ribbon work seeks to take European educational systems that were forced upon Indigenous peoples and rework and reframe those systems to be uniquely Osage (Hayman, RedCorn, Zacharakis, 2018; RedCorn, 2016; RedCorn, in press). In this context, Osage ribbon work creates “new ribbon work patterns in education and pieces together their own unique statements of sovereignty” (RedCorn, 2016, p. 64). Although this framework is Osage specific, the foundation can span across any Indigenous system. The

foundation seeks to create new systems that are uniquely Indigenous, especially in existing settler-colonial entangled systems. Osage ribbon work lends a comprehensive framework for understanding the entangled systems surrounding agriculture and agricultural education.

Summary

In summary, the literature included in this chapter provides the foundation for an understanding of the history of agriculture, agricultural education, Indigenous education, tribal sovereignty, and decolonizing theoretical frameworks. Additionally, this chapter provides the fundamental knowledge to understand the need for this research. All of the themes in this chapter are independent in and of themselves but interact in a complicated way. This research seeks to understand these intersections utilizing the experiences of four Oklahoma based Native nations. Lastly, the research seeks to take a look backward to gain a deeper understanding in order to move Indigenous peoples forward in agricultural education.

CHAPTER 3: METHODOLOGY

Introduction

This multiple-case research seeks to explore how the unique histories of four Oklahoma Native nations and the College of the Muscogee Nation influenced the development of agricultural education programs that benefit their people. This case study focuses on four Native nations whose headquarters are located within Oklahoma and have existing agricultural education programs. Additionally, the College of the Muscogee Nation is located within Oklahoma and has educational programs for Indigenous students. This chapter describes how the research design, population, sample selection, data collection, management and analysis are utilized within this case study.

Problem Statement

There is a significant gap in literature related to Indigenous agricultural educational program development, with a specific focus on Native nations. Since there is limited related literature, little to no support exists for educators who are seeking to create new Indigenous agricultural education programming. Understanding the development of Indigenous specific agricultural education programs can lead to future program development.

Significance of the Study

There are 573 federally recognized Native nations within the United States (Bureau of Indian Affairs, 2019). Of those, 39 federally recognized Native nations are located within the state of Oklahoma (Oklahoma Historical Society, n.d.). Each nation has a unique culture and history. Additionally, each nation has a unique history as to how they came to be located in Oklahoma. This study seeks to understand the histories related to the development of agriculture, specifically as it relates to agricultural education. Through filling the gap in

literature on the effects of settler-colonial entanglements within Extension systems and tribally administered agricultural education programs, the information created out of this study can be utilized to guide other Native nations to develop agricultural education programming.

Purpose of the Study

The purpose of this study is to explore the efforts that four Oklahoma Native nations, the Choctaw Nation, Muscogee (Creek) Nation, Osage Nation, and Quapaw Nation, as well as the College of the Muscogee Nation, as they have created Indigenous-specific agricultural education programs in an effort to understand implementation of those programs that benefit their people.

Research Questions

The following research questions will guide this inquiry:

1. What is the agricultural history of these four Oklahoma Native nations?
2. What processes led to the development of agricultural education programs within four Oklahoma Native nations?
3. In what ways have Cooperative Extension programs influenced the development of Indigenous agricultural education programs?
4. How have these four Oklahoma Native nations and the College of the Muscogee Nation implemented their existing agricultural education programs?

Case Study

This research is best situated within the framework of a case study. Case study has a historical foundation in anthropology and sociology (Creswell & Poth, 2018). Case study was used as far back as the French sociologist, LePlay, study of families in the Trobriand Islands in the 1920s. Additionally, case study research was first used in the University of Chicago Department of Sociology in the 1930s (Creswell & Poth, 2018). Case studies can be an

important framework in conducting both qualitative and quantitative research. There are several defining points related to case studies: Case study research must first identify a specific case that will be the foundation for the research; identification of a case that can be bounded, meaning it can be defined within parameters; the procedures must be able to focus on the type of case study identified; it presents an in-depth understanding of the case; the approach differs based on the data to be collected; a description of the case is based on the themes present; and case studies end with conclusions formed from the case analysis by the researcher (Creswell & Poth, 2018).

Within a case study, there are three types that depict the cases being studied. The three types are: single instrumental case study, collective or multiple-case study, and an intrinsic case study (Creswell & Poth, 2018). The first, a single instrument case study focuses on a single case to study the research. The second, a collective or multiple-case study, utilizes multiple cases to study the research. This type of research utilizes the logic of replication across cases, which strengthens the overall research (Creswell & Poth, 2018; Merriam, 1998; Yin, 2018). The third type is intrinsic case study, which the focus is the case itself. At times, an intrinsic case study can resemble narrative research.

For this case study, a multiple-case study will be utilized to answer the research questions (Creswell & Poth, 2018; Merriam, 1998). There are challenges associated with multiple-case study research that are not as readily seen in the other types. Some of the challenges include resource limitations, cross-case analysis, and case selection (Creswell & Poth, 2018).

Essentially, as more cases are being researched, the challenge is giving the proper amount of time and resources to each case to ensure the analysis that is required for successful research. In light of these challenges, it is important to maintain the highest rigor from the onset of the research. The following research design illustrates the integrity and rigor that will be performed

in this research.

Research Design

This research is situated as a descriptive multiple-case study. In alignment with Yin (2018), the procedure for the case study implementation is depicted in Figure 3.1.

Figure 3.1

Multiple-Case Study Procedure

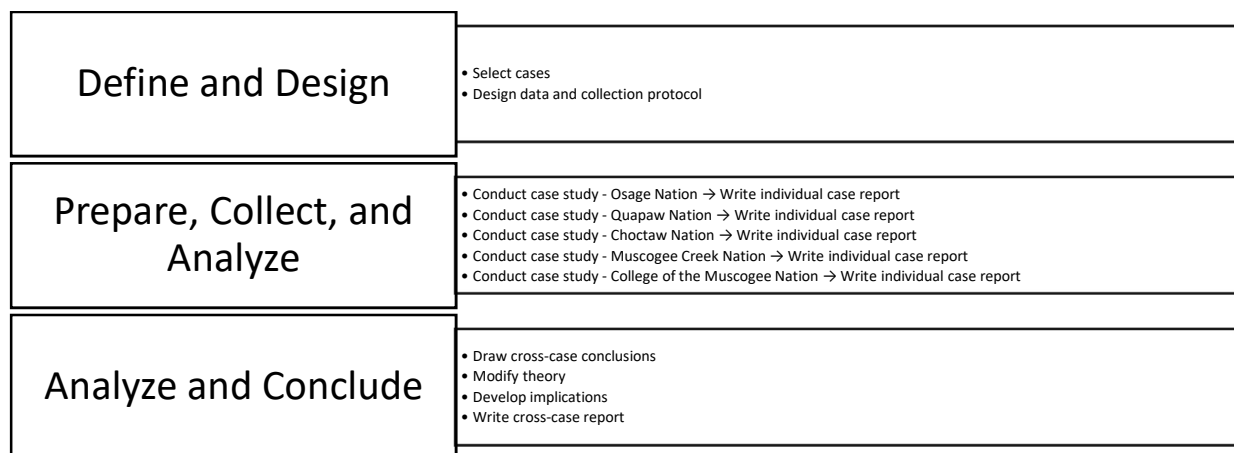


Figure 3.1. Multiple-Case Study Procedure

The procedure in Figure 3.1 supports a multiple-case study research design. Conclusions resulting from a multiple-case study approach will be more powerful and robust than that of a single case approach (Yin, 2018). Further, Yin (2018) suggests that having more than two cases should be the researcher's goal. Therefore, this five-case study is in alignment with a research design that supports robust and meaningful results.

Upon collection of data at each of the Indigenous nations, each of the five case studies is initially presented individually. Together, all five case studies can be used to perform a cross-case analysis of Indigenous agricultural education programming (Merriam, 1998). In using more than one case, the researcher can effectively provide a more compelling interpretation of the data (Merriam, 1998; Yin, 2018).

Participant Selection

The cases within this multiple-case framework include four Indigenous nations and the College of Muscogee Nation, all located in eastern Oklahoma. Even though each Native nation has a unique history, they are situated in geographically similar areas. Being located in geographically similar areas is an important component within this study for analyzing Indigenous agricultural education programs. Further, being located within geographic proximity to one another, similar agricultural initiatives may be at the center of agricultural education program development.

Research Sites

The Muscogee (Creek) Nation is located in Okmulgee, Oklahoma; the Choctaw Nation is located in Durant, Oklahoma; the Quapaw Nation is located in Quapaw, Oklahoma; the Osage Nation is located in Pawhuska, Oklahoma; and the College of the Muscogee Nation is located in Okmulgee, Oklahoma. For this study, I traveled to each Native nation, as appropriate, to conduct the interviews, observe, and review documents for analysis at each of the relevant headquarters.

Membership Role

Within this study, I hold both insider and outsider roles. The insider roles include having an educational background and personal experience within agriculture, being an Osage citizen, and working professionally in a similar role as the Muscogee (Creek) Nation, Quapaw Nation, and Choctaw Nation participants. Specifically, being an Indigenous tribal citizen is an insider dynamic that is an important consideration for this research. Even though I am an Osage citizen, there exists another layer of insider-outsider role as I grew up in a non-traditional cultural home. However, I more readily engaged cultural environments in adulthood and continue to further engage Indigenous cultural contexts.

In recent years, scholars have acknowledged that being an insider researcher can be an asset when working with marginalized communities. Historically, research conducted within Indigenous communities produced negative consequences for Indigenous peoples (Smith, 2012). Today, marginalized communities can be more receptive to researchers who are also cultural insiders (Bhattacharya, 2017; Smith, 2012). Brayboy and Deyhle (Innes, 2009) point out that “from our own experience, it is a *lack* of distance that has enhanced our own research” (p. 444). Further, insider researchers are in the unique situation to increase knowledge while challenging processes throughout the research (Innes, 2009).

Therefore, as a cultural insider, I can be aware of the historically negative connotation that research holds and create a study that is a positive experience for the Indigenous nations. Being a cultural insider further can allow the research to be ethical, correct, and possess a greater understanding of existing cultural dynamics (Bhattacharya, 2017). These insights will help guide the understanding of the interviews and document analysis as it relates to Indigenous agricultural education programming.

Not only do I possess insider roles, outsider roles also exist. While I am an Osage Nation citizen, each nation is uniquely different in government structure, history, program development needs, and individual citizen needs. Therefore, there exist many components within Native nations that are unique to each of their communities. As both an insider and outsider, I must be aware of the dynamics within each role. I acknowledge these dynamics to most effectively implement this study.

Protecting Human Rights

For data collection within this study, an application from the Institutional Review Board (IRB) to ensure compliance with the Committee on Research Involving Human Subjects from

Kansas State University was prepared and submitted for approval. Additionally, when working with participants, care has been taken to protect the anonymity of the individuals, unless the individual agreed to be identified.

Before data collection began, an approved IRB approval was obtained from the University (see Appendix B). Upon approval of the IRB, an informed consent was sent to the four Oklahoma Native nations that detailed the specific information related to the study. In addition to the information related to the study, information was included on the participants' right to withdraw from the study as well as the steps taken to ensure the participants' safety due to the COVID-19 pandemic. Each of the participants signed the informed consent document and returned the document via email. Throughout the research, the highest priority has been made to maintain confidentiality for the participants as well as safeguard the data collected.

Data Collection

It is important for the validity of this study to include at least three different sources of data to encourage triangulation (Hamilton & Corbett-Whittier, 2013; Bush, 2012). For this case study, sources of data include field notes from observations, semi-structured interviews, and document analysis.

Semi-Structured Interviews

Interviews are another important source of data for this study. Interviews create a way to capture rich data for the research (Hamilton & Corbett-Whittier, 2013; Hays, 2004). This study utilized two rounds of semi-structured interviews, which were conducted person-to-person. Semi-structured interviews allowed me to have a conversation with the participants in such a way that it emerged as “a conversation with a purpose” (as cited in Merriam, 1998, p. 71). For

semi-structured interviews, questions will guide the conversations. Questions guiding the conversations were:

1. Tell me about the history of your Nations agricultural history.
2. Tell me about your role within your respective Indigenous tribe.
3. Can you describe the timeline of events that led to the development of agricultural education programs?
4. Can you explain the successes in agricultural education program development?
5. Conversely, can you describe any challenges in agricultural education program development?

Through the use of the interview questions as a guide, it was important to maintain the flexibility to expand upon the conversation (Kim, 2016).

Additionally, a semi-structured format allows for flexibility in describing the case. It is important to embrace conversations, even if it seems to go off topic. As described by Narayan and George, “How an interview runs its course depends very much on all the participants involved. It is important for the interviewer to be flexible and ready to follow the unexpected paths that emerge in the course of talking together with the interviewees” (Kim, 2016, p. 164). It is through a semi-structured format that conversations and dialogue can effectively happen. Also, conversations can unexpectedly elicit data that can be beneficial (Kim, 2016). What may not seem important during the interview may end up becoming important and relevant to the research.

The settings for the case study were Muscogee (Creek) Nation, Quapaw Nation, Choctaw Nation, Osage Nation, and the College of the Muscogee Nation. The individuals who were interviewed are highly involved in their respective agricultural education programs. This

research design included at least two interviews with the person responsible for the agricultural program at each Native nation. I requested permission to record each interview. However, there may be cultural nuances that allow some interviews to not be recorded. When this was the case, extensive notes were taken throughout each interview session. While taking notes is not the most desirable form of recording an interview (Merriam, 1998), I immediately sat down afterwards and documented any remaining thoughts.

Throughout the study, there were seven interviews conducted. Each interview was between 45 minutes and 65 minutes in length. Interviews were held telephonically to ensure the safety of each participant during the COVID-19 pandemic. The interview time was determined by the availability of the participant. Five pre-determined interview questions were utilized to guide each interview. When needed, liberties were taken to deviate from the pre-determined questions to explore further information with each interviewee. After the interviews were complete, the interviews were immediately transcribed. No outside source was used for the transcription, which allowed the data to be heavily engaged. Upon completion of the transcriptions, a copy was provided back to each participant for member checking. If corrections were needed, the document were updated to reflect those changes.

Document Analysis

Another source of data is documents and records. Document analysis allows researchers to analyze a piece of important history that has been preserved (Fitzgerald, 2012). Locating and analyzing documents was not an easy task. It required significant effort to effectively locate a document, while also uncovering the meaning and purpose behind the artifact. Additionally, conclusions were drawn based on the interpretations based on the document analysis.

It is important to understand when engaging with document analysis that these documents were created among a larger conversation. These documents had a purpose in mind, and it is through the engagement with that context that analyses was made. Documents can be thought of as representing a voice – “a voice on past events and activities that provides a level of insight for the reader into these events, activities and participants” (Fitzgerald, 2012, p. 297). Documents can help triangulate the research data, by bringing data throughout the case study together in a meaningful way (Fitzgerald, 2012).

In looking into Indigenous agricultural education, there were a variety of documents and records that were beneficial in looking at program development over time. Some examples of documents include meeting minutes, official letters, grant applications, action plans, lessons plans, government reports, articles in the media and even virtual documents (Bhattacharya, 2017; Fitzgerald, 2012; Hays, 2004; Merriam, 1998). The selected documents were in alignment with the research questions and relevant data in the study.

Once documents were identified that supported the research questions, the documents were determined to be authentic. Documents that are considered to be authentic are those that are valid and have merit. Questions that can guide the determination of authentic documents may include: “What is the history of its production and use? How is its use allocated? Is its selection biased? How might it be distorted or falsified” (Merriam, 1998). Once a document met these questions and been deemed authentic, they were included in the analysis.

During the course of the engagements with each Native nation, access to documents was requested that might be helpful in understanding each case. Additionally, publicly available information was used to support the development of each case. Each Oklahoma Native nation’s website was reviewed, as well as news articles related to the initiatives for each nation.

Additionally, websites for each of the thirty-nine (39) federally recognized Native nations was reviewed to gain an understanding of the preliminary engagement with agriculture and agricultural education. Collectively, these documents allowed the study to better understand the atmosphere of Oklahoma Native nation's engagement in agriculture.

Data Analysis

Once the data was collected, they were then analyzed. Analysis began with two cycles of coding followed by thematic and comparative analysis. Additionally, steps were taken to effectively manage the collected data. The first step in the analysis and management of data was coding.

Recording Data

Prior to each interview, each participant was asked if the interview could be recorded. Each participant provided verbal consent for recording the interview. The recorded interview provided important data related to the development of each case. Immediately after each interview, the recordings were transcribed. No outside service for transcription was used. All interview recordings and transcriptions were housed on a password protected computer. After the interviews were transcribed, each transcription was provided to the participants to review for accuracy and clarity. In providing each participant a copy of the interview transcription, each participant had an opportunity to member check the transcriptions following the interviews.

Field Notes

Field notes are an important record for this case study (Hamilton & Corbett-Whittier, 2013). Field notes allowed the record of research purpose and strategies to be maintained, while elaborating on the meaning behind decisions made and data collected. Maintaining field notes

allowed for details of decisions made throughout the research to be kept, which supported the overall purpose and strategy. This allowed the case study to maintain a level of trustworthiness.

In addition to maintaining field notes to document the research process, it is also important to take notes to document the experiences during data collection. As each Native nation is unique, it is important to effectively capture the subtle differences in each setting and context (Hamilton & Corbett-Whittier, 2013). Therefore, field notes can hold information related to settings, participant reactions, or other important contextual information. For this study, a single bound journal was maintained to document field notes.

Throughout the study, field notes were used during the data collection process. After each interview, time was taken to write down relevant notes and important words or phrases that were used during each interview event. Using semi-structured interviews, document analysis, and reflective journaling, the cases within this multiple-case study were effectively developed.

Coding

A code in qualitative research is a “word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldana, 2016). Coding the data provides a way to create patterns with and classify the data. Coding also allows the data to be reorganized as new trends emerge and as the meaning with the data is developed. (Saldana, 2016; Saldana, Leavy, & Beretvas, 2011). The data was reflected on and analyzed during two cycles of coding in order to most accurately capture the emerging patterns. As a novice qualitative researcher, it was important to adhere to Saldana’s (2016) recommendations that all components of the research be initially coded in order to not miss a substantial piece of data.

(Saldana, 2016, p. 234) from the first round of coding. During second cycle coding, the first cycle codes are rearranged and reorganized into smaller lists of broader themes or concepts. The method of second cycle coding used in this study was pattern coding. Pattern coding takes the first cycle codes and incorporates those codes into larger categories, or meta codes (Saldana, 2016). For each piece of data, the first cycle codes were re-evaluated and grouped into larger categories, or meta codes.

The second round of coding helped to better conceptualize the emerging themes from the data. Through the second round of coding, codes were arranged into larger categories and ultimately, themes began emerging. The themes are described in greater detail following the description of the cases.

Thematic Analysis

After codes were applied to the data, the next process was to develop themes. When working with the data, themes begin emerging as patterns become apparent (Bhattacharya, 2017). Creating themes further helped to maintain organization and assist in recalling the data throughout the study. Additionally, themes allowed for more engagement and created a greater in-depth understanding of the data. These were developed after each piece of data underwent second cycle coding.

Comparative Analysis

As this study is a multiple-case study, the first step in comparative analysis was within-case analysis (Merriam, 1998). Within-case analysis allowed each case to be viewed as a comprehensive individual case. As the cases were looked at individually for the within-case analysis, data was analyzed and represented for each of the five cases (Merriam, 1998). During

this process, all the contextual variables found within each case were explored. Once each of the five cases were analyzed, the next step was cross-case analysis.

The goal of cross-case analysis was to see “processes and outcomes that occur across many cases, to understand how they are qualified by local conditions, and thus develop more sophisticated descriptions and more powerful explanations” (Merriam, 1998, p. 195). However, Merriam (1998) cautions that cross-case analysis is not easy. To create meaningful cross-case analysis, the researcher must dive deep into the analyses to identify local dynamics and complex configurations in order to see variables that span across cases (Merriam, 1998).

Together, within-case and cross-case analyses allowed each individual case as well as the five cases collectively to be effectively viewed. With a five-case study, a large amount of data was collected.

Data Management

Proper data management was essential for the overall success of this study. The first step in managing data for this study included routine organization of the data (Chang, 2008). Not only can routine organization keep the data better organized, it also allowed gaps in data to be identified and appropriately addressed.

As recommended by Saldana, Leavy, and Beretvas (2011), the management of data for this study included inputting the data chronologically into a word processing file. All the pieces of data will be labeled, copied and stored in one large master file. The individual files of data were stored separately, as well as the single large master file. This data management system reduced the possibility of losing valuable and irreplaceable data associated with the study, while allowing the data throughout the study period to be quickly recalled.

In conclusion, data collection, management, and analysis has a dynamic relationship

within this multiple-case study. As a result, I was able to move between data collection, management, and analysis in different steps and times throughout the study process. Moving through these processes further allowed the data to be more fully engaged.

Trustworthiness

Throughout the study, it was imperative to maintain a high level of trustworthiness and rigor. Maintaining trustworthiness allowed for the research to be noted as reliable, credible, and valid (Amankwaa, 2016). Lincoln and Guba (1985) defines the criteria for maintaining trustworthiness in research as credibility, transferability, dependability, and confirmability. The strategies used to maintain trustworthiness and rigor within the study are detailed below.

Credibility

Three strategies to maintain credibility within this research are triangulation, peer debriefing and member checking (Lincoln & Guba, 1985). The first strategy to maintain credibility in this study is triangulation. Triangulation is one way to increase rigor within the study through the consideration of at least two points of data (Flick, 2018). Triangulation can be accomplished by using multiple sources of data and cross checking this data within the same research purpose (Bush, 2012; Lincoln & Guba, 1985; Scott & Morrison, 2005;). Additionally, triangulation allows the researcher to corroborate the data collected through the use of multiple data sources.

The second strategy to maintain credibility is peer debriefing. Peer debriefing is the process by which the researcher exposes oneself to a peer who is disinterested in the research (Lincoln & Guba, 1985). This process keeps the researcher honest through the peer playing “devil’s advocate” (Lincoln & Guba, 1985, p. 308) throughout the research process. Another aspect of peer debriefing is working through any emotions or feelings that arise that could cloud

the judgement of the researcher. The peer can assist the researcher in maintaining a clear mind and assist in creating strategies to support the implementation of a high quality study. It is important for the peer to be someone who is the researcher's peer, specifically not a person in authority nor a person a junior. Throughout the process of peer debriefing, it was imperative to maintain written records to validate the implementation of this strategy (Lincoln & Guba, 1985).

The third strategy to maintain credibility is the use of member checks. Throughout the research process, I coordinated with each research participant to review data, interpretation, and conclusions. Member checking is the most important strategy for maintaining credibility (Lincoln & Guba, 1985). Working with the participants on member checking throughout the research process was both informal and formal. Member checking created the opportunity to continually review intentionality, provided the opportunity to make corrections to facts, puts the researcher on record, and thus decreased the opportunity of misunderstanding, allowed for confirmation of data, and allowed the participants an opportunity to offer additional information (Lincoln & Guba, 1985). Triangulation, peer debriefing, and member checking supported credibility within this research process.

Transferability

The strategy to maintain transferability is the use of thick description (Amankwaa, 2016; Lincoln & Guba, 1985). Through the use of thick description, other researchers can follow the same processes and reach a similar conclusion. While it is not specifically detailed on what constitutes a thick description, it is the responsibility of the researcher to provide enough description that allows for transferability of the research (Lincoln & Guba, 1985). Therefore, the each of the five cases within this multiple-case study includes thick, descriptive details.

Dependability

To maintain dependability within the research process, a journal will be maintained as a form of an audit trail. As I reflected on the data collection, analysis and ongoing subjectivities, thoughts were documented that illustrate processes and further transparency. Additionally, a journal helped to detail items that arose that were not expected and helped to document that process. Ultimately, a journal helped maintain a record of all decisions that were made, as well as documented all the collected data, and any strategies or insights that came up throughout the research process. Therefore, dependability was maintained to support trustworthiness of the research.

Confirmability

The final component of research trustworthiness is confirmability. Confirmability is evidenced by which the findings are effectively grounded in the research data (Lincoln & Guba, 1985). Additionally, confirmability seeks to confirm that the researcher is unbiased throughout the research process and that the conclusions made are logical and in line with the data (Lincoln & Guba, 1985). By maintaining a journal for the purposes of dependability, this journal assisted in providing the audit trail necessary to maintain confirmability.

Together, credibility, transferability, dependability, and confirmability assisted in maintaining the highest trustworthiness of the study. As qualitative research is situated in an open system, these components helped support the trustworthiness of this study. These steps situated the study to be conducted in a way that is credible, transferable, dependable, and confirmable.

Ethical Considerations

This study is based upon the development of Indigenous agricultural education programming. Throughout the study, it was important to maintain respect at the forefront within all areas. Indigenous communities are small and there can be strong emotions related to the intersection of agriculture and culture. There is a long and often traumatic history for Indigenous peoples, so it was imperative to maintain a level of integrity at all times. It was also important to focus this study on being conducted within Native nations while using this as an opportunity to build relationships.

Additionally, it was important to create a foundation of trust and respect with the participants (Busher & James, 2012). The foundation of this research is mutually beneficial to the researcher, the participants, and Indigenous communities. It is only through mutual trust and respect with these communities that a study such as this one can be successful. Therefore, it was important that I, as the researcher, maintain the highest ethics and respect at all times.

Within my own agriculture and cultural initiatives, I invoked ethics into all aspects of the efforts, including how I portray myself within my community and other Indigenous communities. Ethics is of the utmost importance in this study, including data collection, data management and analysis, and representation. I elicited the highest ethical integrity throughout the process to ensure that the study helps to bring meaningful literature to academia.

Conclusion

In summary, this multiple-case study was designed to explore questions related to the development of Indigenous agricultural education programs within four Oklahoma Native nations and an Indigenous college. The data collected includes field notes, semi-structured interviews, and document analysis. Additionally, data that was collected, coded and analyzed to

further understand how Indigenous agricultural education programs were developed in four Native nations and one college. Throughout the research process, it was imperative to maintain the highest level of integrity, especially when working with Indigenous communities. The framework described in this chapter elicits trustworthy and ethically sound research, and effectively answered the research questions.

CHAPTER 4: FINDINGS

Four Oklahoma based Native nations and one Indigenous college was explored using a qualitative multiple-case study. The efforts made by these nations to develop agriculture and agricultural education programs were the focus of this research. Using semi-structured interviews, document analysis, and reflective journaling, a collective description of each case is created.

Description of Cases

The Native nations within this study are: Quapaw Nation, Muscogee (Creek) Nation, Osage Nation, and Choctaw Nation. In addition to these four nations, this research includes the College of the Muscogee Nation. The following is a description of each of the four Oklahoma Native nations and the College of the Muscogee Nation.

Case 1: Quapaw Nation

For the Quapaw Nation case, Chris Roper was interviewed. Mr. Roper was involved with the development of the Quapaw Nation's agriculture and agricultural education initiatives from the onset.

Research Question 1

The Quapaw Nation has a jurisdictional area of 57,000 acres in northeast Oklahoma (The Harvard Project, n.d.). The Quapaw Nation began entering into agriculture in the early 2000s, at which point there were few Quapaw citizens engaged with agriculture (Harvard Project, n.d.). The Quapaw Nation began noticing the challenges faced by their Quapaw citizens, which included inaccessibility of fresh food and a lack of knowledge related to agricultural systems. Additionally, Quapaw citizens were less often preparing traditional dishes because necessary ingredients were difficult to find (Harvard Project, n.d.). Knowing these challenges, the Quapaw

Nation began making efforts to engage in agricultural initiatives.

Beginning in 2010, the Quapaw Nation started making efforts to utilize their land for agriculture. Prior to this point, much of the Quapaw land was leased outside the purview of the nation and therefore, not utilized for Quapaw initiatives. In an effort to change this situation, the Quapaw introduced eight bison to Quapaw Nation land in 2010 (Givens, 2020; Harvard Project, n.d.; Wallace, 2020). During the next two years, the Quapaw Nation joined the Intertribal Bison Council and later obtained additional bison from that organization (C. Roper, personal communication, November 20, 2020; Wallace, 2020). In 2014, the Quapaw Nation expanded into cattle by developing an Angus cattle herd, called the Quapaw Cattle Company. Using their cattle herd, they processed meat and provided the meat products to their restaurants, daycares, and elder centers. Today, the Quapaw Nation has grown their herds to over 1,200 Angus cattle and 200 bison (Givens, 2020; Harvard Project, n.d.; Herrera, 2018; University Communications, 2019).

In addition to furthering the livestock initiatives, the Quapaw Nation developed the first greenhouses in 2013 (Givens, 2020; Wallace, 2020). The greenhouses serve as a source of fresh produce to elder centers and daycares, but also provide vegetables and herbs to the Quapaw Nation's casino, the Downstream Casino Resort (Givens, 2020; Wallace, 2020). The greenhouses provide 20 different varieties of vegetables and herbs to the Quapaw Nation casino. The director of food and beverage at the Downstream Casino Resort stated that fifty percent of the food served at the resort's restaurant comes from Quapaw Nation land and "even the mint in the restaurant's mojitos is grown in the greenhouses" (Wallace, 2020, para. 5). The Quapaw Nation seeks to utilize the agricultural space to the benefit of their people in all aspects, even with something as small as utilizing herbs in drinks.

Later, in 2017, the Quapaw Nation invested \$5 million in both grant and tribal funds to construct a meat processing facility (Harvard Project, n.d.). The 25,000-square foot meat processing facility was the first Native American owned United States Department of Agriculture certified meat processing facility in the United States (C. Roper, personal communication, November 20, 2020; Givens, 2020; Hererra, 2018; University Communications, 2019; Wallace, 2020). The Quapaw Nation worked with Dr. Temple Grandin, Colorado State University, in the design of the meat facility to ensure it met the highest humane animal handling standards (C. Roper, personal communication, November 20, 2020; Wallace, 2020). For the Quapaw Nation, it is important to use the best methods available for the proper handling of animals and reaching out to the appropriate expertise was essential.

For the Quapaw Nation, it has been essential to plan accordingly for the proper intent of the meat processing facility. As planning continued, an education component became apparent. The plant was constructed to include a test kitchen, a laboratory, and a classroom to help promote training and education (University Communication, 2019). The integration of education into the meat processing facility created a more robust opportunity for services available to Indigenous peoples. Because of the “state-of-the-art technology and full-service approach, the plant has quickly gained a reputation as the state’s leading artisanal meat packing operation” (Harvard Project, n.d., p. 3). The Quapaw Nation’s meat processing facility was created with the needs of Indigenous peoples in mind, both in terms of services available and education.

In addition to the meat facility and livestock, the Quapaw Nation maintains seven greenhouses, an 80-hive apiary, and utilizes between 1,500 and 2,000 acres for farming (Mozo, 2019; Harvard Project, n.d.; University Communications, 2019). In terms of farming, the Quapaw Nation produces corn, canola, wheat, soybeans, and hay for their livestock (Harvard

Project, n.d.). For the Quapaw, it is important to work towards sustainability and also be conscientious of conservation. The herd manager for the Quapaw Cattle Company states that “we grow our own corn and hay for our cattle, and we use almost everything... We are conservationists who value a natural, holistic way of life” (Mozo, 2019, para. 16). In this vein, the Quapaw Nation makes strategic efforts to ensure agricultural operations are conservation minded.

With all the agricultural initiatives of the Quapaw Nation, the ultimate goal for these programs center on sovereignty. Quapaw Nation’s Chairman Berrey stated that the mission of the agricultural programs are to “enhance our Nation’s sovereignty by creating renewable and sustainable natural food sources” (Harvard Project, n.d., p. 5). The Quapaw Nation has developed their agricultural programs significantly since they began in the early 2000s. The communications director for the Native American Agricultural Fund (NAAF) stated “the Quapaw are one of the most innovative tribes in the country when it comes to food sovereignty” (Wallace, 2020, para. 6). Everything produced from the Quapaw Nation’s agricultural initiatives goes to programs that benefit the Quapaw people. The food is sold for profit only after the needs of the Quapaw people have been met (Givens, 2020). As the Quapaw Nation continues to enhance their agricultural programs, these efforts can be seen in the development of agricultural education.

Research Question 2

The agricultural education component began through the Quapaw Nation’s engagement with the University of Arkansas Indigenous Food and Agriculture Initiative. This organization’s mission is to “enhance the health and wellness of tribal communities by advancing healthy food systems, diversified economic development, and cultural food traditions” (University of

Arkansas, 2019a, para. 1). Through the Indigenous Food and Agriculture Initiative, an annual Native Youth in Food and Agriculture Leadership Summit is held. The food summit event focuses on agricultural business and finance, land stewardship and conservation, agricultural law and policy, and nutrition and health for Indigenous students ages 18-23 (University of Arkansas, 2019b). The Quapaw Nation works with Indigenous students who attended the food summit each year. The cooperation with the University of Arkansas Food and Agriculture Initiative helped create the firm foundation for education and outreach with the Quapaw Nation.

As Roper became more involved, there became more opportunities for outreach through presentations and seminars (Personal communication, November 20, 2020). One example of these outreach opportunities include the Intertribal Agriculture Council's annual meeting, which is held in Las Vegas. This annual meeting has become an important opportunity for education and outreach for the Quapaw Nation. Through this meeting, the Quapaw Nation attends and participates in activities that center on Indigenous youth. Examples of these activities include putting together business plans, business models, preparing budgets, and planning and research. Through these outreach opportunities, the Quapaw Nation is able to work with many Indigenous students including some who are working towards advanced degrees.

In addition to working with Indigenous students through outreach programs, the Quapaw Nation works directly with universities. For example, Roper worked with such universities as Dartmouth College, Harvard University, University of Arkansas, University of New Hampshire, University of Missouri, University of Nevada, and Northeastern Oklahoma A&M College. The work with these universities allow the Quapaw Nation to work directly with students and faculty on various research projects. Some examples of research projects include food waste and food waste composting, animal feeding, and bison habits (C. Roper, personal communication,

November 20, 2020). The work with universities also creates internship opportunities with the Quapaw Nation that furthers agricultural education for Indigenous students.

Research Question 3

In relation to Oklahoma Cooperative Extension Service, the Quapaw Nation maintains a positive relationship with the organization. The Quapaw Nation has strong working relationships with the United States Department of Agriculture and Oklahoma Cooperative Extension Service offices. Roper described the relationship with Oklahoma Cooperative Extension Service as: “We had great relationships with the USDA offices... We had great cooperation with all the different governmental offices and university office” (Personal communication, March 2, 2021). The Oklahoma Cooperative Extension Service maintains an office in Miami, Oklahoma. The Quapaw Nation works closely with this office, which is in close proximity to the Nation’s agricultural facilities. The Quapaw Nation’s experience is that governmental agencies are always willing to work with nations. Roper further describes the relationship with governmental agencies:

Most all of the agencies are extremely willing to work with tribes... There’s just been so many lawsuits out there, you can use that to your advantage in some cases. It at least gets in the door of some of those agencies that may not typically let a stranger walk in and have a meeting. (Personal communication, March 2, 2021)

The Quapaw Nation’s experience is that governmental agencies actively make efforts to keep positive relationships with nations in order to facilitate more opportunities for Indigenous peoples to interface with the respective agencies. Overall, the relationship between the Quapaw Nation and Oklahoma Cooperative Extension Service is positive.

Research Question 4

In exploring the Quapaw Nation's agricultural efforts, it is apparent that the Nation has created opportunities for education. In this vein, the Quapaw Nation has created a robust intern program. The Quapaw Nation also makes efforts through their educational assistance program to seek out Quapaw students. Through the educational assistance program, Quapaw students receive email blasts and newsletters notifying them of opportunities available to them. The agriculture program utilizes these outreach efforts to reach Indigenous students for educational opportunities. However, even though Quapaw Nation students are sought first, any Indigenous student is welcome.

In terms of the Quapaw Nation's internship program, the first intern occurred in approximately 2012. From that initial intern, Roper worked with the Quapaw Nation's grant writers to obtain funding to help support additional interns. Examples of funding utilized to support interns includes the First Nations, the Native American Agriculture Fund, and even a climate change grant. The Quapaw Nation has hosted interns from Oklahoma and also a variety of places. Most of their interns traveled from outside Oklahoma to learn from the Quapaw Nation's engagement with agriculture. As of 2020, there have been eight interns learn from the Quapaw Nation's agriculture programs.

When asked about successes of the Quapaw Nation's program, Roper stated one of the biggest successes was working with universities. The diversity within the Quapaw Nation allowed interns to gain experience in a variety of areas. Roper details the success of diversity with internship opportunities:

I would take any student I could get that was interested in working with us. It didn't really matter to me what their major was and I would find a place for them to be where they were interested. We had so many diverse programs that you know, if they were

interested in marketing, I had the relationships with every department in the tribe that I could work those deals out. I could put them in sales or meat processing or wherever they had interest. (Personal communication, November 20, 2020)

Another example of this collaboration was a student studying health and safety. In this example, the student spent time in the meat facility to understand how health and safety ties into the facility. Roper's overall interest in hosting interns is building capacity. This is further detailed by Roper's explanation of "if I had interns, that increased our capacity. If I had people interested in agriculture, that obviously increased our capacity. The people create your capacity in what you can do. And if you have no people, you don't do anything" (Personal communication, November 20, 2020). In addition to interns gaining important agricultural experience, they increased capacity by developing people, specifically Indigenous peoples, in agriculture.

Another example of this collaboration is the work with Missouri State University. Students from Missouri State University have the opportunity to visit the Quapaw Nation, where they get experience in a variety of initiatives, including agriculture, environment, history, culture, and government (University Communications, 2019). In an interview with Missouri State University, Chris Roper stated, "Anything they're interested in, we open our doors. With us sharing what we have, we feel that will get passed on through the generations" (University Communications, 2019, para. 15). The dean of Missouri State University's College of Agriculture stated their objective is "to start seeing students from the Quapaw Nation coming to Missouri State to study agriculture then go back to the nation and apply those techniques, experiences to obtain their goal and continue to maintain their goal of food sovereignty" (Curry, 2019, para. 9). The dean goes on to say: "We're grateful to have such a positive collaborative relationship with the people of the Quapaw Nation of Oklahoma" (University Communications,

2019, para. 17). As depicted in the relationship between the Quapaw Nation and Missouri State University, the Quapaw Nation values the relationships built with universities that benefit future generations of agriculture and food sovereignty.

When asked about challenges of the program, Roper stated the biggest challenge has been the meat processing facility. Although the actual construction and development of the facility was challenging, the agricultural education opportunities with the facility are positive. The facility has hosted four interns at the meat facility, which were meat science students from Oklahoma State University. The Quapaw Nation's meat processing facility provides opportunities for agricultural interns to rotate through to facility to gain exposure to meat science. Roper used the challenges associated with the meat processing facility to teach students the intricacies of the meat processing capacity of the livestock industry.

As the Quapaw Nation was further engaged, I took the opportunity to inquire about the cultural aspect of agricultural education within the Nation. Roper responded that the Quapaw Nation has taken strides to grow culturally significant produce within the greenhouses, such as The Three Sisters. Roper explains this engagement with culture:

From a cultural standpoint, [Quapaw Nation] are always trying to make sure that they were growing things that, you know the ancestors might have grown in early years. You know, we had some people, you've heard of the Three Sisters plants and how they plant some of those things. They were very, once we got the right people in the right positions, they were very careful to include some of those types of things and gardens. (Personal communication, March 2, 2021)

Since the Quapaw people were historically hunter-gatherers, the Quapaw Nation facilitates educational opportunities on growing and processing Indigenous specific foods. More

specifically, the Quapaw Nation hosted classes focused on growing Indigenous specific foods. Additionally, the Quapaw Nation support Indigenous specific education through initiatives such as providing plant seedlings to Indigenous youth to support the growth of traditional foods (C. Roper, personal communication, March 2, 2021).

In addition to Indigenous specific educational opportunities, the Quapaw Nation also engage with additional opportunities provided through the Native Youth in Food and Agriculture Leadership Summit. This event is hosted by the University of Arkansas School of Law in Fayetteville, Arkansas. The summit is focused on youth between 18 and 23 years of age that are interested in agriculture and food practices, and other fields related to those practices. (Polacca, 2018; University of Arkansas, 2019b). The staff attorney for the Indigenous Food and Agriculture Initiative stated they “hope to be inspiring the next generation of agriculture producers” (Polacca, 2018, para. 5). In 2018, this event was held at the Quapaw Nation to educate the students on operational processes related to the greenhouses and meat processing plant. The Quapaw Nation took this opportunity to work with students on understanding the steps taken to promote food production within their tribal programs.

Along with educational opportunities focused on the Quapaw Nation’s food production efforts, steps are being taken to supply tribal facilities with food. Produce grown through the Quapaw Nation greenhouse facility is supplied to daycare facilities as well as elder care facilities. Roper describes these efforts:

[Quapaw Nation] were trying to give products to the elders to make sure the elders had fresh products, whatever we were growing. So we were constantly trying to put those fresh products in front of the kids and elders and then it seemed like all the people in the

middle would try to be a part of it, you know when the kids and elders were talking about it. (Personal communication, March 2, 2021)

The Quapaw Nation ensure the food production efforts include a cultural aspect, along with an educational aspect. While the Quapaw Nation put an emphasis on providing their people with fresh produce, it is also important for an educational component to be involved throughout the process.

Through the efforts the Quapaw Nation have taken, they are reaching youth related to agriculture. Through the internship program that integrates all aspects of the agricultural initiatives within the Quapaw Nation, there continues to be opportunities for youth to learn from the diversity found within the Nation. Collectively, the agricultural education programs seek to educate current Indigenous students in agriculture and to work towards creating future Indigenous agriculturalists through the implementation of their programs. The Quapaw Nation focuses on students that are presently involved and continues to navigate ways to further meet the needs of their Indigenous youth.

Summary

After the data collection was complete for the Quapaw Nation case, a word cloud was created to depict the most prominent words from the data. As seen in Figure 4.1, the word cloud illustrates the most frequently used words found within the data.

Figure 4.1

Quapaw Nation Word Cloud

Research Question 1

The Muscogee (Creek) Nation, situated in east central Oklahoma, covers eight counties and is actively engaged in agriculture. Currently, the Muscogee (Creek) Nation has two farms: Dustin Farm and Hanna Farm (Muscogee Nation, 2016a; Taylor, 2020). The Dustin Farm is focused on crop production and is approximately 359 acres. Crops include pumpkins, pecans, watermelons, and land for hay (Mozo, 2019). The Hanna Farm focuses on beef production (Mozo, 2019; Muscogee Nation, 2016a). As of May 2020, the herd numbers were 358 breeding cows, 140 spring calves and 10 bulls (Principal Chief Muscogee (Creek) Nation, 2020).

With the Muscogee (Creek) Nation's livestock in mind, a meat processing facility began construction in late 2020 (Morgan, 2020). Due to the impact of the COVID-19 pandemic on existing food systems, the development of the facility became an integral part of the Muscogee (Creek) Nation's vision to address food security and sovereignty (Taylor, 2020). The Muscogee (Creek) Nation's response to food security and sovereignty is to make "sure our people have access to safe, nutritious and relatively cheap or available food supply" (Russell, 2020, para. 10). For the Muscogee (Creek) Nation, food sovereignty is viewed as the "best form of sovereignty that a tribal nation can have" (Russell, 2020, para. 18). The meat facility is a vehicle to ensure the food systems stay intact for the Muscogee (Creek) Nation people, while also moving the Nation further into food sovereignty.

The Muscogee (Creek) Nation's meat processing facility is a \$10 million facility and named Looped Square Meat Co. The name is in alignment with the brand associated with the livestock operation, a looped square (Morgan, 2020). The meat processing facility is 25,000-square feet and is planned to incorporate processing and retail opportunities. The facility is anticipated to be a United States Department of Agriculture inspected facility and available for

processing animals, such as beef and pork (Morgan, 2020; Principal Chief Muscogee (Creek) Nation, 2020; Russell, 2020; Taylor, 2020). Additionally, the facility is designed to incorporate seasonal deer processing in a way that does not interrupt normal domestic livestock processing. This will allow for both wildlife and domestic livestock to continue processing at the same time (Morgan, 2020).

In addition to processing pork, beef, and seasonal deer, the Muscogee (Creek) Nation is planning for this facility to be different from others in the region. The facility is anticipated on being set apart from other meat processing facilities by “doing our best to put a lot of equipment in. It’s going to set us apart and make unique from other processing facilities in the area or in the region” (Morgan, 2020, para. 3). Trenton Kisse, Department of Agriculture and Natural Resources Director, wrote that in addition to processing items from livestock, “we will be able to do snack sticks, bratwurst, smoked sausage, summer sausages, jerky and any other tenderized meat. Stew meat as well as any ground products, bacon and whole cuts. We will be able to do a wide scale of things with this facility” (Taylor, 2020, p. 3). This facility will also provide multiple meat opportunities for the Muscogee (Creek) Nation people. Ultimately, the facility is designed for the purpose of ensuring food sovereignty and food security for the Muscogee (Creek) Nation.

The Muscogee (Creek) Nation has an agriculture program that is primarily focused on cattle and farming. Recently, in 2020, these efforts have expanded to fill a need related to meat processing. The Muscogee (Creek) Nation has created agricultural programs to provide food to their people, while also supporting food sovereignty and maintaining stable food systems. These initiatives situate the Muscogee (Creek) Nation to have a positive agricultural foundation for the development of agricultural education programs.

Research Question 2

As the Muscogee (Creek) Nation continues to build upon their existing agriculture and food sovereignty initiatives, there exists an important education component. The Muscogee (Creek) Nation has developed an agricultural education program they are proud to oversee. The program started as far back as the late 1970s to early 1980s. The agriculture program originally began in conjunction with a farm the Muscogee (Creek) Nation oversaw, which contained hogs and dairy cattle. The original program also allowed youth to choose an animal and take it home to use as their show project. The program changed over time, as funding became available through the Oklahoma Cooperative Extension Service. This funding supported a 4-H agent to work directly with the Muscogee (Creek) Nation through an agreement where the Nation provided funding and the Oklahoma Cooperative Extension Service provided the expertise. In an effort to be more involved in the program, the Muscogee (Creek) Nation hired their own agriculture educator who reported directly to the tribal administration. Today, the agricultural education program is funded entirely by the Muscogee (Creek) Nation. The program's focus is for students to "get hands-on experience through their 4-H and FFA chapters, the Ag Youth Program, Intertribal Ag Council Youth Program and more, which we hope leads to long, fruitful careers in agriculture" (Mozo, 2019, para. 14). This is evident by the dedication and support the Muscogee (Creek) Nation has towards the agricultural education program.

Research Question 3

In terms of the Oklahoma Cooperative Extension Service, Extension was involved in the early agricultural education program development for the Muscogee (Creek) Nation. As time passed, the Muscogee (Creek) Nation took over those initiatives from the Cooperative Extension Service, as they were better positioned to meet the needs of their Indigenous youth. Presently,

when asked about the relationship with Oklahoma Cooperative Extension Service and if Extension fits into the agricultural education program, the response was that it does not. The Muscogee (Creek) Nation facilitates the entire agricultural education role for their people.

In the experience of the Muscogee (Creek) Nation, there are individuals better situated to work with Indigenous youth than Extension. Haltom describes most of the relationships that currently help guide the present agricultural education program are usually the local agriculture teachers:

The Extension office has [no involvement] really. Really my go-to people if I need to reach people in that community, even 4-H kids, is usually the ag teacher. They are a whole lot more likely to know about those kids than the Extension office ever will.

(Personal communication, January 7, 2021)

The local high school or college agriculture teachers work very closely with the agricultural youth and have well-established relationships. In using the established partnerships with local agriculture teachers, the Muscogee (Creek) Nation have created pathways to reach their Indigenous youth outside of the resources offered by the Oklahoma Cooperative Extension Service. For the Muscogee (Creek) Nation, the Oklahoma Cooperative Extension Service does not play a significant role in the current agricultural education programs.

Research Question 4

The Muscogee (Creek) Nation has an established agricultural education program for the benefit of their Indigenous youth. This program, the Muscogee (Creek) Nation Agriculture Youth Program, is designed to assist with youth who are enrolled in an established FFA or 4-H program and live within the tribal jurisdiction (Muscogee Nation, 2018). Haltom explains the agricultural education programs for the Muscogee (Creek) Nation:

We are very fortunate in the state of Oklahoma to be blessed with extremely strong FFA programs and 4-H programs. And I think that, and I've talked this over with my tribal leader and administration and everything else, as a tribal nation, we don't have the capacity to train and develop leaders, leadership in our young people like those two organizations can, 4-H and FFA. And of course it starts at a young age, we are talking about 8-18, so what my goal and my goal as program manager is, I try to encourage all of our Creek youth that are enrolled in their 4-H and FFA program and our program comes in as kind of a support mechanism for allowing them to better participate in those two organizations. (Personal communication, December 15, 2020)

Through this program, Muscogee (Creek) Nation youth are able to participate a variety of opportunities to promote youth and agriculture.

The Muscogee (Creek) Nation utilizes the foundations from the 4-H and FFA organizations to support their programs. For example, the 4-H organization brings opportunities to the Muscogee (Creek) Nation by supporting youth beginning at five years of age. The 4-H program is administered by the Cooperative Extension Service and seeks to support youth in all corners of America "from urban neighborhoods to suburban schoolyards to rural farming communities" (4-H, 2021, para. 6). Programs administered through the 4-H organization include health, civic engagement, science, and agriculture (4-H, 2021). Through the foundation of the 4-H organization, the Muscogee (Creek) Nation builds upon established curriculum for their Native youth.

In the beginning, the Agriculture Youth Program consisted of Indigenous students enrolled in only the 4-H organization. Early on, it became evident that focusing on youth enrolled in 4-H only was limiting students which could participate. Haltom explored expanding

the program to include students enrolled in the FFA organization. FFA, Future Farmers of America, is designed to support youth ages 12 through 21. The FFA organization seeks to provide “a path to achievement in premier leadership, personal growth and career success through agricultural education” (FFA, 2021, para. 8). Haltom explains the transition to include students enrolled in the FFA organization within the agricultural education program:

When the Extension program was running [the program], it was a legitimate 4-H program. Well, when I got involved, the problem was that when they got into the 9th grade and went from 4-H to FFA, they thought they could not use this program. We were losing a lot of kids at that time. (Personal communication, December 15, 2020)

For the Muscogee (Creek) Nation, it became evident the program needed to be modified to also include youth enrolled in the FFA organization. Through modifying the existing Muscogee (Creek) Nation program, the program encompasses youth enrolled in either the 4-H or FFA organizations. Opportunities provided through the collaboration with the 4-H and FFA organizations for Muscogee (Creek) Nation youth include animal husbandry, speech contests, fair competitions, and other events (Citizen Potawatomi Nation, 2019). Since expanding the program to include both 4-H and FFA organizations, the Agriculture Youth Program has seen a continual increase in Muscogee (Creek) Nation youth enrollment.

Within the Agriculture Youth Program, the highest enrollment for youth is related to showing livestock. To help the Muscogee (Creek) Nation youth succeed in livestock showing, the Agriculture Youth Program provides assistance to pursue their agricultural goals. The Muscogee (Creek) Nation provides up to \$500 assistance to support agricultural projects for their youth (B. Haltom, December 15, 2020; Citizen Potawatomi, 2019; Muscogee Nation, 2018). Muscogee (Creek) Nation youth can receive up to \$500 for the purchase of an animal and up to

\$300 for leadership or archery events (Citizen Potawatomi Nation, 2019; Muscogee Nation, 2016b). This assistance is through reimbursement, so the participants must make the initial investment. An example of how these funds can be utilized for livestock is if a student purchases a pig and the cost of the pig is \$300, then the student can use the remaining \$200 for livestock feed (Citizen Potawatomi Nation, 2019). The assistance provided by the Muscogee (Creek) Nation helps financially support the youth who choose to engage with livestock showing.

Related to the Muscogee (Creek) Nation's youth assistance program, projects can be livestock related or can also include leadership activities. The amount provided for leadership activities help cover the cost to attend leadership events, including camps, conventions, leadership trainings, and the FFA Alumni Camp (Citizen Potawatomi Nation, 2019; Muscogee Nation, 2016b). Through the utilization of these funds, Haltom stated they have "never had one kid that didn't get to go to all the camps that they wanted to go to" (Citizen Potawatomi, 2019, p. 3). These funds have been instrumental in the growth of the Agriculture Youth Program since its inception. Since 2012, the number of youth has grown from 60 to over 270 (Citizen Potawatomi Nation, 2019).

The Agriculture Youth Program has seen success related to livestock showing. The Muscogee (Creek) Nation is the only Native nation in Oklahoma that helps with the purchase of show animals (Muscogee Nation, 2018). By providing financial assistance to youth for investment in livestock projects, the Muscogee (Creek) Nation is helping youth grow agriculturally. Haltom further explains the importance of the program for the tribal youth:

A lot of our kids come from and not all of them but from lower social economic backgrounds and it's expensive. My theory is you can pay for your kids now when they're young when we have the ability to influence them. They take part in a program

and it's family oriented. (Muscogee Nation, 2018, para. 4)

For the Agriculture Youth Program, Muscogee (Creek) Nation youth are provided assistance by the program staff to ensure the projects are a success. This assistance includes checking on the show animals and making sure the project is going well (Citizen Potawatomi Nation, 2019).

With the increase in livestock showing, the Muscogee (Creek) Nation developed the Muscogee (Creek) Livestock Show (Muscogee Nation, 2018). The Muscogee (Creek) Livestock Show has grown significantly, since it began in approximately 2013 (B. Haltom, personal communication, January 7, 2021). When asked about the biggest success related to the Agriculture Youth Program, the response was the livestock show. The livestock show has grown to over 500 animals (Muscogee Nation, 2018). Show season for the Muscogee (Creek) Nation youth is a busy time of year. The Agriculture Youth Program "becomes a game of trying to catch kids in eight different counties to clip and feed" (Citizen Potawatomi Nation, 2019, p. 3). Although it is a busy time of year, it is rewarding for the Indigenous youth and the staff.

For the Muscogee (Creek) Nation's agriculture programs, an important component, which was identified as needing further development, is culture. One way that culture is integrated into the program is by participating in essay contests that focus on becoming better citizens of their tribe. While these essay contests provide some engagement with culture, the overall cultural aspect is limited. In thinking about including a cultural component to the program, one of the challenges is accessing information. Speaking with Haltom, it can be challenging to know where to access information. During Haltom's career with the nation, some challenging situations have arisen as the cultural aspect is engaged. For example, Haltom explained that the cultural component is "something that I think personally we really lack. And I'm just not sure how to exactly fix it...What one person thinks is cultural another one doesn't

(B. Haltom, personal communication, January 7, 2021). Additionally, cultural conversations can often be challenging to have if an individual is not familiar with the tribe's culture. The cultural component of agricultural education is an area focused on as needing to be further developed.

Overall, the Muscogee (Creek) Nation has created a successful agricultural education program that benefits their youth. The program seeks to assist their youth to the best extent possible. This is evidenced by an interview with Haltom where he states that it is especially good to see children who “people didn't really give much of a chance, but all they needed was a little opportunity and maybe a little motivation” (Citizen Potawatomi Nation, 2019, p. 4). It only takes an opportunity provided by the Muscogee (Creek) Nation to help youth experience success. The efforts to provide opportunities to the Muscogee (Creek) Nation youth are further described as:

[The youth] needed an opportunity. You know, they needed that professional support to help and to see how it has changed their lives and success that they've had where before they had zero. Now, all of a sudden, they really have showing success in the livestock area of the program that it was real encouraging and again, you take a young person that shows chickens. That first place ribbon means as much to those kids showing a trio of chickens as it does to someone showing a \$15,000 heifer. (B. Haltom, personal communication, December 15, 2020)

Haltom goes on to say the program allows Muscogee (Creek) youth to “open their minds to potential as well as the chance to travel and learn more about the world outside of Oklahoma” (Citizen Potawatomi Nation, 2019, p. 4). The Muscogee (Creek) Nation Agriculture Youth Program provides opportunities for youth to see and experience events that might not otherwise be possible. Haltom describes the resources that support the program:

Just trying to take advantage of the resources available to us here in the state of Oklahoma, through our tribal government through our tribal programs that are using those outside resources really because they are already well established that are set up, that are proven to train the leaders of tomorrow and at the [Muscogee] Creek Nation.

(Personal communication, December 15, 2020)

Through utilization of resources available to the Muscogee (Creek) Nation, their youth have the opportunity to develop themselves as agricultural leaders. This program allows Indigenous youth to learn through livestock and leadership programs, while also providing the opportunity to be exposed to a variety of agriculture initiatives to further develop their skillset.

In addition to the initiatives set forth by the Agriculture Youth Program, the program serves as a vehicle to engage Muscogee (Creek) youth in tribal sovereignty. Food sovereignty is an important component of tribal sovereignty and this can be accomplished through agriculture. Haltom stated that “I think that the key to food sovereignty is getting our young kids involved as native American agriculturalists, and it is a tribal government’s biggest way to achieve food sovereignty” (Citizen Potawatomi Nation, 2019, p. 4). Haltom goes on to say that “every Native tribe in the United States has the opportunity – through agriculture – to achieve tribal sovereignty through being able to feed their own people. But to do that, we have to have Native young people who are interested in agriculture” (Citizen Potawatomi Nation, 2019, p. 4). The efforts taken by Muscogee (Creek) Nation through the Agriculture Youth Program have created positive agricultural education programs that are situated in tribal sovereignty, specifically food sovereignty. The Muscogee (Creek) Nation views agriculture as a way to accomplish sovereignty initiatives and through the established agricultural education program, they are producing the next generation of Indigenous agriculturalists.

Case 3: Osage Nation

Osage Nation is located in northeast Oklahoma, in Osage County. For the research into the Osage Nation case study, two individuals were interviewed. The first individual, Jason George, has overseen the farm for the previous two years. The second individual, Assistant Chief Raymond Red Corn, was in an administrative capacity and involved with the farm from the onset.

Research Question 1

The Osage Nation entered into agriculture in 2014 (J. George, personal communication, December 11, 2020; Osage Nation Lessons, n.d.; R. Red Corn, personal communication, February 24, 2021). A parcel of land was gifted to the Osage Nation from an Osage family in the early 1990s (Duty, 2015). When the new administration was elected in 2014, this gifted land was identified as suitable for farming (Osage Nation, 2015; R. Red Corn, personal communication, February 24, 2021). With this identified land, the Osage Nation Executive Branch created the framework for a farm program called Bird Creek Farm. The goals of Bird Creek Farm are to “strengthen Osage culture, increase access to healthy foods by providing farm-fresh alternatives, conduct agricultural experiments, and host educational classes on traditional Osage food-ways and agriculture” (Osage Nation Lessons, n.d., para. 4). From the beginning, the farm was created to engage with agriculture, while including a cultural and educational component.

Early on, the farm focused on outdoor farming and raised beds in hoop houses. The original outdoor farming plan contained corn, pumpkins, a collective garden, and a community garden (Osage Nation, 2015). In addition to the crops of corn and pumpkins, the farm planted squash, corn, and beans together. This combination is called the Three Sisters and is a

systematic way of growing in which corn stalks provide stability for the vines to grow and the leaves of the squash provide shade (Duty, 2015; Osage Nation, n.d.c; Osage Nation Lessons, n.d.). Another component to the original farm planning process was bees. Red Corn stated in an Osage Nation interview that the farm is “working with a pollination expert through the United States Department of Agriculture to make sure we have sufficient pollinators available” (Osage Nation, 2015, para. 20). Early on for the Osage Nation, it has been important to support all aspects of the farm, including pollination.

Also in 2015, the Osage Nation began a small indoor aquaponics system, which grew lettuce for distribution to the childcare centers and elder facilities. The Osage Nation elder nutrition facilities were developed under Title VI of the Older Americans Act. The Osage Nation’s two facilities, located in Pawhuska and Fairfax, provide services to Osage elders who live within the service area (Osage Nation, 2021). These services include providing meals to the Osage elders. Through the development of the aquaponics system at Bird Creek Farm, the Osage Nation provided fresh produce to support the nutritional needs of the elders through the elder nutrition facilities.

In addition to the agriculture work performed at the farm, it is important for the Osage Nation to create opportunities for Osage people to garden. With this in mind, an opportunity for community gardens was created. Community garden opportunities included a ten-foot by ten-foot plot for individual gardens. In an interview with the Osage News, an Osage individual said it was important for her that the plot was already prepared for her to garden, which helped alleviate the work she would have to do. She went on to say, “The grocery store locally, the produce is really sad and it turns green, and not a good green, as soon as you get it home. We’re just not used to not having fresh vegetables and fruit, so to be able to grow it ourselves and have

it here, is exciting” (Duty, 2015, para. 2). Due to the lack of fresh produce locally available, being able to have the infrastructure available to allow Osage people to maintain a garden was important for the farm.

While the Osage Nation was working to build their farming capacity, there were also efforts to increase the land base for cattle. The Osage Nation purchased an approximate 43,000-acre ranch in Osage County for the purposes of bison and cattle. The land was purchased from media mogul Ted Turner for approximately \$74 million (Overall, 2016). Turner sought to find a purchaser who would take the same initiative to ensure proper management of the land and was able to find that with the Osage Nation (Overall, 2016; Polacca, 2016). After the land was purchased, Chief Standing Bear considered several proposals regarding management of the land. One of those options included wild mustangs. While the wild mustangs would provide a quick return on investment, “it would take a heavy toll on the land. It’s our responsibility to preserve this land for the future” (Overall, 2016, para. 9). After consideration of how to proceed in a way that instills positive management of the land, the Osage Nation decided to move forward with cattle and bison.

From the moment the Osage Nation purchased the new acreage, it was important that the land be managed conservatively to maintain the integrity of the land. The path forward was a focus on cattle and bison, which ensured alignment with the tribe’s conservative land management plan. Chief Standing Bear stated he wanted to see the new land be used as “a refuge for sacred bison, a classroom for our people, a place where Osage companies and individuals will conduct profitable cattle operations, and the site of well-regulated (for-profit) hunting and fishing” (Erwin, 2016, para. 14). The purchase of the nearly 43,000-acres made a significant impact on the Osage Nation’s land base. With the new purchase, the Osage Nation

sits as one of the top three largest landowners within the Osage jurisdictional boundary (Erwin, 2016). This land acquisition is a current and positive movement for the Osage Nation as they seek to reverse the effects of allotment.

After the Osage Nation's purchase of the land, the next step was to consider the management of the tremendous asset. In light of this, the Osage Nation created a board to oversee the initiatives of the ranch, presently called Osage Nation Ranch. The board is composed of five board members and oversees the business operations of the Osage Nation Ranch (Duty, 2019). While the Osage Nation owns the land, the land is leased to the Osage Nation Ranch Board. The lease is for 25 years, May 1, 2017 through April 30, 2042, and includes an annual payment to the Osage Nation for \$1 per acre (Erwin, 2016). The lease was created to support the success of the Osage Nation Ranch as they move forward with management of the newly acquired land.

The early years of Osage Nation agriculture, specifically farming, focused on training staff and building capacity. For example, one farm employee attended a mastery of Aquaponics training from Nelson Pade, Inc. to support the existing aquaponics system (Osage Nation, n.d.b). The first aquaponics system began in 2015 and by 2017, the system was growing herbs, vegetables and catfish (Osage News, 2017). The Osage Nation values training employees to learn proper farming techniques. Training employees continues to support the growth and development of Bird Creek Farm's initiatives, including aquaponics.

The significant agricultural change occurred with the COVID-19 pandemic. Before the pandemic, Osage County was considered a "super food desert" (Mihesuah, 2017, p. 12). This super food desert was designated because the 2,251 square miles of Osage County only had four grocery stores (Mihesuah, 2017). As the COVID-19 pandemic persisted, it became apparent that

there was a breakdown in food systems for nations in Oklahoma. In light of the food systems breakdown, the Osage Nation received CARES federal funds to assist with COVID-19 related food initiatives (Oxendine, 2021). Due to the impact of the COVID-19 pandemic, the United States Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act in 2021 and was signed into law on March 27, 2020 (U.S. Department of the Treasury, n.d.).

The Osage Nation was a recipient of CARES federal funds, which significantly increased the capacity at Bird Creek Farm by constructing facilities with indoor farming capabilities. The farming capacity increased with the construction of a 40,000-square foot greenhouse and 44,000-square foot building, which includes aquaponics and a food processing area. The Director of the Osage Nation Department of Natural Resources stated that “these new facilities will provide the Osage Nation with a valuable new asset in overcoming the food security disruption of this past year, and in expanding our long-term food security capabilities once the pandemic subsides” (Oxendine, 2021, para. 8). By increasing the capacity of indoor farming, the Osage Nation prioritized food production for their people year-round.

In addition to farming, the Osage Nation utilized CARES federal funds to further invest in the Osage Nation Ranch by constructing better infrastructure to maintain the existing cattle and bison, along with expanding the herd of cattle. Also related to livestock was the Osage Nation’s development of a 19,000-square foot meat processing facility (Oxendine, 2021). The facility is designed to process livestock and provide a retail area to offer fresh cuts of meat to consumers (Oxendine, 2021). Chief Standing Bear talks about the consideration of the meat facility when the Osage Nation was “caught in a contradiction. We have 43,000 acres just west. We have 100 bison and 2,000 cattle. We could not get that food to our people. So, now we’ve remedied that, and we’re going to improve on what we’ve done.” (Russell, 2021, para. 2). Even

before the COVID-19 pandemic began, Jann Hayman, the Osage Nation Director of Natural Resources describes that the “Osage Nation has kind of continually seen a food desert situation and COVID just really exacerbated that problem” (Russell, 2021, para. 10). In terms of the food desert situation the Osage Nation saw prior to COVID-19 and during the pandemic, efforts were made to address those situations through the development of the agriculture systems within the Osage Nation.

The agriculture programs within the Osage Nation are primarily focused on food sovereignty and food security. Red Corn stated: “The Osage methods of food preservation process is about food security and food sovereignty. Our heirloom seeds are an expression of food sovereignty. Food security is the Osage Nation Government doing what we did a hundred years ago to feed ourselves” (Osage Nation, 2015, para. 26). The agriculture systems within the Osage Nation have grown dramatically since they began in 2014. One of the components related to food sovereignty is that “everything we do [at Osage] revolves around food. You can’t heal the community unless you heal the food system” (NCAI, 2021, para. 1). Food is at the center of the Osage Nation community and through efforts made in developing agricultural systems illustrate the importance of those systems.

Agricultural production in the Osage Nation began in 2014. While the efforts were challenging in the beginning, they continued (ON Communications, 2018). In 2018, the Osage Nation published an article about Bird Creek Farm, which included that the five-year goal was to increase infrastructure and “sell our produce to all seven Osage Casinos. This would enable [the Osage Nation] to provide more jobs for Osages as well as be able to provide even more fresh, healthy, quality produce locally” (ON Communications, 2018, para. 17). A few short years ago, the vision was to provide food to the Osage people. Today, this vision has come into fruition.

Even though the food sovereignty development is in its infancy, the infrastructure situates the Osage Nation to forward in a more sustainable way.

Research Question 2

From the beginning, education played a role in the agriculture programs for the Osage Nation. Education “occurred naturally” (R. Red Corn, personal communication, February 24, 2021) in the development of agriculture programs. Through the work being done at the Osage Nation’s educational facilities and through the development of food security initiatives, education is laced throughout. Education in agriculture is an important component to maintaining the cultural aspects of the food systems and in educating youth for the future agricultural development of the Osage Nation.

In thinking about educational opportunities for the Osage people, there was a process to create Osage specific lesson plans. During the 15-month project period, 57 lessons in 14 units were created (Osage Nation, n.d.e). Deb Atterberry, Strategic Planning analyst in the Osage Nation’s Office of Self-Governance and Strategic Planning and also a former classroom teacher, stated that “we have a very unique and rich history to share, but it is also important to learn about the things we are currently doing and what we will be doing in the future” (Osage Nation, n.d.e, para. 5). Within the lessons are a focus on food systems and agriculture. Located on the Osage Nation’s website are the following lessons: Intro to Osage Foods; Early Farming, Hunting & Food Preservation; Edible Wild Plants; Introduction to the Buffalo; Intertribal Buffalo Council Lesson; Bison Science – Research; Perspectives on Bison – Interpret Articles; and Food-ways, Exercise & Health Today (Osage Culture, 2021). Each lesson includes an age range for the lesson and supporting documentation such as booklets, fact sheets, and question and answer keys. Since these lessons are located online, they are available to Osage people within the

Reservation and throughout the country.

The efforts of the Osage Nation to make lessons available online depict the importance of education to the nation. These lessons show that Osage foods are important to the Osage Nation and aide in understanding the bigger picture related to food sovereignty. These lessons look at early food preservation for various types of meat, the biology of bison, edible wild food, and also how early Osage food systems created healthy lifestyles (Osage Culture, 2021). This foundation of educational lessons, which are available publicly, set a firm foundation for agricultural education programs.

Research Question 3

Regarding the relationships of the Oklahoma Cooperative Extension Service to the development of Osage Nation agricultural education, it was emphasized that these relationships are determined by a willingness to collaborate between Native nations and Extension Service. What makes these relationships work is the willingness of both sides to listen and have a good work ethic for collaboration. A challenge that arises with these relationships, not necessarily solely with the Osage Nation, is an unfamiliarity with other organizations. Red Corn elaborates on this relationship:

Each situation involves at least two people. And if on one side your ability and willingness to impart information, seek specific information and serve that tribal client has everything to do with the success and that's just one side of the equation. On the other side of the equation you must have a person that can ask the right questions, learn if they're willing to listen and absorb all of that information from that person. So in order for this to work well, and I've seen it both ways, you need talented people with an open mind and a work ethic on both sides of that equation and that's what makes it work. I

really don't think it has a lot to do with other than just basic unfamiliarity with each other. (Personal communication, February 24, 2021)

In light of this unfamiliarity between organizations, Red Corn is involved in a collaborative group that seeks to build relationships between Oklahoma Cooperative Extension Service and Native nations, specifically creating the structure to understand each organization better and be more productive.

In light of efforts to build networks between organizations, the relationship between Osage Nation's Bird Creek Farm and the local Extension office was further explored. The local Extension office has been helpful, especially during the early years of the Nation's agriculture, by providing assistance and answering questions. George states, "Whenever we had any questions or issues, they were quick to respond with assistance or send us in the direction of someone that could help us further" (Personal communication, August 12, 2021). Through the efforts of the Cooperative Extension Service, Bird Creek Farm was able to overcome challenges. For example, if equipment was needed which was not available through the Osage Nation, Cooperative Extension would lend the necessary equipment to further support the success of the agricultural efforts.

In addition to Extension supporting day-to-day operations, agricultural educational opportunities were provided to Osage Nation staff. One example of this was during the COVID-19 pandemic. The local Extension agent coordinated with Oklahoma State University to facilitate a series of virtual trainings for Osage Nation's agricultural staff, as well as other constituents who were interested. Some of the virtual trainings included: Weed Control, Irrigation Considerations for Market Gardeners, and Insect Pests of Vegetable Crops (J. George, personal communication, December 11, 2020). The local Extension agent brought knowledge

from Oklahoma State University to the Osage Nation to build upon existing knowledge.

For the Osage Nation, the Oklahoma Cooperative Extension Service plays an important role in the agriculture initiatives. While there are still opportunities to build upon existing relationships, as described by Red Corn, the local Cooperative Extension Service supports agriculture programs by providing education and access to items that are necessary for the success of the initiatives. Therefore, the partnerships with Cooperative Extension are an essential resource to the Osage Nation.

Research Question 4

The educational component to agriculture has been woven into all aspects of the Osage Nation. The Osage Nation has sought federal funds to help agricultural education programs move forward. For example, the Osage Nation received federal grant funding for butterfly habitat, in which Osage youth participated in butterfly releases related to that program. Red Corn elaborates on the butterfly releases by saying, “In those early years, there were some grants that we took advantage of for butterfly habitat and almost immediately we began to take kids out there and have them participate in butterfly releases and understand that aspect of the natural environment right away” (Personal communication, February 24, 2021). Through grant funds to support butterfly habitat, important pollinators were incorporated at Bird Creek Farms while also providing educational opportunities for Osage youth.

Additionally, a grant from Oklahoma State University brought funding to the Osage Nation that focused on healthy food initiatives and familiarizing children with produce (Sisson, B., Sleet, K., Rickman, R., Love, C., Williams, M., & Jernigan, V., 2019). Red Corn explains this funding also provided raised bed gardens at each of the Osage educational facilities in order to “take the gardening to them” (R. Red Corn, personal communication, February 24, 2021).

Red Corn further described the collaboration with the university by saying: “We began a relationship with University of Oklahoma as it started and it ended up at Oklahoma State, but University of Oklahoma started a study with the kids and part of that study was to familiarize them with where vegetables come from” (Personal communication, February 24, 2021).

Currently, a Bird Creek Farm employee maintains the raised bed gardens at four Osage Nation’s Wah-Zha-Zhe Early Learning Academy (WELA) educational facilities and the Daposka Ahnkodapi (Osage Nation Lessons, n.d.), which are the educational facilities for the Osage Nation. The raised beds at these facilities are vehicles to teach children how to plant, maintain, and harvest fresh produce.

At Bird Creek Farm, efforts have been made to bring children to the facility since the onset of the farm. Each of the events, no matter how small, bring children to the place where produce is grown for the benefit of the Osage people. For example, even a trip to the pumpkin patch accomplishes several goals. Red Corn explains accomplishing multiple goals:

I think there’s probably a way of looking at [the pumpkin patch], you wouldn’t think it was much more than fun for kids, but it accomplishes the same goals as when we put these raised bed gardens at these educational facilities. It familiarizes kids and let them know where food comes from. (Personal communication, February 24, 2021)

What might seem as a fun, enjoyable trip out of the classroom is really an opportunity for children to see the steps taken to bring food to the consumer. In addition, raised beds at the educational facilities accomplish the same goals of taking the classroom outdoors and learning where food comes from. Red Corn discussed how important goals are and accomplishing multiple goals with proper planning. With proper planning, the Osage Nation is able to educate children while feeding their elders at the same time.

The Osage Nation's Bird Creek Farm seeks to incorporate a cultural component to the agriculture initiatives. While there is a focus on producing food for the Osage people, there remains a component related to culturally significant food species. The integration of culturally significant food species into the farm is further explained by Red Corn:

We've always had some small effort as part of the larger effort to satisfy and I think the proper word would be, to integrate, the supply that might come from Bird Creek Farms with the demand that might come from our people and our culture...What I'm hoping is that through the acquisition of personnel that have the skillsets we need to get going and go forward and proper planning, that we can really enrich what we do in that respect.

(Personal communication, February 24, 2021)

There has been a focus on growing Osage specific corn species, such as the Osage red corn. These efforts have created other educational opportunities that are specific to the Osage, including harvesting, drying, and preparing corn. Within the Osage community, there are only a few individuals that have the historic knowledgebase on how culturally significant species were harvested and prepared. Prior to Bird Creek Farm receiving CARES federal funds for development, there was an educational demonstration held at the farm on the preparation of Osage red corn. Events like these are important to the cultural aspect of agriculture by passing down that knowledgebase to future generations of the Osage people (RedCorn, 2020b). Red Corn explains the importance of education in the preparation of cultural food:

There's no one else that knows how to [dry corn]. I mean, it isn't that it's that complicated and it isn't that you couldn't videotape and recreate it, but that's not the point. You don't use videotape to learn how to dress an Osage woman for the dance. That's not how that's done. I think we need to set up an educational system for culture

that is ag based. (Personal communication, February 24, 2021)

This agricultural aspect of culture is one that is important to the Osage Nation and these educational efforts are a priority for integration into the Bird Creek Farm development.

In addition to the work Osage Nation is doing within their agricultural systems, the Osage Nation is involved with the Intertribal Agriculture Council. A representative from the Osage Nation generally represents the Osage Nation at the Intertribal Agriculture Council's annual conference each year. The Intertribal Agriculture Council has a specific focus on Indigenous youth and the Osage Nation representative, an Intertribal Agriculture Council Eastern Oklahoma Board member, supports those initiatives. Red Corn goes on to say that tribal agriculture is extremely diverse. Red Corn stated that "tribal agriculture is as diverse as those tribes are, everything from fishing to hunting to raising corn in the desert to raising corn here to harvesting persimmons and poke and a lot of other naturally occurring things. That's all agriculture at the end of the day" (Personal communication, February 24, 2021). In this vein, each Native nation has a unique engagement with agriculture.

Summary

After completing the data collection process for the Osage Nation, a word cloud was created to further engage with the data. Figure 4.3 brings together the most frequently used words throughout the Osage Nation case.

Figure 4.3

Osage Nation Word Cloud



Figure 4.3. Osage Nation Word Cloud

In further exploring Figure 4.3, the words that begin emerging are land, people, family, development, children, corn, and community. For the Osage Nation, land is at the center of the agriculture program development. After developing agriculture programs on the identified land, it is apparent that community is the focus of the agriculture and agricultural education program development. Figure 4.3 further supports the importance of land, community, and agriculture for the Osage Nation.

Case 4: Choctaw Nation

For the Choctaw Nation case study, Jody House was interviewed. House is the Livestock Show Coordinator and has been in different capacities within the Choctaw Nation, all surrounding agriculture, agricultural education, and educational outreach. House has also worked in an Extension capacity with the Oklahoma Cooperative Extension Service. House's experience with Extension and his capacity within the Choctaw Nation situates him as the most

appropriate knowledgebase for this case.

Research Question 1

The Choctaw Nation encompasses ten and one-half counties in southeastern Oklahoma. The Choctaw Nation has been involved in agriculture for many years, beginning in 1975 (Germany, n.d.). The Choctaw Nation has, over the years, developed agriculture initiatives, including cattle and pecans. In operation are seven cattle ranches encompassing approximately 65,000-acres (Germany, n.d.; Native America, n.d.). The largest herd is located in Daisy, Oklahoma, and the smallest herd is located in Hugo, Oklahoma. On the Choctaw Nation acreage, the herds have been expanded to include Certified Angus Beef, totaling about 3,000 head. The Choctaw Nation has always included “agriculture producers. They have raised their own livestock. Adding cattle to the mix just seemed like a natural thing to do” (Germany, para. 17). Beef produced from the Choctaw Nation acreage is served at tribal outlets, including the casinos and cafeterias.

In addition to the livestock program, the Choctaw Nation began pecan production in 2015. Native pecan trees were identified and as more trees were discovered, the Choctaw Nation approached Oklahoma State University and the Noble Research Institute to further develop the orchards (Native America, n.d.). Currently, there are three pecan orchards, totaling approximately 1,500 acres (Clark, 2017). The number of pecan trees have grown to more than 5,000 improved trees and 5,000-6,000 native trees (Clark, 2017). The pecan orchards yield approximately 150,000 pounds of pecans annually. The pecans are packaged in 16-ounce packages and sold at the seventeen Choctaw Nation Travel Plazas and Choctaw Welcome Center (Native America, n.d.). The Choctaw Nation has even coordinated with the neighboring Chickasaw Nation’s Bedre chocolates to make chocolate covered pecans (J. House, personal

communication, May 12, 2021). Partnering with another tribe, as with the Chickasaw Nation, created value-added products that benefit each Native nation.

In addition to cattle and pecan operations, the Choctaw Nation also works towards ensuring their people have access to healthy food. The Nihi Hokchi-Edible Schoolyard Project, started in 2017, assists the Choctaw Nation through development of school gardens, building raised beds and irrigation systems (Native America, n.d.). This program is in cooperation with the Chahta Foundation, whose goal is to “connect communities with Choctaw health and wellness initiatives that enrich the quality of life, establish sustainability and reconnect generations of Choctaw people with their agrarian heritage” (Native America, para. 15). This cooperation has resulted in seventy raised beds being provided to Choctaw elders, including the supplies needed for the success of the beds.

In addition to these efforts, the Choctaw Nation utilizes five acres to demonstrate agriculture systems in limited spaces. This includes raised beds, aquaponics, and outdoor demonstration plots. This facility’s goal is to encourage sound practices in existing systems and help Choctaw people create systems unique to their own needs. These programs, including the overall agriculture initiatives, demonstrate the Choctaw Nation’s efforts to meet the needs of their people through agriculture.

Research Question 2

The Choctaw Nation began their agricultural education program in the early 1990s. While the agriculture program began in the mid-1970s, the education component began later. The agricultural education program, which was initially focused on livestock, first started as a hog show only, but then it grew to include four species: beef, swine, sheep, and goats. As the livestock show program grew, the Choctaw created a program for premium sale money around

1997 (J. House, personal communication, May 12, 2021). From there, as the Choctaw Nation continued to expand upon their agriculture programs, their education programs have also expanded.

Throughout the development of agricultural education programs, the focus has changed over time. As administrations within the nation change, different objectives that have been sought for these programs. As agricultural programs have been created and further developed, the education component has continued to be interwoven into those programs. For example, the agriculture programs began in the mid-1970s. As time passed, it was apparent there was a need for an agricultural education program, such as the livestock show program that began in the early 1990s. As the livestock show progressed and grew, the Choctaw Nation continued to explore agricultural education opportunities to further meet the needs of their people.

As the agriculture programs grew, so did the educational programs that coincided with them. Some of those programs developed by the Choctaw Nation include Agriculture in the Classroom, Backyard Initiatives, and educational opportunities provided through the five-acre demonstration farm. These programs are Choctaw specific and created to fill gaps seen by Choctaw Nation employees. In addition to educational opportunities, the Choctaw Nation held agriculture expo events to further support agriculture by meeting the needs of local producers. Through these efforts, the Choctaw Nation has prioritized the need for education for their Indigenous peoples.

Research Question 3

During the course of the interview with House, it became evident that the Choctaw Nation works closely with the Oklahoma Cooperative Extension Service. House has previous experience working as a county agent with Oklahoma Cooperative Extension Service. This

experience, along with the existing relationships with Oklahoma Cooperative Extension Service, created an environment that is conducive to Extension playing an important role with the Choctaw Nation.

House explained for educational events hosted by the Choctaw Nation, Extension would often attend and provide resources to help facilitate the programs. Additionally, the partnerships with Oklahoma Cooperative Extension Service are an important resource for the Choctaw Nation. House explains the importance of this resource:

There's a lot of those guys who don't get a lot of credit where the needs to be credit due.

Me being a county agent, former president of the Oklahoma Ag Association, I understand the significant of being able to bring it together and do a lot of stuff together with each other...partnerships are very important and of course, like I said, me being a former

Extension agent, my loyalties are true to that. (Personal communication, May 12, 2021)

Through these partnerships, the Choctaw Nation and Oklahoma Cooperative Extension Service work together for the benefit of the Choctaw people. For example, if Extension has the resources to benefit a Choctaw member, the Choctaw Nation sends the individual to the local Oklahoma Cooperative Extension Service office. Conversely, if the Choctaw Nation has resources to benefit their tribal citizens, Extension will ensure the individual knows these services are available (J. House, personal communication, May 12, 2021).

The partnerships between the Choctaw Nation and Oklahoma Cooperative Extension Service is apparent when implementing the livestock shows. The Choctaw Nation coordinates two livestock shows, which are both held the first weekend in February each year. The Choctaw Nation coordinates these livestock shows and the success of those shows are because of the

continued support from the Oklahoma Cooperative Extension Service agents and local agriculture teachers (J. House, personal communication, May 12, 2021).

In addition to the work with livestock shows, the Choctaw Nation works in cooperation with Extension to create educational opportunities to benefit their people. Examples of the educational opportunities provided in partnership between the Choctaw Nation and Cooperative Extension are soil health, hoop house construction, sprayer calibrations, feral hogs, beekeeping, and gardening classes (J. House, personal communication, May 5, 2021). Through cooperation with Extension, resources are attained to support classes that further the development of Indigenous agriculturalists.

Research Question 4

As the Choctaw Nation implement agriculture initiatives, a robust agricultural education program has been developed. Agricultural education is found in many aspects within the Choctaw Nation. Agricultural education for the Choctaw Nation includes the implementation of educational programs, technical assistance, working with producers, and youth programs (Chambers, 2018b). The Choctaw Nation targets a variety of Indigenous audiences through the efforts made with agricultural education.

One of the agricultural education initiatives for the Choctaw Nation is livestock showing, which is hosted by the Choctaw Nation for the benefit of Indigenous students. The Choctaw Nation host two livestock shows each year, the first weekend in February. These shows are held at Durant and Wilburton, both within the jurisdictional area of the Choctaw Nation. The 2020 livestock show marked 28 years of the Choctaw Nation hosting the shows (Choctaw Nation, 2020). This livestock show is open to all students who are a member of 4-H or FFA, have a Certificate Degree of Indian Blood (CDIB), must be a student between the third and the twelfth

grade, and not older than 19 years of age (Choctaw Nation Release, 2018; Choctaw Nation, 2020). The process to livestock showing is tedious and involves selecting an animal, feeding, fitting, grooming, vaccinating and keeping records (Choctaw Nation, 2020, March 1). Choctaw Chief Gary Batton explains the importance of livestock showing by saying, “They learn how to take care of that animal, feed that animal, they know that they have to get up in the mornings, hard work ethics which we really love” (KTEN, 2018, para. 5). Through the livestock program, Choctaw Nation youth learn important concepts they will carry with them into the future.

In addition to livestock shows, the Choctaw Nation created an Agriculture in the Classroom program for implementation in their educational facilities. Agriculture in the Classroom is part of a national organization that has a mission to “increase agricultural literacy through K-12 education” (National Agriculture in the Classroom, n.d.). For the Choctaw Nation, this program focuses on providing lessons that showcase a variety of agricultural aspects, including dairy, fruit, and vegetable production (Chambers, 2018c). Through Agriculture in the Classroom, the Choctaw Nation staff engages children through activities such as reading agriculture books and conducting hands-on projects. One example of an agriculture activity is gluing wool onto drawings of sheep. The students wrote “sheep” in English alongside “chukfvlhpoba” in Choctaw and utilized the wool from freshly shorn sheep (Choctaw Nation, 2016). Agriculture in the Classroom allows the Choctaw Nation to plant “the seeds for future agriculturalists. Getting them interested and involved at a young age ensures that we have people to produce food for our future” (Chambers, 2018c, para. 7). As the Choctaw Nation seek to engage their youth early, seeds are being planted by these programs for future Indigenous agriculture.

In the same vein, the Choctaw Nation also created a Backyard Initiative program. The Backyard Initiative program is designed to “teach tribal members, along with the non-Choctaw public, how to be more self-sufficient in feeding themselves and their families” (Jennings, n.d., para. 2). Through this program, the Choctaw Nation understand not all people live in a rural setting. Since many individuals live in an urban setting, this program is designed to help those people utilize resources available to them to create agriculture systems where they are located. Through the Backyard Initiative, videos were created and are available on the Choctaw Nation website. These videos include: chicken tractor, compost bin, galvanized raised bed, and universally accessible raised bed. In addition to the online videos, there are also printable step-by-step instructions (Choctaw Nation, n.d.). This program helps Choctaw people use resources available to them, such as their own backyard, to support a healthy lifestyle (Choctaw Nation, n.d.).

In addition to these initiatives, the Choctaw Nation created agricultural education opportunities through the five-acre Lehigh Project (Chambers, 2018a). This facility was specifically designed to demonstrate small-scale agriculture programs that can be initiated in areas with limited space. Through this project, the Choctaw Nation developed aquaponics and raised beds demonstrations. Not only is the Lehigh Project equipped to demonstrate farming on limited acreage, the facility brings in partners to provide resources to the Choctaw people. Through partnerships like United States Department of Agriculture, Natural Resources Conservation Service, and Oklahoma Cooperative Extension Service that participate in demonstrations at the facility, the Choctaw people can access the programs and knowledge available through those organizations.

When asked about the successes of the agricultural education program, House stated the money provided to Choctaw youth in the premium sale helps to support those kids continuing forward in agriculture. In response to the money provided to Choctaw youth, the Choctaw Nation has received numerous letters of gratitude, including some handwritten notes, from youth who have received premium sale money. House speaks on receiving these letters of appreciation:

You should see my wall out here of all the thank you's and the letters. I've got two letters that are handwritten that were from kids talking about how they wouldn't have been able to show if it wasn't for receiving that money and you know, money that they've made, how it will help them go on, go to college, or buy a vehicle, or buy the next project. (Personal communication, May 12, 2021)

The Choctaw Nation was visited and the wall of thank you's received from students was viewed.

Figure 4.4

Appreciation Wall from Choctaw Nation Youth



Figure 4.4. Appreciation Wall from Choctaw Nation

These letters of appreciation sent to the Choctaw Nation show the importance of the Choctaw Nation's program to the students. The premium sale money supports the livestock project and helps Choctaw youth plan for college or purchase transportation to attend college. Additionally, the premium sale money benefits Choctaw Nation youth and frees up money that would be spent on these children, which can now be used to support other non-Choctaw Nation youth. Therefore, even though the premium sale money was designed for the benefit of Choctaw Nation youth, it also supports overall agricultural education programs for non-Choctaw youth residing within the jurisdictional boundaries.

After exploring successes the Choctaw Nation have experienced in agricultural education, challenges were also explored. The biggest challenge for agricultural education is

related to the large size of the Choctaw Nation's jurisdictional boundary. Being located within ten and one-half counties, it can be a challenge for educators to accommodate the needs of the participants. The Choctaw Nation's headquarters is located in the southeast corner of the jurisdictional area, which means educators can easily travel four or five hours round trip to facilitate an event. This can become challenging when implementing programs across the Choctaw Nation's jurisdiction. To accommodate this challenge, House reiterated the importance of partnerships to support the implementation of the Choctaw Nation's goals.

For the Choctaw Nation, the intersection of culture and agricultural education was explored. The Choctaw Nation understands the importance of utilizing the resources for the benefit of their people. In regards to culture and agriculture, House says "the cultural point too, of agriculture, is we were the first people here and we understood the importance of having food and being able to grow it and being able to utilize it and the importance of water. So, there's a lot of incorporation that goes into it" (Personal communication, May 12, 2021). Through cattle, pecans, aquaponics, and raised beds, the Choctaw Nation is engaging with agriculture, while teaching their people these concepts.

As the Choctaw Nation engages agriculture, the technological component is explored. In terms of using new technology and resources to assist in the further development of agricultural programs, House stated the Choctaw Nation is "utilizing resources we've got now but not forgetting our heritage" (Personal communication, May 12, 2021). One example of using technology is with drones. The Choctaw Nation utilizes their land resources to incorporate drone research. House explains this by saying, "They are doing drone research and were using drones to drop out corn to feeders" (Personal communication, May 12, 2021). As the Choctaw Nation seeks to further develop programs that engages with advances in technology, coordination with

organizations such as the Oklahoma Cooperative Extension Service, United States Department of Agriculture, and the Natural Resources Conservation Service can support those efforts and bring resources to the Choctaw Nation to benefit their agricultural programs.

The Choctaw Nation strives to create an agricultural education program that benefits their youth. The agricultural education program seeks to “introduce agriculture to the minds of the younger generations” (Chambers, 2018b, para. 7). The Choctaw Nation puts resources into making sure their youth have the opportunity to engage with agriculture through a variety of programs. While the livestock shows are well attended, there are a variety of other opportunities through Agriculture in the Classroom initiatives, Backyard Initiatives, and other agriculture initiatives to further educate their youth. Ultimately, the Choctaw Nation has created a success program to reach their youth in agriculture.

Summary

Upon completion of collecting data for the Choctaw Nation case, a word cloud was created to view the words most frequently used. Figure 4.5 shows illustrates the words that emerged from the development of the Choctaw Nation case.

Figure 4.5

Choctaw Nation Word Cloud

the curriculum by honoring generations past while teaching and learning in the present to build our tribal nation for generations to come” (College of the Muscogee Nation, 2020a, para. 3).

One degree offered through the College of the Muscogee Nation is the Natural Resources Associate of Science. This degree program is designed for “students who are interested in the field of conservation and sustainable agriculture. Students develop knowledge of the elements of the natural environment and aspects of conducting agribusiness” (College of the Muscogee Nation, 2020a, para. 6). Within the Natural Resources degree program, courses include: Fundamentals of Soil Science, Soil Conservation Practices, Agroecology, Growing Heirloom Crops, Animal Production, and Native American Agribusiness (College of the Muscogee Nation, 2020a). Through these courses, it is apparent the College of the Muscogee Nation has a vested interest in creating future Indigenous agriculturalists by providing courses focused on agriculture and agribusiness.

Additionally, the Natural Resources Coordinator for the College of the Muscogee Nation, Truitt Eubank, was a resource to explore the Natural Resources degree program. When talking about the Natural Resources degree program, Eubank explained he started the program three years ago (Personal communication, June 30, 2021). There are two tracts within the Natural Resources program: Sustainable Agriculture and Conservation. While explaining the courses within these programs, Eubank explains that because of the focus of the College of the Muscogee Nation to emphasize Indigenous curriculum, every course has a cultural component. An example of the cultural incorporation in the Sustainable Agriculture tract is to learn about crops Indigenous peoples used in the past, as well as crop pairings that were utilized (T. Eubank, personal communication, June 30, 2021). Therefore, while students learn about all aspects of

develop Indigenous students through programs and degrees offered by their institution. Additionally, the College of the Muscogee Nation displays efforts to teach agriculture with an Indigenous focus. Through teaching agriculture at the secondary level, future Indigenous agriculturalists are being created that understand agriculture and also the Indigenous perspectives of agriculture. Ultimately, the information related to the College of the Muscogee Nation is an essential component to this study to better understand the current landscape of Indigenous agricultural education in Oklahoma.

Identification of Themes

After the cases have been developed, a word cloud was created to illustrate the most frequently used words from the data. Figure 4.7 illustrates the words that emerged from the data.

Figure 4.7

Word Cloud for All Cases



Figure 4.7. Word Cloud for All Cases

Immediately emerging from Figure 4.7 is the word nation. Nation is the foundation for this study, because each Native nation maintains the sovereignty to develop programs and make decisions on behalf of their people. Each nation has chosen to engage with agriculture and agricultural programs. Using the most frequently used words identified in the word cloud, the process of developing themes occurred.

Using the word clouds that were created using NVivo, a qualitative data analysis software, the foundation for themes began emerging. To begin, words emerged were people, youth, students, help, support, program, and know. It is apparent that people, including youth and students, play a significant role in the agriculture and agricultural education programs for each case. Based on the integration of people into the programs, the first theme is, *The people create your capacity in what you can do*. This theme is based on the importance situating appropriate people to administer the programs and facilitate the development of Indigenous agriculturists.

In looking further into Figure 4.7, other words began emerging. These words include land, students, extension, information, community, cattle, farm, and plant. These words describe the various aspects of resources for Native nations and the College of the Muscogee Nation. Some resources, such as Oklahoma Cooperative Extension and the Intertribal Agriculture Council, are organizations that provide support to these sovereign nations. Other resources, such as community and students, bring human capital to support Indigenous programs within each case. Resources that also exist within the programs, such as cattle, farms, and plants provide resources related to infrastructure to support Indigenous programs. These resources, when they come together, support the goals for agriculture and agricultural education. Therefore, the

second theme is, *Take advantage of the resources available to us*. This theme focuses on resources used to facilitate programs within each case.

As the themes begin developing, a further look was taken into the most frequently used words. The next words that emerge are information, events, need, education, help, and outreach. These words describe the importance of education and outreach, as well as the need for events that facilitate education for the four Native nations and College of the Muscogee Nation. Additionally, Indigenous events are an important component to education and outreach initiatives for Indigenous constituents. There is also a need for help in facilitating programs for each case as they meet their agriculture and agricultural education goals. Therefore, the third theme is, *Partnerships are very important*. This theme focuses on the importance of partnerships when administering Indigenous agriculture and agricultural education programs within each case.

In reviewing the word cloud, additional words that became apparent were Indian, corn, work, sovereignty, native, people, community, and tribal. Laced throughout Figure 4.7 is culture within the cases. Culturally significant food systems, such as with corn, are essential within the community. Additionally, people to facilitate the cultural component for Native nations is essential. Sovereignty, at the core of each nation, is what sets each nation apart and allows for decisions to be made to develop programs that best meet the needs of the people. Because of the importance of culture within each case, the fourth theme is, *We're utilizing resources we've got now but not forgetting our heritage*. Within the study, this theme focuses on the cultural aspect that is interwoven throughout each case.

Upon another review of the word cloud, several more words emerged. These words include land, farm, cattle, corn, people, livestock, plant, and staff. These words illustrate the

foundation that has been laid within each Native nation and the College of the Muscogee Nation. There are resources each case has in place to support the furthering of agriculture and agricultural education initiatives. Through the identification of land resources, available heirloom seeds, established cattle and other livestock herds, developed facilities, and existing staff, these resources lay the important foundations for each case. Therefore, the fifth theme is, *We're not starting with empty hands*. This theme centers on the foundation that has been established within each case.

After a final review of the word cloud, a few final words emerged. These words include started, time, first, new, now, need and provide. These words illustrate the elements of time and need. The programs within each case were created for a purpose. Within each case, there were people in specific capacities that determined the situations at a specific point in time supported the development of agriculture and agricultural education programs. This determination shows there is a need for programs that develop Indigenous agriculturalists. The four Native nations and the College of the Muscogee Nation created programs to fill a specific need at those exact moments. Each case are moving the established programs forward in time, while developing Indigenous agriculturalists through those programs. In this vein, the final theme is, *Train the leaders of tomorrow*. This theme focuses on the development of Indigenous agricultural leaders.

Themes

Six themes were identified, based on the cases. The six themes are described further, using data from each case in support of the themes.

Theme 1: The people create your capacity in what you can do

One of the first and immediately emerging themes is related to capacity within the four Oklahoma Native nations and the College of the Muscogee Nation. Each case elaborated on the

importance of capacity for the success of their programs. To begin, the first theme is: *The people create your capacity in what you can do*. This theme, which is a direct quote from the Quapaw Nation, is an important theme that is exhibited across all cases.

Quapaw Nation

The Quapaw Nation expressed the importance of creating capacity. For the Quapaw Nation, this is evidenced by the intern program. Additionally, the work with education and outreach showcases the importance placed on creating capacity. Roper further explains building capacity through universities and students:

I really enjoy working with the universities and those college students more so than high school for a lot of reasons, but the college students are really focused specifically on what they want to learn, what they're interested in, and through those relationships, I had a desire to try to foster some more interns. (Personal communication, November 20, 2020)

Even though the Quapaw Nation saw few Quapaw interns, the program is willing to support any student, Indigenous or non-Indigenous (C. Roper, personal communication, November 20, 2020). The ability to build capacity through educating youth helps the overall efforts to increase capacity within the greater Indigenous community.

With the diverse programs within the Quapaw Nation, there are always opportunities for a variety of interns. Some of the programs within the Quapaw Nation are unique and offer educational opportunities of interest to interns. Roper explains the interest of students wanting to learn from the Quapaw Nation by saying, "we had a few interns that would call and say, 'Hey, I just want to come spend a month with you, six weeks with you, you don't have to pay me, we just want to learn.' That has happened periodically" (Personal communication, November 20, 2020). In one instance, there was a collaboration between the Quapaw Nation and a local

church, which sponsored a group of interns. The interns rotated through fourteen days with the Quapaw Nation to learn their various programs and were able to stay at the church's facilities (C. Roper, personal communication, November 20, 2020). This example illustrates the interest of individuals to learn from Quapaw Nation's programs.

Ultimately, for the Quapaw Nation, building people meant building capacity. The intern program help to further the initiative of the Quapaw Nation to increase capacity. Roper expands on this by stating, "If I had interns, that increased our capacity. If I had people interested in agriculture, that obviously increased our capacity. The people create your capacity in what you can do. And if you have no people, you can't do anything" (Personal communication, November 20, 2020). Through agricultural education and outreach, the Quapaw Nation builds capacity through people. Throughout the interview with the Quapaw Nation, it is apparent the relationship with interns are valued. The Quapaw Nation values the ability to build future agriculturalists through the opportunities found within the Nation's facilities.

In addition to developing students, it is important to value the people who are in the capacity to build agricultural initiatives. In thinking about agricultural education programming and the development of those programs, those efforts depend on the people involved. Roper explains, "You have to have people that want to do it. And that's where I would do as much as I could do and then as much as I had somebody to do" (Personal communication, November 20, 2020). The agriculture and agricultural education efforts are dependent on an individual's willingness to put the time and effort into creating those opportunities. The Quapaw Nation made it apparent it is through those people that make this effort will those initiatives move forward.

Through the efforts of the Quapaw Nation with their internship program, along with the efforts of the Quapaw Nation employees to facilitate these programs, this Oklahoma Native nation has seen success in agricultural education. The Quapaw Nation continues to make use of interns and further collaborate with universities to bring forth Indigenous agriculturalists.

Muscogee (Creek) Nation

The Muscogee (Creek) Nation has administered an agricultural education program for many years, beginning in the 1970s. Early on, the agricultural education program was primarily administered through an Oklahoma Cooperative Extension Service program. Later, it came under the oversight of the Muscogee (Creek) Nation. As it came under the oversight of the Muscogee (Creek) Nation, this provided an opportunity for the program to be more centrally focused on the needs of tribal youth. Haltom explains this transition:

What that arrangement was that the tribe provided the funding and the Extension Service provided the expertise, whether that was you know, again through financial or actual professional services. That was the Extension's program part of this. The problem that the tribe and where I come in...was the Extension office used tribal funding but they really didn't answer to the tribe in any form or fashion. (Personal communication, December 15, 2020)

Once the Muscogee (Creek) Nation began administering the program, it allowed the Nation to address concerns about ensuring the educational goals of their youth were being met. Through administering the program within the nation, the program was able to be what it needed to reach the Indigenous youth.

As the program shifted to the oversight to the Muscogee (Creek) Nation, some modifications were made in implementation. One change was including students within the FFA

organization along with the 4-H organization. Through the efforts of Haltom, existing program legislation language was modified to be more broad to encompass additional students engaged with the FFA organization. Haltom explained that “I wanted to change the name of our program from the Creek Nation Ag 4-H Program to Agriculture Youth, so we cover both 4-H and FFA” (B. Haltom, personal communication, December 15, 2020). The purpose of modifying the program was to better engage and meet the needs of the Muscogee (Creek) Nation by expanding the program to include youth ages five through twenty-one, in coordination with the FFA and 4-H organizations.

In the vein of modifying the program to reach more Muscogee (Creek) Nation youth, Haltom also seeks to reach underserved youth. Reaching underserved youth is an important component to the program. Haltom stated, “Whenever we get those kids who are underserved, and we have a lot of kids who don’t have ag teachers or don’t have a parent or an Extension leader, that’s my role. I come in and I provide that service to them; I am their livestock advisor” (Personal communication, December 15, 2020). Haltom built his capacity to be a resource for Muscogee (Creek) Nation in agriculture and leadership initiatives. As Haltom further developed these resources through the expansion of the program to include the FFA organization, a greater capacity to engage underserved youth was created.

Through the capacity of Haltom and the initiative to seek out Muscogee (Creek) Nation youth, Indigenous agriculturalists are being created and supported. It is apparent that through the integrity and initiative of Haltom, in addition to the support of the administration, agriculture opportunities are administered for Muscogee (Creek) Nation youth. In the case of the Muscogee (Creek) Nation, it is evident that capacity is an important aspect for the success of agriculture and agricultural education programs.

Osage Nation

The Osage Nation has exhibited the importance of capacity in the development of the agriculture programs found within their jurisdiction. In order to better facilitate agriculture programs, it is important to put people in correct positions to build those programs. Red Corn explains this importance:

When you are out here like we are, then there's only two ways that those same knowledges, those same skills and abilities get here. And one is that Osage go out into the world and they acquire that knowledge skill and ability and they bring it home or we go out and find people with the knowledge skills and abilities, whether or not they are Osage, and bring them here. (Personal communication, February 24, 2021)

For the Osage Nation, the capacity of the individuals implementing agriculture initiatives are an important component. As agriculture programs are implemented, along with the integration of the agricultural education component, it is essential to have the capacity of the employees in place to carry those programs forward.

Further, it is important to incorporate the cultural component into agricultural programs by engaging individuals with that knowledgebase (RedCorn, 2020b). Currently, cultural knowledge related to Osage harvesting and preparation is limited. Within the Osage Nation, the cultural knowledge is primarily situated with tribal elders. Red Corn explains that “the five or six people that participated in that dried corn [training], the demo that we did, there's no one else that knows how to do that” (Personal communication, February 24, 2021). In addition to creating capacity for agriculture, the cultural knowledge component is a critical piece for the Osage Nation. This cultural component is a testament to the importance of people being imperative in program capacity. For the Osage Nation, this cultural knowledgebase resides in a

limited number of people. Expanding this knowledgebase is important when thinking about programmatic development in agriculture and agricultural education initiatives. While agriculture and agricultural education initiatives are important, incorporating the cultural component by building upon existing Osage Nation cultural knowledge is significant.

Additionally, having the ability to create goals that include agriculture initiatives and a cultural component is a priority. It takes the right person in the right position to effectively facilitate goals necessary to move the agriculture and agricultural education programs forward in a positive way. Further explaining this, Red Corn states, “We have the expertise on the cultural side with us, we now have the expertise on the science side with us and we have the facility and the resources to make it go. There really isn’t an excuse not to succeed” (Personal communication, February 24, 2021). For the Osage Nation, it is apparent there is importance placed on people creating the Nation’s capacity. A cultural component is significant to this capacity and one that is especially important to the future development of agricultural education initiatives.

The Osage Nation illustrates that people create the capacity for their agriculture and agricultural education initiatives. Through the efforts to create Indigenous peoples with agricultural knowledge and for the Osage Nation, cultural knowledge, it is apparent these capacities allow for forward momentum of the programs. For the Osage Nation, people create capacity in what is accomplished.

Choctaw Nation

The Choctaw Nation has seen a fluctuation in agricultural education programs, since the program began in the early 1990s. While this fluctuation is often tied to the ebb and flow of federal grant funding, it is also determined by the staff and administrators. As people come and

go, priorities that determine which programs are administered also change. In order to move initiatives forward, it is important to “get the right people in the right spots” (House, personal communication, May 12, 2021). The Choctaw Nation has had the opportunity to gain people that move their agriculture and agricultural education initiatives forward. For the Choctaw Nation, House brings capacity to the program and explains his role:

I’m an old teacher by heart and, when we were going and doing all those ag in the classroom type stuff, you know we were actually using the lessons that came out of ag in the class room. Because, part of my Masters there [Oklahoma State University], I went through all that, had to write a lot of lessons for them that they still use in that curriculum. (Personal communication, May 12, 2021)

The Choctaw Nation has the capacity in their agricultural education initiatives to move forward in a positive way, since there are people within the Nation with specific background knowledge in that sector.

In addition to the educational capacity of Choctaw Nation employees, professional capacity is important. House also brings professional relationships that benefit agricultural education initiatives. This is evident as House says, “A reason that I came back to the Nation, I was ag outreach and it was like being a county Extension agent and that’s where all my work was with OSU Extension. Working with those guys and a bunch of them I used to work with back whenever I was a county agent” (Personal communication, May 12, 2021). Native nation employees that maintain good relationships with other organizations have the ability to bring those organizational resources to the Nation. Professionally, relationships bring capacity to the Choctaw Nation through furthering existing programs, as well as creating new programs that

benefit the nation. Capacity, through people and the relationships that are established, provide resources to support the Choctaw Nation's programs.

College of the Muscogee Nation

In addition to the four Oklahoma Native nations, this theme also spans across the College of the Muscogee Nation. Three years ago, the College of the Muscogee Nation began an Associate of Science degree in Natural Resources that focuses on the natural environment and various aspects of agribusiness (College of the Muscogee Nation, 2020d). This program began through the efforts of Truitt Eubank, Natural Resources Instructor (T. Eubank, personal communication, June 30, 2021). For the College of the Muscogee Nation, it was through the capacity of Eubank that the degree program was created to develop Indigenous agriculturalists. Further, the College of the Muscogee Nation seeks to build overall Indigenous agricultural capacity through their Natural Resources program which is available to students. In the case of the College of the Muscogee Nation, the Natural Resources Instructor has been instrumental in creating courses that have a unique engagement with Indigenous knowledge, which seeks to benefit Indigenous students.

Summary

The first theme, *The people create your capacity in what you can do*, is found in all four Oklahoma Native nations and the College of the Muscogee Nation. It is apparent that it is essential to bring the right people to the table in terms of education and ability, while also understanding those individuals bring important relationships with them. In agricultural education initiatives, each case depicted the importance of having appropriate and qualified people in positions related to agricultural education. In each case, people situated in the agricultural education capacities were driven to see the success of the program and explored

avenues to complete those endeavors. Throughout the data collection, it was apparent that people wanted to see their respective program succeed. For the four Oklahoma Native nations and the College of the Muscogee Nation, steps were taken to place people in the correct capacities to ensure the agricultural education goals for Indigenous youth are being met.

Theme 2: Take advantage of the resources available to us

When looking at the successes the four Oklahoma Native nations and the College of the Muscogee Nation have experienced, those successes are contributed to the available resources. The second theme is a direct quote from the Muscogee (Creek) Nation and transcends across all cases. In each case, available resources are identified and an appropriate level of engagement is determined as each program is developed.

Quapaw Nation

The Quapaw Nation has developed diverse agricultural programs. Due to this diversity, the Quapaw Nation draws interest from interns to come to the facilities and learn. One specific agriculture program that brings interest for learning is the meat processing facility. The Quapaw Nation meat processing facility, when it began, was the only tribal USDA inspected facility in Oklahoma, and Roper talks about the meat processing facility engaging students studying meat science in college:

OSU is always, those kids that go through the meat science program at OSU, they are always looking at facilities to go into. And I would imagine even KU would have some kids that, those meat science students have to do an internship program. Since 2017, I had four meat science students do internships in the Quapaw plant. (Personal communication, November 20, 2020)

The meat processing facility brings opportunities for interns that are sometimes difficult to engage. As the Quapaw Nation seeks to engage interns, it creates a positive opportunity for students looking for internships in meat processing facilities. The Quapaw facility, especially, became a legitimate learning opportunity because of the USDA inspection. Through the meat processing facility, the Quapaw Nation is in a position to teach students an aspect of agriculture that is sometimes difficult to access.

In addition to the internship program, the Quapaw Nation collaborates with universities. While the resources within the Quapaw Nation may sometimes be limited, collaboration with other organizations brings resources to the table. Roper further explains the collaboration with universities:

I've been truly blessed to be able to work with Harvard on a few research projects. We just did some projects on some food waste and food waste composting. I've been able to work with the University of Nevada and Reno, the University of New Hampshire, Dartmouth, of course NEO in Miami, we did a little bit with them...I'd done a lot of work with Missouri State University, there's a lot of tribal students that end up at Missouri State in Springfield, they had a natural resources program as well as animal science and they had some phenomenal farm land that they had donated to them that they were able to do a lot of research projects. We've done some research projects with Missouri State. I've done several project with the University of Arkansas on animal feeding, bison habits, a lot of those things and I really enjoy working with the universities. (Personal communication, November 20, 2020)

For the Quapaw Nation, collaboration with universities opens the doors to resources that may not have been available otherwise. Through the resources available from university collaborations, opportunities for engaging and educating Indigenous students increases.

In addition to resources gained through collaboration with universities, grants are another source for resources. Grant funding, most often federal funding, brings important resources to the Quapaw Nation. Through grant funding, the intern program was able to grow. Funding utilized to facilitate the intern program was First Nations, Native American Agriculture Fund, as well as a climate change grant through the United States Environmental Protection Agency. As long as work could be tied back to agriculture initiatives, grant funding was sought to supply interns to the Quapaw Nation.

Through the use of resources, such as grant funding and the resources gained through collaboration with universities, Indigenous students are able to gain meaningful experience. Additionally, Indigenous students, even if they are not Quapaw, have resources set before them to learn the tribal programs in a way that benefits the individual as well as the greater Indigenous agriculture community. Ultimately, for the Quapaw Nation, resources play an important role in creating opportunities that benefit their Indigenous peoples.

Muscogee (Creek) Nation

The Muscogee (Creek) Nation's agricultural education program is created around the curriculum from the 4-H and FFA organizations. The established curriculum found within these organizations is foundational in developing Muscogee (Creek) Nation agricultural education initiatives. These foundations contribute to the success of the livestock shows the Muscogee (Creek) Nation implements. Haltom explains the benefits of using available resources to benefit their program:

We're just trying to take advantage of the resources available to us here in the state of Oklahoma. Through our tribal government, through our tribal programs that are using those outside resources, really because they are already well established, that are proven to train the leaders of tomorrow and at the Creek Nation, we are set up as a tribe to use those resources to the best of our ability. (Personal communication, December 15, 2020)

Through using the foundations of the 4-H and FFA organizations, opportunities are created for Muscogee (Creek) Nation youth to engage in local events, while participating in state and national events. Resources, specifically financial resources, provided to the youth from the Muscogee (Creek) Nation helps support projects they choose to engage. The importance of resources to Muscogee (Creek) Nation youth are described by Haltom as he says, "You take a young person that shows a trio of chickens, that first place ribbon means as much to those kid showing a trio of chickens as it does to someone showing a \$15,000 heifer" (Personal communication, December 15, 2020). Even though livestock showing is popular for youth, the 4-H and FFA organizations support a variety of projects and is not limited to showing livestock. For example, leadership projects can be pursued instead of solely showing livestock. Through financial resources, any Muscogee (Creek) Nation youth can choose to participate in a project that aligns with their personal goals.

In addition to the work with the 4-H and FFA organizations, the Intertribal Agriculture Council has resources available for Indigenous youth. Haltom describes a Muscogee (Creek) Nation youth who participated in an essay through the Intertribal Agriculture Council:

They have the essay contest where everybody writes, they give you a topic. We had a young man two years ago that participated in that, I helped him with his deal. We were just hoping to get a ticket to go, we were going to qualify to go. Well, out of everybody

that had written an essay, he ended up second. Out of the entire United States! So, he not only got to go to Las Vegas, but he was one of the top. He got to present his on stage at the Hard Rock Hotel to everybody there. He received a Pendleton blanket, a hat, a monetary prize, it was outstanding. (Personal communication, December 15, 2020)

This example details the importance of resources available to Muscogee (Creek) Nation youth from outside organizations. By accessing resources provided by the Intertribal Agriculture Council, this student gained an important opportunity for recognition. Opportunities to participate in projects like this, at a national level, make a difference in the development of future Muscogee (Creek) Nation leaders in agriculture.

Through available resources, such as the Intertribal Agriculture Council, the 4-H and FFA organizations, as well as financial resources by the Muscogee (Creek) Nation, these initiatives support the future of Indigenous agriculture. Additionally, financial resources set aside from the Muscogee (Creek) Nation to support their youth have the ability to provide substantial opportunities to youth who may be underserved. Collectively, resources from the Muscogee (Creek) Nation and those available through outside organizations serve as the foundation to further Indigenous agricultural education.

Osage Nation

In terms of resources for the Osage Nation, one of the most influential initial resources was the identification of land for agricultural use. The identified parcel of land for farming was the beginning vision for the engagement with agriculture. Red Corn explains one of the first important resources, land, for the Osage Nation:

Very early on in that process, Chief Standing Bear kind of came to the same vision, I mean almost immediately, and he could see what potential was out there, it was just a big

blank slate with a lot of acreage and actually plenty of topsoil...So, between the two of us, especially because of Chief Standing Bear's leadership, we began a program and it got funded. (Personal communication, February 24, 2021)

The identified land was a significant resource to move the Osage Nation forward in agriculture. After this, the next important resource was grant funding. The Osage Nation pursued several grant opportunities for funding, which resulted in a collaboration with the University of Oklahoma, which evolved into Oklahoma State University. This resource brought funding to the Osage Nation for agriculture and agricultural education efforts. Red Corn explains, "Part of that grant with OU was to establish small raised gardens, raised bed gardens at each of our educational facilities and actually take the gardening to them" (Personal communication, February 24, 2021). Grants like these were instrumental in bringing much needed resources to the Osage Nation. One of the initiatives from the grant collaboration was to establish raised bed gardens, which significantly jump-started the agricultural education efforts by engaging Osage children at the Nation's educational facilities.

Since that time, the Osage Nation continues to maintain the raised bed gardens and have significantly added agricultural systems through the financial resources provided by the CARES Act federal funds. The Osage Nation chose to utilize these resources to further develop the agriculture initiatives, which in turn provides more opportunities for agricultural education. Through the development of the greenhouse, aquaponics system, and meat processing facility, the agriculture resources within the Osage Nation continue to expand.

The current Osage Nation administration is focused on the importance of agriculture and is supportive of those initiatives. Therefore, available resources to further those initiatives are actively sought out. Utilizing outside resources help facilitate agricultural growth in an

environment that is sometimes challenging due to constraints by availability of tribal funds. Ultimately, for the Osage Nation, it is important to seek out and use available resources for the support and development of agriculture and agricultural education programs.

Choctaw Nation

The Choctaw Nation has used a variety of resources to assist in the development of agricultural education programs. First, federal grants offer financial resources to the Choctaw Nation. Grants through the United States Department of Agriculture offered assistance for agricultural education. House speaks on how funding from the United States Department of Agriculture helped move the agricultural education program forward:

That's where we started a lot of that youth education, going into the preschools and the grade schools and the Choctaw daycare centers. I mean, I've done everything from having two-year olds crawling on me like spider monkeys while I'm reading them books. We had a bunch of little ag books that we'd read them and then we'd do hands on projects with them. (Personal communication, May 12, 2021)

Grants, like the one from the United States Department of Agriculture, helped set the foundation for agricultural education programs within the Choctaw Nation's educational facilities by providing financial resources.

Additionally, there are other curriculums available to sovereign nations. Curricula, such as the Agriculture in the Classroom, have been positive resources for the Choctaw Nation. Agriculture in the Classroom is a program that has a goal to "increase agricultural literacy through K-12 education" (National Agriculture in the Classroom, n.d., para. 2). The Choctaw Nation has used those resources for youth from early childhood through eighth grade. It is also

utilized in the summer school program. Through the use of these existing curriculums, the Choctaw Nation has the opportunity to reach Indigenous school age youth.

Through the use of existing resources, such as federal grant opportunities and the Agriculture in the Classroom curriculum, the Choctaw Nation is able to reach their youth through agricultural education programs. These resources benefit the Choctaw Nation's youth, since established programs are accessible by the Native nation. Ultimately, resources accessed by the Choctaw Nation help create curricular and educational opportunities that further the development of Indigenous agriculturalists.

College of the Muscogee Nation

Like the four Oklahoma Native nations, the College of the Muscogee Nation also has resources that support the development of Indigenous agriculturalists. The College of the Muscogee Nation works to engage the community in implementing initiatives of the college. This is apparent through the community outreach statement on the Muscogee Nation's website:

[The Student Success Center] has identified 71 public schools within the Muscogee (Creek) Nation boundaries and will work with school officials to identify Native American student populations and to plan outreach visits. The purpose of the school visits will be to encourage Native American elementary school and secondary school students to develop the interest and academic skills to pursue postsecondary education while emphasizing CMN's core values. (College of the Muscogee Nation, 2020f, para. 3)

In the case of the College of the Muscogee Nation, resources are utilized to promote the educational opportunities provided by the institution. The College of the Muscogee Nation has unique resources available to them that furthers the goals of the institution. In using these resources, there becomes the opportunity to engage students as early as elementary school to

instill the early interest in pursuing education in agriculture. Through these opportunities, the capacity is created to promote Indigenous agriculturalists through education.

Summary

The second theme, *Take advantage of the resources available to us*, is found in all four Oklahoma Native nations and the College of the Muscogee Nation. For each case, there are a variety of resources available to support the specific agriculture and agricultural education initiatives. Some of those resources include existing agricultural education programs provided by the 4-H and FFA organizations, land resources, resources provided by educational institutions, and the knowledgebase that exists within each case. Collectively, each case has identified and utilized resources to support the development of agriculture and agricultural education programs.

Theme 3: Partnerships are very important

Within each of the cases, the importance of partnerships emerged. The third theme is a direct quote from the Choctaw Nation and is evident across all cases. Each Native nation and the College of the Muscogee Nation views partnerships a little differently, but each acknowledges the importance in working with other organizations for the benefit of their respective nation.

Quapaw Nation

From the beginning, it is apparent that partnerships are important to the Quapaw Nation. The organizations the Quapaw Nation frequently engage are the University of Arkansas Food and Agriculture Initiative, the Intertribal Agriculture Council, Oklahoma Cooperative Extension Service, and other universities. These organizations bring an important component to move the Quapaw Nation forward. Roper explains the importance of these relationships:

We started working with native students that would come in for the food summit every year and so from that it really kick started me working with different groups on education and outreach. The Indigenous Food and Agriculture Initiative does food summits all throughout the year and they do on one in Fayetteville and they have, they work with the Intertribal Ag Council, which does food summits and food sovereignty summits and initiatives in different regions throughout the year. So through that, I got involved with the Intertribal Ag Council. (Personal communication, November 20, 2020)

These agriculture organizations bring opportunities for the Quapaw Nation, both for agriculture and agricultural education. In addition to collaborative opportunities with other organizations, these collaborations brought recognition to the Quapaw Nation for their work. Roper describes how partnerships created opportunities for recognition:

When we went to Vegas each year, we pretty much did all that work at cost, but we got national recognition by doing the work at the Intertribal Ag Council. They have 200 member tribes, roughly, from across the nation and we would be at the forefront of those and we were working with tribes all over the nation gathering food products and we took our chefs there to help create a meal made out of tribal products. We always had a booth there, we always got to present there, we got to work with the kids there, we were always at the forefront of those types of conferences. (Personal communication, November 20, 2020)

While conferences are a great way to interact with other organizations and nations throughout the United States, it is also an opportunity to showcase the work being performed. A positive moment is created when the Quapaw Nation's administration sees the program recognized at a national conference.

In addition to the resources universities bring to the Quapaw Nation, as mentioned in Theme 2, there exist collaborative opportunities within these partnerships. In terms of agricultural education, the Quapaw Nation did not limit interns to be solely Quapaw students. Roper describes this limitation of the availability of Quapaw students:

We had very few kids that were Quapaw students that were interested in agriculture. Ironically, about two years ago, I went to Dartmouth and did a food summit for some students that I met through the Indigenous Food and Agricultural Initiative summit. They were Blackfeet students that invited me and I ran across a Quapaw student while I was there... Throughout the years, I think I only had one Quapaw intern. (Personal communication, November 20, 2020)

While Quapaw students were sought, any student was welcome to learn from the Quapaw Nation's agriculture programs. If students are learning from the Quapaw Nation's agriculture programs, they are also learning about the greater Indigenous initiatives.

For the Quapaw Nation, partnerships are an essential component to the success of the agricultural education program. Partnerships within the nation are important to facilitate interns learning the diverse aspects of agriculture. Additionally, partnerships with universities and other organizations provide learning opportunities for Indigenous youth. Ultimately, through partnerships and resources those partnerships provide, the Quapaw Nation can better create an agricultural foundation to support their youth.

Muscogee (Creek) Nation

For the Muscogee (Creek) Nation, partnerships are vital to the success of the agricultural education program. The Intertribal Agriculture Council is a positive partnership to bring opportunities to engage their youth. While the Intertribal Agriculture Council plays an important

role, the Johnson O'Malley program has also been vital. The Johnson O'Malley (JOM) program is administered by the Department of the Interior's Bureau of Indian Affairs and supports eligible Indigenous students that attend public school systems (United States Department of the Interior, n.d.). For the Muscogee (Creek) Nation, JOM plays an important role in reaching the Nation's youth. Haltom further describes the importance of JOM in the Muscogee (Creek) Nation's program:

I have gotten involved in the JOM part of it the last couple years and that's really helped identify those kids. The JOM programs, through the high school, have really helped me identify the kids that were basically underserved. And whenever we get those kids who are underserved, and we have a lot of kids who don't have ag teachers or don't have a parent or an Extension leader and that's my role. (Personal communication, December 15, 2020)

As in the Muscogee (Creek) Nation, being strategic in partnering with organizations has a positive effect on how the program progresses. In this instance, the JOM helps the Muscogee (Creek) Nation reach youth that are underserved.

In addition to the JOM program within the public schools, the agriculture teachers are another resource available to the Muscogee (Creek) Nation. The agriculture teachers work closely alongside youth and through that, there is an established rapport with youth and their families. Haltom further explains the positive relationship with local agriculture teachers:

Bristow is a real good example for us. You know they had a school farm and we had a lot of kids there that are Creek kids that are really underserved and if it wasn't for them having a school farm, they probably really wouldn't be able to participate in the livestock showing. But because they have a school farm and they've got two excellent ag teachers,

other than making sure that we get them money reimbursed to them, there's not really a lot I have to do with those kids. (Personal communication, December 15, 2020)

The agriculture teachers provide support to students in the local school systems, while the Muscogee (Creek) Nation works hand-in-hand with the teachers. The jurisdiction of the Muscogee (Creek) Nation is eight counties, so it can be difficult to reach all students in that area. Through partnerships with the local agriculture teachers, the Muscogee (Creek) Nation can better reach their youth.

Ultimately, partnerships are an essential component in agricultural education programs for the Muscogee (Creek) Nation. Haltom utilizes the capacities of organizational partnerships to better facilitate the existing program and engage Indigenous youth. For the Muscogee (Creek) Nation, the Intertribal Agriculture Council, local agriculture teachers, and the JOM program play a significant role in meeting the overall program goals.

Osage Nation

For the Osage Nation, partnerships are essential in the development of agriculture and agricultural education initiatives. The Intertribal Agriculture Council is an important partnership for the Osage Nation. This relationship is especially important in working with the Osage Nation's agriculture programs, while also further developing coordination between government organizations and Native nations. Red Corn explains the positive relationship the Osage Nation has with the Intertribal Agriculture Council:

We all sat down and were very honest with each other, the reps from USDA and the nine people that are on this RTAC committee and we had a long talk about what this is...And then, I put forward and it was adopted, an idea that we can't improve what we can't measure. So, we started, we spent that meeting quantifying or agreeing that we needed to

figure out how to quantify that delivery of service. From NRCS to the different tribes...So at a very high level, actually it's about as high level as you can get, there's a concerted effort to improve only that dialogue, but improve the method by which we evaluate that delivery of service. (Personal communication, February 24, 2021)

In light of these efforts, the Osage Nation is working through partnerships to ensure outside organizations are meeting the needs of Indigenous communities. The Osage Nation has a seat at the table to be part of these conversations to better serve their tribal agriculture programs.

Another partnership that is important to the Osage Nation is cultural knowledge within the Osage community. For the Osage Nation, this is an essential component to agricultural education and facilitating the relationships with the cultural knowledgebase is imperative. Red Corn expressed the importance of the cultural component and the concern of this knowledge being within a few individuals by saying, "Other than the people, the five or six people that participated in that dried corn [training] out there, the demo that we did, there's no one else that knows how to do that" (Personal communication, February 24, 2021). With this knowledgebase currently only existing with a few individuals, the partnerships with the cultural community is extraordinarily important for the cultural agricultural education component to carry forward. As the cultural knowledgebase is held within the Osage community, it is important for agricultural programs implemented by the Osage Nation to actively engage these knowledges to create meaningful educational opportunities to ensure this knowledge continues to be taught.

In regards to partnerships, the Osage Nation value people and organizations that help the agriculture and agricultural education programs. While it is important for the Osage Nation to have a seat at the table for higher level programmatic conversations, it is also valuable to have positive partnerships in place locally to meet the goals of the Native nation.

Choctaw Nation

Partnerships are an important component for the success of the Choctaw Nation's agricultural education programs. To begin, the livestock show is a successful agricultural education program, but it requires a lot of support. The livestock shows are held the same weekend in two locations. While there are challenges associated with two livestock shows occurring at the same time, partnerships with other organizations make it a success. House describes this by saying, "Putting on two livestock shows that's going on simultaneously that's two hours away from each other. I can only humanly possibly be at one. If it wasn't for my ag teaching buddies and my Extension buddies, you know what I mean. I can't get it done" (Personal communication, May 12, 2021). The partnerships built with the local agriculture teachers and Oklahoma Cooperative Extension Service brings people to the table to best facilitate programs that are important to the Choctaw Nation youth, such as the livestock show.

In addition to assisting with events, partnerships support agriculture initiatives for the benefit of Choctaw Nation constituents. The Choctaw Nation coordinates with organizations, such as the Oklahoma Cooperative Extension Service, United States Department of Agriculture, and Natural Resource Conservation Service. Some of the educational topics developed through these partnerships include soil health, feral hogs, beekeeping, hoop house construction, sprayer calibrations, and gardening. Relationships with other federal programs further Choctaw Nation agriculture by ensuring constituents receive the help needed from the appropriate organization. House provides an example by stating, "I'm usually like, 'You need to get ahold of your local USDA office. That doesn't, at the moment, have anything to do with the tribe.' So, my point in saying all that is that you know, partnerships are very important" (Personal communication, May 12, 2021). The Choctaw Nation, in cooperation with other organizations, want to see Choctaw

Nation constituents connect to the program that best meets the needs. In order to do that, partnerships are established to facilitate the Choctaw Nation's needs.

For the Choctaw Nation, partnerships are essential in implementing agriculture and agricultural education initiatives. Through collaboration with other organizations, the Choctaw Nation effectively facilitates programs that benefit their Indigenous peoples. The agricultural education efforts include programs for youth, as well as outreach programs that benefit the greater Indigenous community. Collectively, the Choctaw Nation's programs are designed to support a larger agricultural education aspect for their people.

College of the Muscogee Nation

In respect to the College of the Muscogee Nation, partnerships are an essential component. Partnerships with the local education agencies are important, since the College of the Muscogee Nation utilizes those avenues to reach future Indigenous students. Another important partnership is the Indigenous community. While classes at the College of the Muscogee Nation are primarily held at the institution, there exists some flexibility. The College of the Muscogee Nation's website states, "The majority of classes are offered in Okmulgee; however, depending on the demand from tribal communities, classes may be offered at other sites" (College of the Muscogee Nation, 2020e, para. 5). This statement exhibits the importance of partnerships with the tribal communities. In addition to the institution seeking to support the development of future Indigenous agriculturalists, it also seeks to meet the needs of the community by bringing classes to Indigenous peoples. These efforts occur through the facilitation of positive partnerships with Indigenous communities.

Summary

The third theme, *Partnerships are very important*, spans across all cases. Some of the important partnerships for the Oklahoma based Native nations and the College of the Muscogee Nation include the Oklahoma Cooperative Extension Service, United States Department of Agriculture, Natural Resources Conservation Service, Intertribal Agriculture Council, Johnson O'Malley, and local education systems. Federal agencies are important in providing programs and oftentimes, grant funding. The local organizations and county offices support programs at the local level. It is apparent the partnerships with the local education agencies remain important for assistance in implementing programs and reaching Indigenous students.

Theme 4: We're utilizing resources we've got now but not forgetting our heritage

The fourth theme is a direct quote from the Choctaw Nation and transcends across each case. Each of the four Native nations engaged with agriculture for centuries before European contact. The established Indigenous agricultural systems were altered with the movement of Indigenous communities from their historic locations to their current place. Despite each unique history, the four Native nations and the College of the Muscogee Nation seek to create new programs that has a cultural foundation.

Quapaw Nation

The Quapaw Nation work towards building their food systems and seek to include the cultural component. Some of the ways the Quapaw Nation integrate culture is by “putting the vegetables and things back into the daycares, putting plants in the daycares, as most tribes, you know, they were hunter gatherers and they were all about growing their own food, processing their own food” (C. Roper, personal communication, March 2, 2021). The Quapaw Nation agriculture program seeks to bring food into the childcare and other tribal programs, while also

teaching children agriculture initiatives. Roper describes the efforts one Quapaw Nation employee made to work with children:

She worked with the local schools even and especially in May, she made up what they call May pots and she would take a seedling, 400 or however many kids there were, and she gave each kid a seedling to take home and nurture and grow or plant or whatever they wanted to do with it. (Personal communication March 2, 2021)

These opportunities develop the interest in agriculture, while centering it back to the knowledge that Quapaw people were historically hunter-gatherers and supplied their own food. Through the simple act of providing children seedlings, it supports the agriculture foundation to Indigenous youth.

In this same vein, the Quapaw Nation's meat processing facility provides meat to funeral meals for their people. The cooks for the meals engage with the meat facility to utilize meat for the funerals. The efforts to support cultural meals are further explained by Roper:

They would do meat for their funerals. Typically they had a cook...But there's only a small group of actual cooks that led the cooking efforts at the funerals. And they typically had, sometimes they wanted pork, a lot of time they wanted stew meat, it was a number of things. (Personal communication, March 2, 2021)

The Quapaw Nation created processes to supply funerals with meat from the meat processing facility. This supports cultural events that are respected and honored in the tribal community. Additionally, the meat facility works collaboratively with the cooks to supply specific types and cuts of meat to facilitate the meal. For the success of these funeral meals, it is important to have someone in the appropriate capacity to respectfully engage the cultural community in these conversations.

For the Quapaw Nation, the cultural component is important to the nation. Culturally significant produce is important for tribal consumers and also for cultural functions, which are important events for the nation. Through incorporating culture into the program, the Quapaw Nation builds the needs of the people into the program development. Culturally, there are tribally significant foods that are important to the Quapaw people. In creating opportunities for culturally significant food items to be available to the Quapaw people, their culture continues through food sovereignty.

Muscogee (Creek) Nation

The Muscogee (Creek) Nation expressed one of their challenges is related to incorporating culture into the existing agricultural education program. The Nation seeks to engage culture into agricultural education initiatives, but that has been challenging. One way to incorporate culture is through shooting sports. Even though it may begin with a focus on shotgun competitions, there is room to develop the program to include shooting with bows. Haltom explains the desire to incorporate culture into the existing curriculum, but also the challenge in those efforts:

I've talked to several of my elder people and older Creek people and people that are more involved with, say like the traditional bow hunting archers, and I've talked to them and of course we have an archery program. But, you know in those kind of competitions they all shoot a compound bow...I really thought archery was going to be something that we could maybe get a little more of a foothold there as far as maybe native based. (Personal communication, January 7, 2021)

Since bows, which were historically used for hunting, are a traditional Indigenous practice for the Muscogee (Creek) Nation people, this is a natural development in the shooting sports

program to further integrate a cultural component. As the Muscogee Nation seeks to better integrate cultural knowledge into the existing programs, there are some challenges associated with those efforts. One of those challenges is navigating the cultural Indigenous community and understanding the components that need to be integrated into the curriculum.

Despite the challenges to better integrate a meaningful cultural component to the agricultural education program, it is apparent that the Muscogee (Creek) Nation seek to further develop the cultural aspect of their programming and curricula. One way the Muscogee (Creek) Nation furthers the engagement with culture and agriculture is utilizing resources available from organizations, such as the Intertribal Agriculture Council. This partnership provides important opportunities for Indigenous youth, such as agricultural and Indigenous knowledges. Additionally, essay contests provided through organizations partnerships offer opportunities to engage the cultural aspect by offering topics such as becoming better citizens of the Muscogee (Creek) Nation (B. Haltom, personal communication, January 7, 2021). While challenges may exist on incorporating a cultural component, there are active efforts being made to build upon existing resources to further engage Indigenous knowledges.

Osage Nation

The Osage Nation is focused on maintaining the cultural aspect of agriculture and agricultural education programs. The recent development with the meat processing facility and farm were related to a breakdown in food systems due to the COVID-19 pandemic. Inherently, the focus related to that development is building back those food systems for the benefit of the Osage people. Additionally, there is a focus on the cultural aspect of food. Red Corn describes the efforts of the Osage Nation in culturally significant food species:

If I still have it right in my head, they have four different strains of Osage corn, which were used for different purposes. Some were used for sweet corn, some were used as flour corns. There's a Fairfax brown, there's a Big Eagle spotted, those seeds are still up there. And then available for us to propagate. We just happen to have a lot of this one particular strain here...If all you're doing is raising four different kinds of Osage corn and some of it you're grinding into flour and some of it you're turning in to hominy and some of it you're going out and harvesting in the summer making dried corn with it old way, you know in one sentence you could pretty much cover all of what we have left to preserve. (Personal communication, February 24, 2021)

The cultural aspect of the agriculture program is important for the Osage Nation. For the Osage Nation, resources exist and people are in place to further develop the agricultural education program.

As the Osage Nation develops the agricultural education program, the cultural component is essential. The Osage Nation maintains cultural education in other areas. For example, Red Corn details existing cultural education by saying, "We've done a really good job, and I know we can do it because I think we've done a really excellent job of maintaining our feast culture. But that's because it's been handed down mother to daughter for a really long time. That's just how we go about things" (Personal communication, February 24, 2021). In light of successfully maintaining cultural traditions, the foundation exists to develop the cultural component to agriculture and agricultural education. The Osage Nation has seen cultural knowledge pass down through generations in regards to many aspects of the cultural traditions. The Osage Nation, with the resources found in the existing agriculture resources, seeks to further develop the cultural component of agricultural education.

Choctaw Nation

The Choctaw Nation is proud to have historically engaged with agriculture. Through programs like Agriculture in the Classroom, the Choctaw Nation takes steps to ensure the historical component of agriculture is not lost. The Choctaw Nation takes time to incorporate culture into programs for Indigenous youth. However, they are able to build upon existing programs by using new technology. House describes this by saying, “Let me give you this example. That big ranch that we have up there with so many acres, I know they are doing a drone program. They are doing drone research and were using drones to drop out corn to feeders” (Personal communication, May 12, 2021). The cultural component of agriculture is important, but it is also important for the Choctaw Nation to build upon existing resources and utilize technology for the benefit of their people and agriculture efforts.

The Choctaw Nation has successfully created agriculture and agricultural education programs that include culture. Through the integration of culture, such as the use of Choctaw word for sheep into curriculum, culture is an active component for Indigenous programs. The Choctaw Nation’s ability to integrate technology to further agriculture programs also creates a space for culture and education within those programs.

College of the Muscogee Nation

The College of the Muscogee Nation exemplifies the ability to integrate culture into educational systems. The Natural Resources Instructor relayed that culture is incorporated into every class (T. Eubank, personal communication, June 30, 2020). In terms of agriculture classes, these cultural components include knowledge of crops and crop pairings historically utilized by Indigenous peoples (T. Eubank, personal communication, June 30, 2020). The integration of cultural knowledge is also evident through the Plan of Study for the Associate of Science in

Natural Resources degree program. Classes provided by the College of the Muscogee Nation include Growing Heirloom Crops, Preservation of Cultural/Historical Sites, and Native American Agribusiness (College of the Muscogee Nation, 2019). The curriculum in these courses, along with others, are “established by tribal members that stress priorities for a tribal and global society. In addition, our curriculum reflects sensitivity to tribal values, culture, traditions, language, and lifestyles” (College of the Muscogee Nation, 2020e, para. 10). For the College of the Muscogee Nation, culture and heritage is at the center of educating students. Through the cooperation of the Indigenous community, the educational institution is positively creating future Indigenous agriculturalists.

Summary

The fourth theme, *We're utilizing resources we've got now but not forgetting our heritage*, transcends all cases. For each case, the cultural component of Indigenous communities are central to the agriculture and agricultural education programs. While all four Native nations agree culture is important to their agricultural education programs, it also appears there is a common challenge on how to effectively integrate that component. Despite these challenges, the cases have all navigated a path forward to include culture. Some of these cultural foundations include developing curriculum that has a cultural foundation, developing college courses that integrate culture, and making decisions necessary to create agriculture programs based on culturally significant species. Through the development of agriculture programs with a foundation on each Native nation's culture and the subsequent educational programs built from those programs, each case has shown to have a foundation in Indigenous culture.

Theme 5: We're not starting with empty hands

The fifth theme is a direct quote from the Osage Nation and is exhibited across each case. When working with each of the four Oklahoma Native nations, it is apparent each one of them are excited about the programs being implemented. Each of the cases have seen Indigenous agricultural education programs from the beginning and have watched those programs build capacity throughout the years. While each case has experienced challenges along the way, the foundation has been established to build and create capacity for the benefit of their Indigenous peoples.

Quapaw Nation

The Quapaw Nation has strategically developed a robust agriculture and agricultural education program, since the engagement with agriculture in 2010. The diversity of existing programs creates many opportunities to teach students through the tribal programs. With the right person in the position, the Quapaw Nation's program has grown in a positive way. Roper explains the importance of maintaining positive relationships and transparency within the Quapaw Nation's programs:

The Quapaws were small and I reported to the Chairman...I really had a lot of leeway, I was so fortunate. I would give a report to the business committee once a quarter, but I talked to the Chairman and the Secretary Treasurer at least weekly, a lot of times I talked to the Chairman daily, but they knew what I was doing all the time. I did monthly reports and if I could get a grant for something, I typically didn't even use the grant department because they were all tied up on governmental type grants that I ended up and as I grew my programs, we would write our own grants and so we were never a burden on the tribe. But if we could get grants for something and fund programs, typically they were all for it especially if I was offering it to tribal members and students. I always copied them on

the distributions and email blasts, they knew we were trying to reach out to tribal kids.

(Personal communication, November 20, 2020)

Through positive communication and transparency, the Quapaw Nation successfully implements agriculture and agricultural education programs the Nation is proud to administer. The Quapaw Nation sees positive programming at the local level, while receiving national recognition for the Nation's work. Through the diverse programming and efforts to teach students through these programs, the Quapaw Nation spends time and resources to ensure the positive movement of Indigenous agriculture for future generations.

For the Quapaw Nation, the programs are successful because of the foundation that was established. These foundations include the establishment of a 25,000-square foot meat processing facility, seven greenhouses, an 80-hive apiary, cattle and bison herds, land for farming, and internship opportunities that go along with these programs. In the case of the Quapaw Nation, measures were taken to lay a substantial foundation for agriculture and agricultural education. In light of these foundations, there exist the opportunity for positive forward movement with these initiatives.

Muscogee (Creek) Nation

One of the biggest accomplishments for the Muscogee (Creek) Nation is the livestock show. In 2021, the show was cancelled due to the COVID-19 pandemic, but there is hope to be scheduled for 2022. The livestock show's positive impact is explained by Haltom by stating, "The biggest success I've had since I've been in this job is putting on the livestock show. I mean, that has just done more for us than I can put into words. Really even just on a public relations standpoint" (Personal communication, November 20, 2020). With the show cancelled in 2021, the Muscogee (Creek) Nation received many phone calls from families who had been

looking forward to the show. Even though it was a difficult decision to cancel the show for the 2021 year, the decision was not made lightly and was ultimately made for the safety of the families. However, the show scheduled for the upcoming year is exciting for all involved.

The Muscogee (Creek) Nation's Agriculture Youth Program has grown over the years. The program is continues to reach more youth and engage them in additional programs. Haltom further explains the growth of the Muscogee (Creek) Nation's program:

But, since I've taken over, we have had so many good things happen. We started the livestock show, we started the speech contest, we have received numerous awards, I've been presented, we did a presentation at the [Intertribal Agriculture Council] in December and we have, the administration, has really so proud of the ag program in general that we have had almost zero problems...They've just been great. (Personal communication, December 15, 2020)

Through the work of Haltom, along with the support of the administration, the program has developed into being a positive opportunity for Muscogee (Creek) Nation youth. It is evident that while the Nation itself benefits from the agricultural education programs, the constituents and community also benefit from these programs. The entire community becomes engaged as the public schools, Muscogee (Creek) Nation staff, families, and youth come together to participate in agricultural education programs.

In the case of the Muscogee (Creek) Nation, there are tremendous efforts made in agriculture and agricultural education initiatives. In terms of agriculture, the Muscogee (Creek) Nation established a cattle herd, land for farming, and a 25,000-square foot meat processing facility. In addition to these initiatives, the Muscogee (Creek) Nation has a robust agricultural

education program that serve Indigenous youth. Through the foundations established by these programs, the Nation is positioned to meet the needs of their people.

Osage Nation

The Osage Nation began engaging agriculture as a tribal organization in 2014, with the initial identification of land for farming. The acquisition of land in 2016 for bison and cattle expanded Osage Nation agriculture to include livestock. Since 2016, the Osage Nation has developed these agriculture programs significantly. The agriculture development has substantially increased the capacity of the Osage Nation. Red Corn describes the growth of the programs:

Considering how far we have to go and considering that we do have substantive position to work from, we're not starting with empty hands here. But, we've got the time, we have the expertise on the cultural side still with us, we now have the expertise on the science side with us and we have the facility and the resources to make it go. (Personal communication, February 24, 2021)

The road for the Osage Nation's agriculture program has been winding since it began in 2014. However, it is positioned in a much better situation than when it began. Red Corn describes further by saying, "I've never been this hopeful. I've always been optimistic. There's a few times that I've been devastated, but I don't think I've ever had as much real optimism or substantiated optimism as I have right now. I'm truly excited" (Personal communication, February 24, 2021). Through resources and partnerships, the Osage Nation has the ability to further develop agricultural education programs that benefit the Osage people.

For the Osage Nation, a robust agriculture program has been created. Through the agriculture program, the Osage Nation has developed a 19,000-square foot meat processing

facility, a 40,000-square foot greenhouse, a 44,000-square foot program building that includes a large commercial aquaponics system and a food processing area, a cattle and bison herd, and outdoor farming. Through these agriculture programs, the Osage Nation works to include an educational component to support the development of Indigenous agriculturalists. In light of these efforts, the Osage Nation is positioned to continue agriculture and agricultural education programs for the benefit of their people.

Choctaw Nation

The Choctaw Nation has created a robust agricultural education program to benefit their youth. Through these programs, youth are taught many diverse areas of agriculture. Reaching Choctaw youth is the foundation of the programs. The positive impact of the program on Choctaw Nation is described by House:

Kids still come up to me and see me somewhere and say, “Hey, that’s the guy that read that ag book to us and we planted dirt babies and hair grew out. He said it was grass” and all those little things. Some of those kids, even thought we were in rural Oklahoma, they may just live in an apartment complex or something and don’t get that hands on.

(Personal communication, May 12, 2021)

The agricultural education programs are intended to reach youth who are engaged with agriculture and also those that are not. Through these programs, youth who may not have access to agriculture are also sought. This is evident through programs, such as Agriculture in the Classroom and Backyard Initiatives. These programs provide an agriculture foundation for the Choctaw people who may not already have had previous engagement with agriculture.

The Choctaw Nation have received positive responses to the implementation of their programs. Through emails, notes, and verbal sentiments received by the Choctaw Nation

program staff, it is apparent the programs are reaching Indigenous peoples. Knowing the impact the Choctaw Nation's agricultural education program on their youth is what drives the programs. Through all of the Choctaw Nation's programs including the livestock show, Agriculture in the Classroom, and educational opportunities, they are moving forward with educating their Choctaw Nation people.

For the Choctaw Nation, they created substantial agriculture and agricultural education programs. The agriculture programs include seven cattle ranches totaling 65,000 acres, 1,500 acres of pecan trees, and a five-acre demonstration farm. Through these agriculture programs, the Choctaw Nation established the groundwork to support positive agricultural education programming. The Choctaw Nation work to establish and continue creating opportunities that support their Indigenous peoples.

College of the Muscogee Nation

The College of the Muscogee Nation was established in 2004. This institution paved the way for the development of Indigenous natural resources and agriculture capacity. The College of the Muscogee Nation created programs for the benefit of Indigenous students, while providing opportunities for future curricular development to meet the needs of Indigenous students. This is evidenced by the institution's statement of:

We have set our own educational priorities to meet tribal, Creek chartered community, and individual tribal citizen preferences and needs. For example, the Mvskoke language is emphasized in our coursework, along with such courses as Tribal Government and Indian Land Tenures. The possibilities are limitless and potential is great. (College of the Muscogee Nation, 2020e, para. 12).

It is apparent there are targeted and specific efforts to meet the needs of Indigenous communities. As courses are developed within the College of the Muscogee Nation, the needs of Indigenous peoples and communities are taken into consideration. Through this, the institution has created a firm foundation in developing future Indigenous agriculturalists through their institutional capacity.

Summary

The fifth theme, *We're not starting with empty hands*, is focused on the positive work that has been accomplished within each case. Each Native nation created a firm foundation in agriculture. These foundations include the identification of land, the establishment of cattle and bison herds, the construction of greenhouses, and the establishment of meat processing facilities, to name a few. In addition to the four Native nations, the College of the Muscogee Nation created a firm foundation in Indigenous specific curriculum. The foundations that exist within these four nations and the College of the Muscogee Nation situate them to create successful Indigenous peoples in both agriculture and agricultural education initiatives.

Theme 6: Train the leaders of tomorrow

The sixth theme is focused on the ability to train and develop Indigenous agriculture leaders. This theme is a direct quote from the Muscogee (Creek) Nation and spans across all cases. It appears each case has sometimes been a winding road as challenges associated with creating and developing programs are navigated. Today, these programs are highly successful and are situated to positively create Indigenous agriculture leaders. The work performed to create these agriculture leaders are explored within each case.

Quapaw Nation

The Quapaw Nation has created diverse agriculture programs. Through these programs, the Quapaw Nation uses their programs for education that promote Indigenous agriculture. The Quapaw Nation support the integration of students interested in learning from their diverse programs. For example, students came from Iowa to learn from the Quapaw Nation. These students, though they were not Indigenous, “really wanted to learn about tribes and what they do and how they do it” (C. Roper, personal communication, November 20, 2020). While the Quapaw Nation seeks to support the development of Indigenous students, they support all students who want to learn from their agriculture programs.

In addition to students learning from the Quapaw Nation’s agriculture facilities, there are efforts to build the individual capacity with students. Roper explains this by stating, “I spent a lot of time with some of those students and some of them that were interested and wanted to learn, that obviously fueled my passion for that and I would spend as much as I needed with those students to find their direction” (Personal communication, November 20, 2020). Through the relationships with students, the Quapaw Nation works on an individual and personal level to support their educational goals. Whether it be an Indigenous student or a non-Indigenous student, the Quapaw Nation seeks to create agriculture leaders that understand and can further Indigenous agriculture initiatives.

Lastly, for the Quapaw Nation, students gain an overarching understanding of Indigenous agriculture. Through the Quapaw Nation’s programs, knowledge is gained in a variety of areas including growing produce, processing meat, land management for cattle and bison, the need for pollinators, and the distribution of food to the Quapaw people. Individually, these programs target one aspect of Indigenous agriculture. Collectively, students gain a broad understanding of food sovereignty and sustainability that is accomplished by a Native nation. The Quapaw Nation

has the capacity to create Indigenous agriculturalists to carry out food sovereignty programs for Indigenous peoples.

Muscogee (Creek) Nation

The Muscogee (Creek) Nation has developed a program to create successful Indigenous agricultural leaders. In addition to the Muscogee (Creek) Nation program's livestock initiatives, it also supports leadership initiatives. Since the Agriculture Youth Program is tribally funded, it has the capacity to support initiatives important to the Nation. Leadership opportunities for Muscogee (Creek) Nation youth is an important component supported by the program. Haltom explains the support of leadership activities by saying:

You take a kid, for instance, in FFA and they don't show anything, it's just a leadership activity. I like to make sure we buy them an FFA or 4-H jacket. We do that every other year because, I go to a lot of FFA banquets and our Creek kids are always dressed in official dress and look nice and that's because the tribe helped them" (Personal communication, December 15, 2020).

In this vein, the Muscogee (Creek) Nation supports agricultural leadership by helping youth be actively involved. Additionally, the Nation wants youth to have the opportunity to proudly display this involvement by wearing the 4-H or FFA organization's official dress. In doing this, the Muscogee (Creek) Nation ensures every student has the opportunity to be involved and further their agriculture goals.

For the Muscogee (Creek) Nation, there is great importance pressed on providing opportunities for youth to engage agriculture through the Agriculture Youth Program. These students have the flexibility to engage livestock and leadership initiatives. The program staff continues to best meet the needs of their youth, which is evidenced by the expansion of the

program to include youth involved in the FFA organization. Through the Muscogee (Creek) Nation's program and continuing efforts to engage youth, Indigenous agriculturalists are being developed to further agriculture initiatives.

Osage Nation

The Osage Nation works to facilitate agricultural education within the Nation. From the beginning, education has been integrated into the agriculture programs. For the Osage Nation, this education starts with the Wah-Zha-Zhe Early Learning Academy (WELA) and Daposka Ahnkodapi, which houses the nation's education programs. Through the education facilities, raised bed gardens were constructed to teach Osage children the principles of food production. This early educational opportunity lays the foundation for agricultural concepts at an early age.

In addition to the Osage Nation's work with early education, there has been a dramatic increase in the agriculture infrastructure. This substantial development was in part due to the receipt of CARES federal funds. Since that time, there are now more opportunities for education. George further explains these opportunities:

Obviously prior to these COVID funds and our expansion and everything, it was just funding and just infrastructure out there for them to really see how things work and how they could work. Now, we have a much better kind of platform for them to see and be able to do and that kind of stuff and see how things can actually work. And then it all comes back to participation, how we can get this across to [youth] and how we can capture their imagination, their thoughts and try to introduce it to them in a way that will interest them. (Personal communication, December 11, 2020)

For the Osage Nation, the CARES federal funds provided the infrastructure necessary to bring the Nation forward in terms of agriculture programs. In addition to this infrastructure, there now

exists a greater opportunity to educate Osage people in these initiatives. The work currently implemented has the capacity to educate Osage people in the areas of food sovereignty and sustainability. This capacity ultimately creates the opportunity to train future agricultural leaders within the Osage Nation.

Choctaw Nation

The Choctaw Nation created an agricultural education program that facilitates the education of Indigenous peoples. In addition to agriculture, agricultural education programs were created to further support the growth of Indigenous peoples. For the Choctaw Nation, it has been important to properly plan for these initiatives. House explains this planning by stating, “Ideas are great, the process of those ideas and making those ideas become reality, you gotta have enough forward thinking to think about all the backside of it” (Personal communication, May 12, 2021). In this instance, House was referring to agriculture initiatives, but this process transcends across the agricultural education component as well. For the Choctaw Nation, the agriculture and agricultural education programs have specific goals to benefit their people.

Within the case of the Choctaw Nation, it is important to create and implement agricultural education programs that lay the groundwork for future Indigenous agriculturalists. Programs that focus on the Choctaw people including Agriculture in the Classroom program for elementary students, livestock show program for youth 3rd grade through 12th grade, Backyard Initiatives for homeowners, and a five-acre demonstration farm. These initiatives establish the agricultural education foundation to support the development of Indigenous agriculturalists. An example of this foundation is the Choctaw Nation’s full-size jersey cow, which demonstrates milking a cow. In regards to the milking demonstration, House states, “I got an email from a mom that sent me awhile back about those programs and how her daughter got to teach kids how

to milk a cow and utilize those older kids to help us out and do different functions” (Personal communication, May 12, 2021). Agriculture initiatives have positively laid the foundation for youth and in this case, are influential to program participants. For the Choctaw Nation, training agriculture leaders are important in planning and implementing agricultural education programs.

College of the Muscogee Nation

The College of the Muscogee Nation is inherently positioned to create future Indigenous agriculturalists. Through the Associate of Science degree in Natural Resources, students have the opportunity to engage courses that support Indigenous agriculture and agribusiness. This is apparent as the program is designed for “students who are interested in the field of conservation and sustainable agriculture. Students develop knowledge of the elements of the natural environment and aspects of conducting agribusiness” (College of the Muscogee Nation, 2020d, para. 6). In the case of the College of the Muscogee Nation, the institution is established with a firm foundation in creating and training future Indigenous agriculturalists.

Summary

The final theme, *Train the leaders of tomorrow*, is the final element that brings all cases together. Collectively, each of the cases seek to create agricultural education capacity to train future Indigenous agricultural leaders. These leaders, utilizing the programs within each case, have the ability to create a strong background in food sovereignty, sustainability, and Indigenous agriculture. Training the leaders of tomorrow is a theme that can be seen in each of the four Oklahoma Native nations and the College of the Muscogee Nation.

In conclusion, the six themes detail the similarities across four Oklahoma Native nations and the College of the Muscogee Nation that emerged during the process of data analysis. All four of the Oklahoma sovereign nations experience many similar situations, both of which are

positive and challenging. Despite the unique histories of each Native nation and the different paths that brought them to their current programs, the challenges and successes are similar across nations. The components of success, identified by the six themes, are resources, capacity, partnerships, culture, and the willingness to work towards establishing agriculture and agricultural education programs for the benefit of Indigenous peoples. All of these resources come together to create Indigenous agriculture leaders that further the initiatives of Native nations.

Researcher Positionality

Upon conclusion of the data collection and development of the themes, it is worth noting the researcher's specific positionality. I am situated in a professional capacity that is similar to each of the interviewees within the four Native nations. In the capacity of the data within this study, it is apparent that this study has already created a foundation for relationships essential for building capacity within sovereign nations. Since the initial engagement of the four Native nations, the paths have already crossed with each nation in varying capacities. These linkages appear to be something that did not inherently exist before and sets a foundation for Indigenous partnerships. Coming from a perspective of data and themes, this study illustrates that each Native nation has specific and unique goals for their Indigenous peoples. While some of those goals may be similar to other nations, some are unique. Ultimately, I have inherently built meaningful relationships with each Native nation and the College of the Muscogee Nation which is important when looking towards the future.

Summary

In summary, the four Oklahoma Native nations have created agriculture and agricultural education programs that benefit Indigenous peoples. Based on data collected in each case, these

tribal programs exhibit many similarities as well as somewhat different ways of engaging each program. Each case displays positive engagements with agricultural education programs, as well as challenges that emerged. While each Native nation experienced some form of challenge, each tribal also talked positively about how those challenges were managed and now have better programs because of those challenges. In the words of the Choctaw Nation, “Nothing worth having is not got to have some sort of challenge to it” (J. House, personal communication, May 12, 2021). Despite the challenges that arose, the programs were created to benefit future agriculturalists within the four Oklahoma based Native nations.

After the data analysis was complete, words emerged as most frequently used. Some of those emerging words were food, nation, people, program, youth, and agriculture. Upon further review of the data, it is apparent that while the agricultural aspect of the programs are important, the most important focus is developing Indigenous peoples. Through the development of youth and people, each Native nation is building a foundation for the future. Ultimately, each nation is pointedly focused on developing future Indigenous agriculturalists to further the existing work that presently exists.

In conclusion, the data analysis collected from the study support six themes that span across all four Native nations and the College of the Muscogee Nation. These themes focus on people building capacity, utilization of existing resources, importance of partnerships, incorporation of culture, the systems that are established within each case, and the need to train the Indigenous leaders of tomorrow. Through these themes, each case creates a substantial foundation in agriculture and agricultural education. For all the cases, sovereignty is at the core. Native nations have the ability to make choices necessary to meet their goals. While each Native

nation views agricultural education a little differently, they each have the sovereign ability to create programs to meet the needs of their Indigenous peoples.

CHAPTER 5: DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

Four Oklahoma Native nations and the College of the Muscogee Nation were explored to understand the development of Indigenous agriculture and agricultural education programs. The previous chapter details the data collection and data analysis for each of the five cases.

Additionally, six themes were identified and detailed within each case. This chapter takes the findings from the study and compares those findings to literature, then situates the study within the theoretical frameworks. This chapter also includes the significance of the study and recommendations for future research.

Comparison on Findings to Literature

To begin, findings within this study are compared to literature. The comparisons include Indigenous agriculture, agricultural education, Indigenous education, and tribal sovereignty. The first comparison focuses on Indigenous agriculture.

Indigenous Agriculture

The first comparison of findings with literature begins by realizing that the four Oklahoma Native nations have a long history related to land and agriculture. This history includes staggering planting times to increase production for sustainability and creating complexing systems of incorporating three crops – squash, beans, and corn, known as The Three Sisters (Fritz, 2019; Hurt, 1987). While every tribal history with agriculture is unique, each of the four Oklahoma Native nations experienced the movement to a new place. The Osage tribe, however, was situated differently because of the purchase of their reservation from the Cherokees in 1872 (Burns, 2004; Rollings, 2004). Even though the Osage tribe purchased their reservation, they remained in the same situation as the other three nations in terms of becoming located in a new place. The challenges of becoming situated in a new place meant that

oftentimes Indigenous peoples had to learn new agricultural techniques for the land they now occupied (Hurt, 1987). These new techniques were related to the engagement of different agricultural resources than what Native nations were accustomed to in their original homeland.

In addition to efforts to learn new agriculture techniques within the newly occupied place for each Native nation, challenges created through the allotment process became significant. The federal government viewed allotment as a way to treat people equally and give Indigenous peoples an opportunity to create an agricultural life (Burns, 2004; Hurt, 1987; Lewis, 1994). The reality was that Indigenous peoples were not accustomed to the concept of owning land, specifically that Indigenous peoples maintained approaches to agriculture and land management and were forced to abandon those approaches. Ultimately, allotment created situations in which Native nations saw much of their land sold or leased to non-native individuals (Hurt, 1987). By the early 1900s, mostly due to the allotment process, Indigenous peoples had lost two-thirds of their land. (Echohawk, 2013). In addition to land, agricultural resources for Indigenous communities also diminished. Despite these challenging periods of time in which Indigenous land was sold or leased to non-native individuals, nations began seeing the need to manage their land for the benefit of their people.

As Native nations began re-engaging agriculture in recent years, an essential process was to assert control and management of each nation's land. Beginning around the 1970s for the Muscogee (Creek) Nation and the Choctaw Nation, these Oklahoma Native nations began taking initiatives to engage with agriculture by using available land resources. Another more recent example of utilizing land resources is the Osage Nation's purchase of 43,000 acres in 2016 (Overall, 2016), which was part of the original reservation purchased from the Cherokees in 1872 (Burns, 2004; Rollings, 2004). Through the efforts of the four Oklahoma Native nations to

assert management control of their land resources or purchase new land, in alignment with Theme 2: *Take advantage of the resources available to us*, tremendous efforts have been made to create agriculture systems to benefit their Indigenous peoples.

Another important component for each Native nation developing agriculture programs is Indigenous specific agricultural practices. There are agriculture initiatives, which were historically important in the nation's original homelands, that continue to be important today. Red Corn explains one example of a tribal agricultural practice that was historically and is still presently important by saying, "Osage red corn loves Missouri" (Personal communication, February 24, 2021). As in this example, some agricultural practices were more successful in a Native nation's historic areas, but those practices continue to be important. Each nation identified cultural or historical agriculture practices, have taken those identified agriculture practices, and created agriculture systems within their new homelands.

These efforts are especially seen as Native nations incorporate culturally significant species into their agriculture food programs. One example of utilizing a culturally significant species is the integration of bison into Native nation's food programs. In addition to bison, other nation agriculture initiatives include cattle, pecans, outdoor farming, hay, aquaponics, greenhouses, and raised bed gardens. Each of these agriculture initiatives take into consideration the historical practices performed by each Native nation, the desire to continue those practices, and the pathway for those practices to continue forward. Theme 4: *We're utilizing resources we've got now but not forgetting our heritage*, illustrates the efforts to incorporate culture into agricultural practices within Native nations. As these foundational decisions are made, programs are built to include distribution of food to Indigenous peoples and the subsequent ability to educate using cultural foundations.

Throughout the study, it became apparent that additional data was available to support the focus of Indigenous agriculture and agricultural education. One piece of this data was information related to the agricultural engagement of thirty-nine (39) federally recognized Native nations in Oklahoma. This data was gathered from publicly available information for each of the thirty-nine Oklahoma Native nations. Table 1 was created to visualize the data comparing tribal programs.

Table 5.1

Oklahoma Federally Recognized Native Nations

Native Nation	Area/Jurisdiction	Member Size	Agriculture Program	Ag Education Program	Headquarters
Absentee Shawnee Tribe	33 acres	4,513	Yes	Not apparent	Shawnee
Alabama Quassarte Tribal Town	Eleven counties	369	Not apparent	Not apparent	Wetumka
Apache Tribe	Southwest Oklahoma	1,800	Not apparent	Not apparent	Anadarko
Caddo Nation	Not available	4,909 in 2010	Not apparent	Not apparent	Binger
Cherokee Nation	Fourteen counties	390,000	Yes	Yes	Tahlequah
Cheyenne & Arapaho Tribes	Nine counties	12,000	Yes	Not apparent	Concho
Chickasaw Nation	7,648 square miles	58,264	Not apparent	Yes	Kingston
Choctaw Nation	6,952,960 acres	200,000	Yes	Yes	Durant
Citizen Potawatomi Nation	Two counties	36,000	Yes	Not apparent	Shawnee
Comanche Nation	Southwest Oklahoma	15,191	Not apparent	Not apparent	Lawton
Delaware Nation	Southwest Oklahoma	1,422	Not apparent	Not apparent	Anadarko
Delaware Tribe of Indians	Not available	985	Not apparent	Not apparent	Bartlesville
Eastern Shawnee Tribe	Ottawa County	2,801	Yes	Yes	Wyandotte
Fort Sill Apache Tribe	Three counties	667 in 2011	Not apparent	Not apparent	Apache
Iowa Tribe	Four counties	800	Yes	Yes	Perkins
Kaw Nation	Kay County	3,323	Not apparent	Not apparent	Kaw City
Kialegee Tribal Town	Seven counties	439	Not apparent	Not apparent	Wetumka
Kickapoo Tribe	Three counties	2,713	Not apparent	Not apparent	McLoud
Kiowa Tribe	Seven counties	11,500	Not apparent	Not apparent	Anadarko
Miami Tribe	Not available	5,423	Not apparent	Not apparent	Miami
Modoc Tribe	Ottawa County	496	Yes	Not apparent	Miami
Muscogee (Creek) Nation	Eight counties	86,100	Yes	Yes	Okmulgee
Osage Nation	Osage County	20,000	Yes	Yes	Pawhuska
Otoe-Missouria Tribe	Two counties	3,300	Yes	Not apparent	Red Rock
Ottawa Tribe	Ottawa County	2,500	Not apparent	Not apparent	Miami
Pawnee Nation	Pawnee County	3,000	Yes	Appears	Pawnee
Peoria Tribe	Ottawa County	3,077	Not apparent	Not apparent	Miami
Ponca Nation	Two counties	3,600	Yes	Yes	Ponca City
Quapaw Tribe	13,000 acres	3,240	Yes	Yes	Quapaw
Sac and Fox Nation	Three counties	3,600	Not apparent	Not apparent	Stroud
Seminole Nation	Seminole County	17,000	Not apparent	Not apparent	Wewoka

Native Nation	Area/Jurisdiction	Member Size	Agriculture Program	Ag Education Program	Headquarters
Seneca-Cayuga Tribe	Northeast Oklahoma	5,000 in 2011	Not apparent	Not apparent	Grove
Shawnee Tribe	Northeast Oklahoma	2,500	Not apparent	Not apparent	Miami
Thlopthlocco Tribal Town	2,330 acres	845	Not apparent	Not apparent	Okemah
Tonkawa Tribe	Kay County	700	Not apparent	Not apparent	Tonkawa
United Keetowah Band of Cherokees	Not available	14,300	Not apparent	Not apparent	Tahlequah
Wichita and Affiliated Tribes	Caddo County	2,717	Not apparent	Not apparent	Anadarko
Wyandotte Nation	Ottawa County	4,958	Not apparent	Not apparent	Wyandotte
Euchee (Yuchi) Tribe	Northeast Oklahoma	249 in 1997	Not apparent	Not apparent	Sapulpa

Table 5.1. Oklahoma Federally Recognized Native nations

After reviewing the website for each of the Oklahoma's thirty-nine (39) Native nations, fourteen of those nations have information related to agriculture programs. Of those fourteen Oklahoma Native nations, nine show a component of agricultural education and will be discussed further in the following section. The intent of collecting data related to the thirty-nine Oklahoma Native nations is to gauge a preliminary level of engagement each nation has with agriculture and agricultural education programming.

Based on the data regarding each of the Oklahoma Native nations, some interesting comparisons arise within the fourteen nations that have an apparent engagement with agriculture programs. The fourteen nations range in population size from a smaller tribe, such as the Modoc Tribe with a population of 496, to the largest tribe, the Cherokee Nation with a population of 390,000. In addition to population size, the area of jurisdiction ranges from one county to fourteen counties. Through this data set, it is apparent the size of the tribe, both population and jurisdictional area, does not limit the capacity to engage agriculture. Additionally, Native nations engaged with agriculture initiatives span across the state of Oklahoma, from the Cheyenne and Arapaho Tribes in Concho to the Quapaw Nation in Quapaw. It is apparent that the land base of each Native nation, in terms of size and location, does not limit the opportunity to engage agriculture initiatives.

In conclusion, agriculture is an important component for the four Oklahoma Native nations included in this study. Despite a long and difficult history centered around agriculture as a way to assimilate Indigenous peoples, these nations created Indigenous specific programs to benefit their people. Each Native nation exhibits efforts to identify available resources and create Indigenous specific agriculture programs, while actively building on those programs to meet the needs of their Indigenous peoples.

Agricultural Education

In addition to the agriculture programs each Native nation created, there is an inherent education component. The agricultural education component began by the federal government making choices on how and what was taught to Indigenous peoples. This entanglement, which was a battle to “define what education is—the power to set its goals, define its policies, and enforce its practice—and second, the power to define who native people are and who they are not” (Lomawaima, 2004, p. 441), has been occurring since European settlement. In more recent history, after the development of land-grant institutions through the Land Grant Act of July 2, 1862 (House of Representatives, 1987; Moore, 1987; Stein, 2017; True, 1929; Walters, 1909; Wheeler, 1948) and the subsequent Hatch Act in 1887 to establish experiment stations (House of Representatives, 1987; Moore, 1987; Stein, 2017; Wheeler, 1948), there became an effort towards agricultural education. The challenge faced by Native nations is these agricultural education institutions were created with a colonial mindset (Hart, 2006; Schaubert, 2001). Later, as land-grant universities created experiment stations, and subsequently Cooperative Extension, opportunities for agricultural education became more readily available.

As agricultural education opportunities were created, it became apparent that Extension was not meeting the needs of Indigenous communities. In light of this, Extension has in recent

years, initiated efforts to more effectively coordinate with Native nations. These efforts include developing trust, being visible, reaching out to Indigenous tribal members, and engaging with tribal leaders (Alves, 1993; Hart, 2006; Hoorman, 2002). In this vein, Theme 3: *Partnerships are very important* illustrates the efforts of the four Oklahoma Native nations navigating Cooperative Extension Service to create relationships and programs to benefit their respective nations. It is apparent that Extension seeks to engage and support each Native nation. However, the challenge that exists is the lack of an Indigenous foundation within Extension to support the cultural aspect. Despite this, each nation has chosen to engage with Cooperative Extension in a capacity that supports their agricultural education program.

With respect to the four Oklahoma Native nations, each one is unique and cannot be generalized with other nations (Pepper, 1985). Knowing this, the relationship between Extension and each Native nation is unique to each situation. This is especially apparent with the Muscogee (Creek) Nation. The Muscogee (Creek) Nation is situated to fully implement their agricultural education program. Early in the agricultural education program, a partnership existed between the Muscogee (Creek) Nation and the Cooperative Extension Service. As the program developed, the Muscogee (Creek) Nation determined that a tribally implemented program would better serve the needs of their Indigenous peoples. After this determination, the Muscogee (Creek) Nation asserted themselves to implement the program. While the Muscogee (Creek) Nation does not currently engage Extension, the Choctaw Nation conversely maintains a strong partnership with Cooperative Extension. For the Choctaw Nation, Extension brings important resources to the tribe in order for them to meet the goals for their Indigenous peoples. Each Native nation maintains a unique level of engagement with Cooperative Extension, based on the needs of each nation.

In light of the efforts to integrate colonial agriculture and agricultural education programs into Native nations, nations have made efforts to create their own programs. Native nations have made substantial efforts in creating and implementing Indigenous specific programs that meet the needs of their respective tribe. These efforts are apparent with the College of the Muscogee Nation, which offers agriculture classes with a specific focus on Indigenous concepts. Through the College of the Muscogee Nation, specific Indigenous curriculum is incorporated into agriculture courses to create Indigenous agriculturalists. This integration of Indigenous knowledge into agriculture curriculum might be a good exemplar to follow for other Native nations in Oklahoma looking to build Indigenous specific agricultural education programming.

Next, the agricultural education aspect of the thirty-nine Oklahoma federally recognized Native nations is explored. In terms of Indigenous agricultural education, as depicted in Table 1, nine Oklahoma Native nations had an apparent engagement with these initiatives. In a similar fashion to agriculture programs, the nine nations engaged with agricultural education range in population size from a smaller tribe, such as the Iowa Tribe with a population of 800, to the largest Native nation, the Cherokee Nation with a population of 390,000. These small and large Native nations that engage with agricultural education programs range in jurisdictional area from four counties to fourteen counties. The importance of this information is that size, both population and jurisdictional area, do not appear to limit the opportunity for nations to engage with agricultural education initiatives. Based on the data gathered, each Native nation has the ability to create successful programs for their people.

In terms of agricultural education, there has been a long history of teaching Eurocentric agriculture methods to Indigenous peoples. Through the development of land-grant institutions and subsequently, Cooperative Extension, avenues for agricultural education were created (Nash,

2019). While the original focus was not related to Indigenous knowledge, efforts have been made by Cooperative Extension to better assist nations (Alves, 1993; Hart, 2006; Hoorman, 2002). In light of this, the four Oklahoma Native nations and the College of the Muscogee Nation have taken existing systems and used those to create new systems that fit the needs of their Indigenous peoples. Through sovereignty, each Native nation has asserted they know what is best for their people and through that, programs have been both created and redeveloped to be Indigenous specific to best address each unique need. Collectively, each case created Indigenous specific agricultural education programs to meet the needs of their Indigenous peoples.

Indigenous Education

Within agricultural education, there is also an important component of Indigenous education. With two types of education, Indigenous education by Indians and Indigenous education by others (Lomawaima, 1999), this is an important concept to include after the cases have been developed. Within the four Oklahoma Native nations, Indigenous education by Indians is an important thread laced throughout. For sovereign nations, it is important for each tribe to facilitate Indigenous education programs to benefit their people.

While each Native nation approaches Indigenous education a little differently, it is foundational as each nation develops future Indigenous agriculturalists. For the Muscogee (Creek) Nation and Choctaw Nation, the 4-H and FFA organizations are actively engaged. This engagement gives Native nations an opportunity to utilize existing curriculum provided by such organizations as 4-H and FFA. By using the existing curriculum, nations are reframing and integrating those curriculums in a meaningful way to specifically address the unique needs of each nation. Additionally, Native nations assert themselves to identify resources, such as with 4-H and FFA organizations, and use these resources as a foundation to benefit their Indigenous

peoples. Even though the 4-H and FFA curriculum was created with a colonized mindset, each Native nation has the ability to use those foundations and integrate concepts related to such topics as food sovereignty and providing food to their people through livestock and farming. This is a good illustration of what entanglement looks like in agricultural education programming, because leaders in these nations are learning what is available – even if Eurocentric in many ways – while also trying to exert their sovereignty and help their own people.

For each Native nation, there exists the opportunity to determine an appropriate level of engagement with organizations that can provide educational resources. For the Quapaw Nation and Osage Nation, these Native nations utilize other means to administer agricultural education programs. The Quapaw Nation focuses on internship opportunities, which bring students to the tribal facilities to learn the programs. Whether these students are Indigenous or non-Indigenous, disseminating the Quapaw Nation's knowledge to students creates a larger atmosphere of learning. The Osage Nation created Indigenous specific curriculum that is available on the Nation's website to further agricultural education. In addition to these efforts, the Osage Nation actively works to keep culturally specific agricultural practices alive by hosting educational events. Through the efforts of the Choctaw Nation and Osage Nation, the educational aspect of agriculture continues.

In terms of Indigenous education, specifically agricultural education, the College of the Muscogee Nation demonstrates a successful program. The College of the Muscogee Nation created an educational institution with a foundation on culture and the needs of the tribal community. In regards to agriculture, the institution established agriculture courses within the Natural Resources Associate of Science degree program, which have a specific focus on

Indigenous agriculture and agricultural concepts (T. Eubank, personal communication, June 30, 2021). Through the efforts of the College of the Muscogee Nation to incorporate culture into every aspect of the institution, it is apparent this institution affirms that Indigenous peoples gain education by connecting with the environment (Cajete, 2005; Kawagley & Barnhardt, 1999) and also Indigenous students need to connect to the world around them (Brayboy & Lomawaima, 2018; Cajete, 2005; Pepper, 1985). In terms of Indigenous specific agricultural education, the College of the Muscogee Nation effectively demonstrates the implementation of an educational program that focuses on providing a balanced education for each Indigenous person (Cajete, 1999).

For each case, there were substantial efforts to create Indigenous specific educational programs that focus on agricultural education. Agricultural education historically began as a way to assimilate Indigenous peoples (Firkus, 2010). However, these four Native nations, along with the College of the Muscogee Nation, have taken agricultural education programs, created and revised them to meet the needs of their citizens. These agricultural education programs all identify with Theme 6: *Train the leaders of tomorrow*. Through these Indigenous specific programs, each nation maintains identifies, self-governance, and self-determination (Lomawaima, 1999) by embedding Indigenous worldview into the curriculum to create Indigenous agriculturalists. Ultimately, through self-governance and self-determination, each Native nation creates and implements programs that benefit their Indigenous peoples.

Sovereignty

Within each case, sovereignty is at the center of each tribal program. Sovereignty, at the core, is the ability of a Native nation to govern and “protect and enhance the health, safety, and welfare of tribal citizens within tribal territory” (NCAI, 2020, p. 23). Through sovereignty,

Native nations are able to govern themselves and subsequently, create programs that meet their individual goals (Echohawk, 2013). Through the agriculture and agricultural programs established in each case, sovereignty allows the appropriate decisions to be made for the benefit of Indigenous peoples. Sovereignty is further described as “proactively planning, governing, and educating in a broad context that percolates far beyond reservation boundaries” (Lomawaima, 2013, p. 345). This is especially apparent in each case as the four Native nations and the College of the Muscogee Nation create programs for their citizens, both within and outside each jurisdictional area.

Educational Sovereignty

A component of sovereignty is educational sovereignty, or the ability to self-educate (Brayboy & Lomawaima, 2018; Lomawaima, 2000; Lomawaima, 2013; Lomawaima & McCarty, 2002; McCarty & Lee, 2014). Through educational sovereignty, each nation has the ability to make the decisions necessary to create educational systems that work most appropriately for them (McCarty & Lee, 2014). These four Oklahoma Native nations and the College of the Muscogee Nation have created education systems that focus on agriculture.

An important concept of educational sovereignty is the need to create Indigenous specific educational systems that are accountable to Indigenous communities through culturally responsible curricula. The cases within this study have successfully created and implemented culturally responsible curricula. This is especially seen as the College of the Muscogee Nation implements Indigenous specific agriculture courses within the Natural Resources degree program. Other examples of Indigenous specific curriculum are the efforts of each Native nation to create new programs, such as the Choctaw Nation’s Backyard Initiatives, or integrate culture

into existing curriculum acquired through the 4-H and FFA organizations. Through these efforts, each case has Indigenous peoples as the foundation for agricultural education programming.

Another component to educational sovereignty is the interaction of each Native nation with other organizations. As each Native nation creates Indigenous specific agricultural education systems, they choose the appropriate level of engagement, if at all, with other organizations. Native nations make decisions on whether organizations, such as the 4-H and FFA organizations, Oklahoma Cooperative Extension Service, and other universities/organizations can further the initiatives set out by each Native nation. These engagements allow nations to balance sovereignty while maintaining accountability for their respective Indigenous communities (McCarty & Lee, 2014). Through engagement with other organizations and in alignment with Theme 3: *Partnerships are very important*, resources and partnerships can further support Indigenous specific agricultural education programs. Each Native nation, through sovereignty, engages these organizations in the capacity that best suits the needs of the nation.

Ultimately, educational sovereignty enables each Native nation to make choices necessary to create Indigenous specific programs that support their tribe and people. These four Oklahoma Native nations and the College of the Muscogee Nation continually make choices to engage and further facilitate agricultural education initiatives for the benefit of their people. Educational sovereignty allows for agricultural education programs to be created that benefit each nation.

Food Sovereignty

In addition to educational sovereignty, another important aspect of sovereignty is related to food. Food sovereignty is an important component of sovereignty for each tribe, in which

there is the authority to make decisions to benefit their people (Hoover, 2017; Ricart, 2020). These four Oklahoma Native nations created pathways to food sovereignty that supports the needs of their Indigenous peoples. Food sovereignty is central to the development of each Native nation's agriculture and agricultural education programs.

As each Native nation develops agriculture programs, food sovereignty provides the framework to make decisions based on the needs of each nation. In this vein, food sovereignty is the ability to “maintain, control, protect, and develop [Native nation] cultural heritage, traditional knowledge, and traditional cultural expressions” (United Nation, 2007, p. 22). Through food sovereignty, Native nations created robust agriculture programs that have an Indigenous specific focus. Agriculture programs created with a food sovereignty mindset include the Quapaw Nation's cattle and bison herds, greenhouses, apiary, and meat processing facility (Givens, 2020; Harvard Project, n.d.; Herrera, 2018; University Communications, 2019); Muscogee (Creek) Nation's farms for pumpkins, pecans, watermelons, hay, beef production, and a meat processing facility (Mozo, 2019; Muscogee Nation, 2016); Osage Nation's acquisition of land for bison and cattle (Overall, 2016), greenhouse, aquaponics, outdoor farming, and a meat processing facility (Oxendine, 2021); and Choctaw Nation's pecan groves, beef production, and five acre demonstration farm (Clark, 2017; Germany, n.d.; Native America, n.d.). Each Native nation demonstrates Theme 5: *We're not starting with empty hands*, which focuses on the substantial agriculture programs that have been created. Each of these agriculture programs serve a specific need for the respective nation and were developed to meet those needs.

In addition to the agriculture foundations, these programs also serve specific food needs for Native nations. These agriculture systems provide fresh food to Indigenous peoples. In addition to supporting food needs of Indigenous peoples, there is a specific focus on culture. For

example, the Quapaw Nation has a process in place to donate meat products to cultural events, such as funerals, that are significant events for the nation (C. Roper, personal communication, March 2, 2021). Additionally, the Osage Nation provides fresh produce to the Wah-Zha-Zhe Early Learning Academy sites, Daposka Ahnkodapi, and elder nutrition program. These examples showcase the importance of providing quality food to Indigenous communities. Through the importance of providing food to Indigenous communities, there are continuing efforts to grow the agriculture programs within each Native nation.

Recently, some Native nations have experienced new development in agricultural infrastructure. Some of these nations, including the Muscogee (Creek) Nation and Osage Nation, experienced a breakdown of food systems caused by the COVID-19 pandemic. While the Native nations had existing agriculture systems, it became apparent these systems needed to be more substantial. Through the development of agriculture systems, using CARES federal funds, nations built the agricultural systems necessary to further meet the needs of Indigenous peoples. Through food sovereignty, each Native nation has the authority to create and implement agriculture systems to meet the needs of their people. These systems provide fresh food to Indigenous peoples, as well as ensure stable food systems are in place. Food sovereignty is a significant component to sovereignty for each nation.

For each Native nation, there has been a long and often difficult engagement with agriculture and agricultural education systems. Despite this long history, these four Oklahoma Native nations and the College of the Muscogee Nation has navigated pathways to support specific initiatives for their tribe and future Indigenous programs. What began as a federal government's push to teach Indigenous communities how to engage with agriculture in their new place (Burns, 2004; Hurt, 1987; Lewis, 1994), nations have taken those systems and created

successful Indigenous agriculture programs. Sovereignty, at the core, allows each Native nation to make decisions to create programs to benefit Indigenous peoples.

Situating Findings Within the Theoretical Frameworks

This study was situated within two theoretical frameworks, TribalCrit and Osage ribbon work. These two theoretical frameworks frame the foundation of the research in a uniquely Indigenous way.

TribalCrit

The first theoretical framework, TribalCrit, realizes that colonization is endemic to society, yet Indigenous peoples continually seek tribal sovereignty and self-determination, and also that assimilation is at the core of policies related to government and education (Brayboy, 2005). These tenets can be seen across the four Oklahoma Native nations and the College of the Muscogee Nation.

Sovereignty

To begin, each Native nation has taken tremendous strides in asserting tribal sovereignty within agriculture. Each nation has taken initiatives to address the needs of their tribal community. Examples of taking the needs of their people into account are the Quapaw Nation, Osage Nation, and Muscogee (Creek) Nations, which have created meat processing facilities to serve their people. All four Native nations are successful contributors to the cattle industry, while also being active in growing crops and produce. By situating their programs in food sovereignty, these nations have proven themselves successful in agriculture initiatives.

Using the established agriculture systems within each case, agricultural education programs were created to support the development of future Indigenous agriculturalists. Each case takes a different approach in agricultural education, but all collectively implement a

program that fits their specific goals. For the Muscogee (Creek) Nation and Choctaw Nation, the agricultural education programs are situated strongly in 4-H and FFA curricular foundations. Next, the Quapaw Nation utilizes internship programs in cooperation with universities and other organizations. Additionally, the Osage Nation's agricultural education programs are involved with bringing youth to the Nation's programs and create cultural classes to pass along cultural knowledge to future generations. Lastly, the College of the Muscogee Nation implements agriculture classes that integrate a focus on Indigenous culture. Within each case, educational sovereignty is engaged in ways to promote educational goals within each tribe and *Train the leaders of tomorrow*, as seen in Theme 6. Within educational sovereignty, each of the cases developed the most appropriate programs to best meet the needs of their respective Indigenous communities.

Culture

Next, TribalCrit also looks at the relationship of power and culture, while including traditional stories and knowledge (Daniels, 2011). During the course of the data collection, each case discussed the historical engagement of their Native nation with agriculture and importance of creating the agricultural knowledgebase with their youth. For some Native nations, the choice to move this knowledge forward is created within the tribe. For example, the Osage Nation works to create agricultural education opportunities using the resources that exist within their current capacity. Through this, the Osage Nation's goal is to create a more substantial cultural component to the agricultural education initiatives. There are culturally significant species that are held in high regard by the Osage Nation and for that reason, it is important to maintain a higher level of culture in their agricultural education program. In addition to the Osage Nation, other Native nations seek to build upon culturally significant species, including native corn

species, bison, and the Three Sisters. With these species, nations engage the needs of their Indigenous communities by providing food grown from native programs to important cultural events. Through these cultural events, Native nations are ensuring that their cultural foundations are kept alive and maintained for future generations.

Education

In terms of education, TribalCrit describes that governmental and educational policies towards Indigenous peoples are linked around assimilation. The focus of this study centers on agricultural education, which was also historically created with a colonized mindset, especially through legislation that created land-grant universities and subsequently, Cooperative Extension Service. Despite the work of these institutions to teach Eurocentric methods of agriculture, Native nations and the College of the Muscogee Nation have engaged agricultural education in a manner which places Indigeneity as a high priority.

For Native nations, a curricular foundation for agricultural education is used through existing outside resources. For example, the Muscogee (Creek) Nation and Choctaw Nation use foundations from the 4-H and FFA organizations to create the agricultural knowledgebase to support the development of their Indigenous youth. As with the Quapaw Nation, they work in cooperation with universities to further Indigenous agricultural education. In the vein of curricular foundation, the College of the Muscogee Nation created an educational framework for the integration of culture into their agricultural courses. Whether it be to develop agricultural education curriculum solely using tribal resources or to engage with outside resources, which aligns with Theme 2: *Take advantage of the resources available to us*. For each case, tribal sovereignty is the foundation that allows each tribe to make decisions necessary to further their Indigenous agricultural education programs.

Colonization in Society

Next, in accordance with the tenets of TribalCrit, colonization is viewed as being endemic to society (Brayboy, 2005). While this can be seen through agricultural education programs that lack a focus on Indigenous agriculture, this is where the cases within this study take hold. The cases navigate a colonized system and create Indigenous specific agricultural education programs to benefit Indigenous peoples. The four Oklahoma Native nations and the College of the Muscogee Nation take into account colonial systems that exist and make sovereign choices to support their Indigenous specific agricultural education goals.

Additionally, TribalCrit acknowledges that federal policies and regulations are created with a colonized mindset (Brayboy, 2005). In light of this, Native nations situate themselves to be involved in important discussions related to policies that may affect Indigenous communities. For example, the Osage Nation partakes in discussions through the Intertribal Agriculture Council to create a framework for how federal agencies interact with Native nations within agriculture. Other nations are also equally involved with the Intertribal Agriculture Council and other organizations, such as with the Oklahoma Cooperative Extension, to facilitate a higher level of engagement for the benefit of Indigenous programs.

In addition to navigating policies that are created with a colonized mindset, Native nations and the College of the Muscogee Nation also navigate Eurocentric methods of agriculture. While culturally significant species are engaged for food production, there are Eurocentric methods for farming and ranching that emerge. These Eurocentric methods of livestock management often include implementing a monoculture for grazing and maintaining European cattle breeds, as well as other European livestock breeds, that are not native to the United States. In addition to livestock, farming includes Eurocentric methods of tending,

harvesting and processing. As the four Native nations and the College of the Muscogee Nation navigate these complex spaces within agriculture and agricultural education, these cases display the ability to integrate Indigenous knowledges into these systems.

In conclusion, through the tenets of TribalCrit, the four Oklahoma Native nations and the College of the Muscogee Nation are naturally situated to navigate the complexities of colonization and assimilation. Using this theoretical framework, it is important to understand the current realities in order to look towards the future (Brayboy, 2005). In looking to the future, these cases view existing issues and accommodate them in a variety of ways to benefit Indigenous agriculture programs. In accordance with Theme 1: *The people create your capacity in what you can do*, each case has people in place to navigate the complex systems to build Indigenous programs. While these programs look different within each case, they address the ultimate goal of creating the framework for Indigenous students and agricultural education programs to interact in a way that is mutually beneficial.

Osage Ribbon Work

The second theoretical framework, Osage ribbon work, is a unique way of framing the complex environments and entanglements faced by Indigenous communities (Hayman, RedCorn, & Zacharakis, 2018; RedCorn, 2016; RedCorn, in press). Osage ribbon work is a way to frame how an entanglement acts as a single ribbon of rayon taffeta used to create traditional Osage regalia. All of the ribbons woven together can create Indigenous specific programs and are an appropriate framework for describing the complexities that surround Indigenous agricultural education. While Osage ribbon work is Osage specific, this framework has an Indigenous foundation that describes entanglements that are apparent across all cases. In the thread of

ribbons being a framework to describe entanglements, the threads that emerged in this study are cultures, agriculture, and agricultural education.

Cultures

To begin, one entanglement centered on culture. With agricultural education program development in all four Oklahoma Native nations and the College of the Muscogee Nation, culture is an important component. However, this entanglement emerges as each case seeks to find the most appropriate way to include this knowledge. It is apparent that culture is a foundational piece of each agricultural education program, but navigating the proper engagement can be a challenge.

In thinking about the challenges related to each case, the entanglement of culture centers on food. For example, each nation positively situates themselves within food sovereignty initiatives. However, those initiatives circulate around tribally significant food and food that may not necessarily be tribally significant. For example, while bison have been a historical source of food for Indigenous communities, today bison are not the only source of meat. For those Native nations that choose to engage with bison, they also incorporate cattle herds as well. The same thought goes for produce. While there are tribally significant vegetables of importance, those specific species are not the entire focus for food produce production. The nations incorporate a variety of food species, some that are tribally significant and some that are not. As cultural events occur, feasts is an important component related to these events. These feasts include an incorporation of culturally significant food species, as available. One example is the Quapaw Nation, which supplies meat from their meat processing facility to their cultural events. Food sovereignty enables each Native nation to engage food production in a way that maintains their culture, yet also supports the needs of their nation.

In response to the challenges that arise, each case has been successful in navigating these challenges. It is apparent each case has put the appropriate people in positions of overseeing the agricultural education programs with the foresight to understand the need for a cultural foundation, which is in line with Theme 1: *The people create your capacity in what you can do*. Further, in the thread of Theme 4: *We're utilizing resources we've got now but not forgetting our heritage*, each case continues to facilitate a more robust agricultural education program that intertwines each tribe's unique cultural history into programmatic development. While there are still challenges that exist in continuing to develop the cultural component of agricultural education program, these four Native nations and the College of the Muscogee Nation continue to make choices to engage culture.

Agriculture

The next apparent entanglement is agriculture. Agricultural education is integrated into existing agriculture programs. The entanglement associated with agriculture is that often where Native nations are presently situated is not historically where the agricultural practices occurred. While each tribe has successfully created robust agriculture programs, they are positively developing resources available to them where they are presently located. An example is with the Osage Nation. Red Corn further explains this situation:

I found out by being up in Kansas City when I first got interested in Osage red corn, that Osage red corn loves Missouri. It loves Missouri! I mean, the soil's deeper, the climate, it rains in the summer time. Osage red corn and other corns all suck the living daylight out of your nitrogen supply and require a lot of water to really thrive. That's what I try to think about when I think about the challenges that we've had in the past and the learning curve that we have. (Personal communication, February 24, 2021)

Like the situation with the Osage red corn, agriculture across the cases is similar. In addition to the Osage Nation, the Choctaw Nation has been successful with pecan orchards. Through utilization of both native pecans and improved pecan trees, they see approximately 150,000 pounds of pecans annually. Pecans are a native species, in which the Choctaw Nation has identified as a positive agricultural resource and have expanded upon that identified resource. Each Native nation has taken their unique histories and used that to guide their present agriculture programs.

Additionally, the livestock component of agriculture is an entanglement. For these Native nations, they each engage with cattle and when possible, bison. While cattle are not culturally significant, the animals provide an important food source to Indigenous peoples. As meat sources are further explored, bison is a culturally significant species that is raised when appropriate. Each nation has the ability to choose which meat source that works best for their citizens and sometimes, that is not a culturally significant species. In this same thought, livestock showing is not a culturally significant event. However, showing livestock is an important function within the 4-H and FFA organizations, which many Indigenous youth choose to engage. As youth engage in livestock showing events, there also exist opportunities for Native nations to incorporate a level of cultural knowledge as the youth learn the importance of hard work and providing food to Indigenous peoples.

Ultimately, each Native nation has been creative in guiding agricultural programmatic decisions. Those decisions are based on resources that currently exist, as well as the desired goals. As these Native nations look at the desired agriculture programs, time was taken to identify available resources and the path forward if there were limiting factors. Focusing on the availability of resources is recognized in Theme 2: *Take advantage of the resources available to*

us. In a similar fashion to Osage ribbon work, each nation takes available resources to create agriculture and agricultural education programs that meet their nation's goals.

Agricultural Education

The next entanglement within the cases is agricultural education. This entanglement is significant because it is often developed with a Eurocentric mindset and not with an Indigenous focus. However, a mindset situated in educational sovereignty allows Native nations the ability to take established curriculum and create a program that is specific to their needs, which is seen in Theme 4: *We're utilizing resources we've got now but not forgetting our heritage*. As the cases develop curriculum that meet the needs of their people, it also includes a specific Indigenous focus.

From the perspective of youth programs in agricultural education, curriculum from the 4-H and FFA organizations are often utilized as a foundation. For some Native nations, these programs offer substantial opportunities for Indigenous youth to participate in agriculture and leadership opportunities. However, these programs are situated in a non-Indigenous framework. Using Osage ribbon work, nations have been successful in creating agricultural education programs that integrate Indigenous knowledge. Each Native nation's program are adjusted to fit their specific needs, but they all show the creativity of using an existing agricultural education foundation to become one that includes an Indigenous component.

From a post-secondary education perspective, there are also successes related to incorporating Indigenous knowledge into agricultural education. The College of the Muscogee Nation is a positive example of creating Indigenous specific agricultural education programs within a post-secondary education setting. The creation of the College of the Muscogee Nation, including the Natural Resources degree path and the courses involved in that path reflect the

efforts to include important Indigenous knowledge in agriculture courses. The agriculture courses developed at the College of the Muscogee Nation recognize Indigenous peoples engaged with agriculture for many years and there are important concepts can be learned from that knowledge (T. Eubank, personal communication, June 30, 2021). The College of the Muscogee Nation is an example of successfully creating agricultural courses with a specific focus on Indigenous knowledge.

In thinking of Indigenous agricultural education, both within each Native nation and at the collegiate level, there are several points that emerged. As Native nations implement their own unique programs, included were elements of Indigenous education systems, including the need for reciprocity between human and natural worlds – resources are viewed as gifts, wisdom and ethics are derived from direct experience with the natural world, and respect for elders is based on their compassion and reconciliation of outer- and inner- directed knowledge (Kawagley & Barnhardt, 1999). These tenets of Indigenous education systems were apparent across all cases. The Indigenous agricultural education systems had a foundation in relationships with both people and nature. These relationships are the focus when creating the agriculture and agricultural education systems, while also seeking to build capacity to create future Indigenous agriculturalists.

Additionally, to expand the entanglement of agricultural education, it is important to focus on the relationship between Native nations and the Oklahoma Cooperative Extension Service. In recent years, Oklahoma Cooperative Extension sought to develop better relationships with Indigenous communities by making efforts to build trust and consistently engage Indigenous communities (Alves, 1993; Hart, 2006; Hoorman, 2002). Throughout the study, it is apparent some Native nations value the relationships with Oklahoma Cooperative Extension. On

the other side of that conversation is that some nations, while they value the efforts of Oklahoma Cooperative Extension to engage, feel the expertise does not effectively fit the needs for the programs they administer. An example of this is with the Muscogee (Creek) Nation, which administers a tribally implemented program and without assistance from Cooperative Extension. Through this program, the Muscogee (Creek) Nation believe the best administrators for Indigenous programs are the Native nations that administer them, because Native nations more fully understand the needs of Indigenous communities. Based on the data, it is evident the engagement of Oklahoma Cooperative Extension with each Native nation is dependent on the individuals in those capacities. The relationship between Extension and nations vary from one case to another. While each situation is unique, it depends on the people in those capacities to support a positive relationship.

The entanglements seen throughout the four Oklahoma Native nations and the College of the Muscogee Nation are culture, agriculture, and agricultural education. While there are more entanglements that exist, these ribbons center on the complex environments within Indigenous agriculture and agricultural education program development. Within each of these ribbons, each case takes existing systems, breaks those systems down, and re-creates those systems to be new programs with a uniquely Indigenous design.

Comparison of Theoretical Frameworks

As the frameworks of TribalCrit and Osage ribbon work are explored, the following table helps illustrate those comparisons. Table 5.2 further engages the theoretical frameworks in viewing native agriculture and agricultural education programs.

Table 5.2

Comparison of Theoretical Frameworks

Comparison of Theoretical Frameworks		
	TribalCrit	Osage Ribbon Work/Entanglement
Agriculture - Farming	Through the desire to obtain tribal sovereignty, programs have been developed within the purview of food sovereignty, including greenhouses, aquaponics systems, and meat processing facilities. Policies, including those developed within agriculture, often carry forward assimilationist education from previous generations, including Eurocentric ways of farming. This often includes farming species that are not Indigenous, along with Eurocentric methods of tending, harvesting and processing. An example of this is wheat, which is used for food as well as for feeding livestock which came from Europe.	Indigenous peoples have successfully farmed for millennia, yet are pushed to integrate Eurocentric methods of farming, such as single crop systems and not integrating multiple crops systems like The Three Sisters. Native nations have taken Indigenous specific methods and integrated Eurocentric agricultural methods to ensure agricultural farming is successful within their purview. Indigenous specific species, including red corn, the Three Sisters, and other heirloom crops, are produced and integrated into cultural events. The College of the Muscogee Nation integrates cultural knowledge into agricultural classes. These efforts are in alignment with Theme 4: <i>We're utilizing resources we've got not but not forgetting our heritage.</i>
Agriculture - Livestock	Through tribal sovereignty, specifically food sovereignty, Native nations, through assimilationist histories, have inherited a colonized view of agriculture. This includes Eurocentric methods of livestock management that often includes implementing a pasture monoculture for grazing and maintaining European cattle breeds, as well as other European livestock breeds that are not native to the United States.	Livestock programs sponsored by Native nations include such programs as livestock showing and integrating Eurocentric methods of tending livestock. Native nations have integrated native bison into their livestock programs and a culturally responsive component to meat production. Meat processed through meat processing facilities owned by sovereign nations are provided for cultural meals, and these meals are sometimes a mixture of Indigenous and non-Indigenous foods. The College of the Muscogee Nation integrates cultural knowledge into agricultural classes, and while being sponsored by a Native nation, the college in general emulates EuroAmerican

Comparison of Theoretical Frameworks		
	TribalCrit	Osage Ribbon Work/Entanglement
		style systems of higher education. These efforts illustrate Them 6: <i>We're utilizing our resources we've got not but not forgetting our heritage.</i>
Culture	Policies are innately linked around the goal of assimilation, but also culture is important when understanding the differing needs of Indigenous peoples. Each Native nation is unique and there is not any overarching policy or method that is situated to effectively meet the needs of the collective Indigenous population. With each Native nation having unique needs, specific policies and programs are important to develop.	Culture is intertwined within all aspects of agriculture and agricultural education, as colonized systems are engaged, broken down, and recreated with Indigenous specific frameworks. Native nations, along with the College of the Muscogee Nation, have integrated cultural knowledge into course development and implementation. For example, Native nations are growing heirloom seeds alongside non-Indigenous seeds, using Native languages to discuss non-Indigenous crops, and using non-Indigenous foods to feed elders and serve at cultural meals. Resources, including cultural resources, are especially important to the forward movement of nations and are in alignment with Theme 2: <i>Take advantage of the resources available to us.</i>
Knowledge/Education	Indigenous peoples have a desire to obtain tribal sovereignty. Educational sovereignty allows Native nations to create programs that meet specific educational goals, while navigating a colonial system. The College of the Muscogee Nation and nations continually seek to develop Indigenous specific educational programs for their people, although often start with existing resources that come from Eurocentric foundations while exploring ways to adapt them to be more culturally responsive.	As Native nations engage with knowledge/education systems, Indigenous knowledges is integrated into those systems. By creating curriculum that includes Indigenous knowledges, nations maintain their sovereignty through building those Indigenous specific systems, even if some of those systems start out with Eurocentric modes of thinking. After generations of assimilation, much has been lost (but not all), and is extremely challenging with existing resources and professional skillsets to build educational programmatic in agriculture from an Indigenous specific foundation. As Native nations develop

Comparison of Theoretical Frameworks		
	TribalCrit	Osage Ribbon Work/Entanglement
		knowledge/education systems, Theme 1: <i>The people create your capacity in what you can do</i> , becomes apparent.
Land	Governmental policies are linked to the goal of assimilation, which was seen through the process of land allotment. Land was viewed as a way to fragment Native nations.	Native nations have a long and often difficult history with land, including allotment and dispossession. Native nations are actively regaining control of land to build Indigenous specific programs, including a demonstration farm, ranching cattle and bison, and outdoor farming. While efforts are being made to blend culturally specific ways of tending to the land, existing practices and resources lend themselves to Eurocentric land management methods. As a result, those lands are being used in blended ways. In light of Theme 5: <i>We're not starting with empty hands</i> , land resources are an important component in the development of Native programs.
Partnerships	While policies towards Indigenous peoples are rooted in imperialism, Native nations are seeking to create partnerships that support their unique program development. This specifically means engaging organizations and other partners that can bring resources and support the program building efforts of Native nations, even though those partnerships may be with non-Indigenous people and institutions. Because of this dependency on partnerships, there is always an inherent risk of importing Eurocentric forms of agriculture and education which might continue colonial efforts put into motion long ago.	Each Native nation accesses partnerships in a variety of ways to meet their unique needs. This includes identification of and engaging Native partners and institutions to bring resources to the Native nations, as seen in Theme 3: <i>Partnerships are very important</i> . Some important partnerships include the Intertribal Agriculture Council, the University of Arkansas Food and Agriculture Initiative, universities, and in some cases, Cooperative Extension Service.
Society	Indigenous peoples occupy a liminal space that accounts for political and racialized nature of our identities. There exists an inherent challenge when navigating spaces surrounding agriculture and agricultural education	Entanglements are embedded throughout Native nation programming, as leaders must navigate both colonized and Indigenous spaces. After years of assimilationist efforts in Native

Comparison of Theoretical Frameworks		
	TribalCrit	Osage Ribbon Work/Entanglement
	in a Eurocentric society, but also creating Indigenous specific programs. Native nations are always moving in and out of Indigenous contexts when trying to build agriculture programs, even within their own nation.	communities, many agriculture and agricultural programs are inherently situated in colonized spaces and Native nations navigate those varying spaces for program implementation. An example of this navigation includes Indigenous youth and producers engagement with colonial organizations (ex. Cooperative Extension and universities and Indigenous organizations (ex. Intertribal Agriculture Council and University of Arkansas Food and Agriculture Initiative). Indigenous peoples who help navigate these entangled spaces support Theme 1: <i>The people create the capacity in what you can do.</i>
Youth	With educational policies for Indigenous peoples being linked to the goal of assimilation, this can be seen within youth programs. Programs, such as 4-H and FFA are inherently developed with a Eurocentric way of viewing agriculture, such as with showing livestock.	Native nations take Eurocentric youth programs and are trying to recreate those to be Indigenous specific for the benefit of their youth and continue their cultural existence – a form of survivance. Youth are often taught both Eurocentric and Indigenous knowledges in order to effectively create future agriculturalists to navigate their own entangled futures, as seen in Theme 6: <i>Train the leaders of tomorrow.</i>

Table 5.2. Comparison of Theoretical Frameworks

As can be seen in Table 5.2, while TribalCrit provides an appropriate lens for the study, Osage ribbon work provides a comprehensive framework. By taking a deeper look at a comparison of theoretical frameworks, it is apparent that as Native nations navigate complex entanglements, there is not one single model that can work across Indigenous programs. Each Native nation has unique goals and through the theoretical frameworks, these entanglements of each nation navigating and negotiating these complex systems can best be understood.

While TribalCrit and Osage ribbon work were the theoretical frameworks used to frame this study, additional decolonizing theoretical frameworks could be used. For example, red pedagogy seeks to remember, redefine, and reverse colonialism (Grande, 2008). Another example is insurgent research, which works within Indigenous frameworks to reimagine the world by putting Indigenous ideals into practice (Gaudry, 2011; Pewewardy, Lees & Clark-Shim, 2018). Insurgent research also realizes the responsibility of researchers to combat further colonial dysfunction by facilitating harmonious relationships within Indigenous communities (Gaudry, 2011). Next, the Transformational Indigenous Praxis Model (TIPM) is a four-stage approach that promotes cultural consciousness and critical awareness for educators (Pewewardy, Lees & Clark-Shim, 2018). Lastly, Indigenous Postcolonial Theory seeks to deconstruct Eurocentric education systems by Indigenizing curriculum and restore Indigenous knowledges (Battiste, 2004; Pewewardy, Lees & Shim, 2018). Ultimately, each of these decolonizing theoretical frameworks could effectively situate a study related to Indigenous agriculture and agricultural education.

In conclusion, TribalCrit and Osage ribbon work are the theoretical frameworks that effectively frame this study. These frameworks illustrate the efforts of the four Oklahoma Native nations and the College of the Muscogee Nation as they create agriculture and agricultural education programs for the benefit of their people. Ultimately, these theoretical frameworks situate the study to view the efforts put in by the four Oklahoma Native nations and the College of the Muscogee Nation as they align with Theme 6: *Train the leaders of tomorrow*, to create the foundation for future Indigenous leaders.

Significance of the Study

This study plays a significant role in both the Indigenous and agricultural education communities. There exist gaps in literature related to Indigenous agricultural education and agriculture programs administered by Native nations. This study serves to fill gaps in literature, while also providing the foundation to support theoretical and practical foundations for future Indigenous agricultural education programs.

To begin, this study exemplifies the tremendous agricultural work that is being performed within Oklahoma Native nations. Sovereign nations are often in a unique position of assuming the responsibility of pursuing agricultural system to support the food needs of the Indigenous community. These efforts, as seen with the four Oklahoma Native nations included in this study, are robust and diverse. Often, these programs sustain with limited resources yet provide a significant impact to each Native nation, especially in terms of food sovereignty. Resources, as identified in Theme 2: *Take advantage of the resources available to us*, is a common thread across all cases and each case exemplifies using resources to build successful programs. The agriculture programs within these cases started small but have grown significantly over time.

In addition to the agricultural work presently occurring, the work each case is doing to build future Indigenous agriculturalists plays a significant role for the future of the greater Indigenous communities. The groundwork has been created to support Indigenous specific agricultural education programs that can play a significant role for other Native nations that are seeking to develop their own programs. With the proper groundwork in place, Theme 6: *Train the leaders of tomorrow* becomes a reality. The existing Indigenous agricultural education programs have created a framework for future programming to develop Indigenous leaders.

Not only does this study serve as the groundwork for Indigenous agricultural education programs within Native nations, it creates a foundation for incorporating Indigenous knowledge

at a post-secondary education level. Through the exploration of the College of the Muscogee Nation, it is apparent post-secondary education institutions have capacities to incorporate Indigenous knowledge into curriculum. In this vein, Theme 4: *We're utilizing resources we've got now but not forgetting our heritage* is apparent. This study opens a space to further investigate the capacity to build Indigenous agriculturalists with a specific emphasis in cultural knowledge through youth programs and post-secondary institutions. This is a space that has not been filled with current literature and now has a foothold.

Additionally, the study supports the groundwork to further build upon relationships with Native nations and Oklahoma Cooperative Extension Service. While each tribe is uniquely situated, this study helps facilitate future conversations related to the needs of Indigenous communities. Additionally, this study illuminates gaps that exist for Native nations, which organizations such as Oklahoma Cooperative Extension Service can help fill. While Cooperative Extension was created with a colonial mindset (Hart, 2006), there are opportunities to engage sovereign nations in a meaningful way. This study illuminated that *Partnerships are very important*, as detailed in Theme 3. In light of this, there exists the opportunities for engagement to support the needs of nations as programs are implemented. The Oklahoma Native nations have illustrated the positive agriculture and agricultural education initiatives, therefore creating opportunities for engagement of Cooperative Extension to further support these efforts.

Lastly, this study opens a space for Indigenous agriculture and agricultural education. There are tremendous efforts being made to develop Indigenous agriculture systems and create the opportunity to further develop these spaces. The work in Indigenous agricultural education is worthy of praise within the four Oklahoma Native nations. These programs were created through capacity of people within each nation as seen in Theme 1: *The people create your*

capacity in what you can do. Their efforts are centered on the development of Indigenous agriculturalists and the administrators of these programs work many hours to benefit their people. Throughout this study, it was evident that each individual involved with Indigenous agricultural education takes great care and pride in developing future agriculturalists. Within each Native nation, they are *not starting with empty hands* as seen in Theme 5. The foundation of these nations have set the groundwork to open the space for further development within their capacity as well as support the program development of other Oklahoma Native nation programs.

Recommendations for Future Research

At the conclusion of this study, there are recommendations that can be made. The first recommendation for future research centers on expanding the scope to include additional Native nations. Each Indigenous community has a unique history and engagement with agriculture. This study is focused on four Oklahoma Native nations, but engaging with additional sovereign nations within Oklahoma and other nations outside of Oklahoma could provide important data for Indigenous agricultural education programming. Further understanding sovereign nations in Oklahoma and expanding to nations across the United States and North America can create a greater understanding of the Indigenous engagement with agriculture and agricultural education programs.

Another recommendation for future research is related to factors limiting program development. Through the initial identification of agriculture and agricultural education programs within the thirty-nine (39) Oklahoma federally recognized Native nations, it is apparent the jurisdictional area and population size is not a limiting factor to program implementation. Both the smaller and largest Oklahoma Native nations are currently implementing agriculture and agricultural education programs. In light of this, additional

information could be gathered in future work to determine what limiting capacities might exist as Native nations engage in agriculture and agricultural education programs.

Additionally, the engagement between other Native nations and Cooperative Extension is of importance. This data could help in understanding the overall engagement of nations with Oklahoma Cooperative Extension, while understanding the efforts by Extension to engage with Indigenous communities. Partnerships, as seen in Theme 3: *Partnerships are very important*, play an important role in agriculture and agricultural education programmatic development for Native nations. By better understanding these partnerships, especially in regards to Cooperative Extension, more meaningful programs could be created to serve the Indigenous community. Also, this understanding has the potential to help Cooperative Extension better understand the needs of Native nations and also facilitate more meaningful relationships to support the greater Indigenous agricultural community.

The last recommendation is associated with post-secondary education institutions. There are examples of positively incorporating Indigenous knowledge with agriculture, such as with the College of the Muscogee Nation in Oklahoma. To further the discussion on Indigenous agricultural education, it would be worthy to engage land-grant institutions. Historically, land dispossessions from Native nations occurred for the development of land-grant institutions. In light of this, efforts are being made from institutions to acknowledge Indigenous land these institutions reside on. As these efforts continue, it would be worthy of future research interests to focus on how these land-grant institutions engage Indigenous knowledge into their curriculum.

In conclusion, this study sets a foundation for future Indigenous agricultural education research. Opening the door to Indigenous agricultural education through the work of nations creates future opportunities to engage related topics. Native nations have situated themselves to

be at the forefront of agriculture initiatives and the subsequent work to facilitate agricultural education is equally robust. Any future work created from this foundation will further support the development of Indigenous agricultural education programs created to produce Indigenous agriculturalists and ultimately, in the thread of Theme 6, *train the leaders of tomorrow*.

Conclusion

Native nations have situated themselves to be successful in agricultural education programs that promote the development of agriculturalists. This study, situated in the theoretical frameworks of TribalCrit and Osage ribbon work, explore four Oklahoma Native nations and the College of the Muscogee Nation as they develop and implement their respective agricultural education programs. Through the lens of TribalCrit and Osage ribbon work, this study showcases how each case navigates Eurocentric agriculture to create uniquely Indigenous programs to fit their respective nation's goals. Additionally, each case faces unique ribbons of entanglements, yet find ways to navigate those challenges.

Through the exploration of the Oklahoma Native nations and the College of the Muscogee Nation, it is apparent these nations are at the forefront of agriculture and educating their people. Collectively, the four Native nations make a substantial contribution to agriculture. To start, the Quapaw Nation manages 1,200 head of Angus cattle, 200 bison, a 25,000-square foot meat processing facility, seven greenhouses, an apiary, and farms 2,000 acres. Next, the Muscogee (Creek) Nation manages 368 head of cattle, a 25,000-square foot meat processing facility, and farms 359 acres. Additionally, the Osage Nation manages 2,000 head of cattle, 100 bison, a 40,000-square foot greenhouse, an aquaponics system, and a 19,000-square foot meat processing facility. Lastly, the Choctaw Nation manages 3,000 head of Angus cattle, a combined 11,000 pecan trees, and a demonstration farm consisting of aquaponics, raised beds, and

demonstration plots. In light of these programs, it is apparent each Native nation values agriculture and subsequently values the importance of education.

Additionally, this study celebrates the successes seen within each Native nation and the College of the Muscogee Nation. The space created within this study is one of support and positivity. This study started without the Choctaw Nation and the College of the Muscogee Nation in mind. As the study progressed, the efforts of the Choctaw Nation and College of the Muscogee Nation became apparent and ultimately, these cases were included in the study. This addition of the Choctaw Nation and College of the Muscogee Nation created a more robust and meaningful study.

In conclusion, it is evident that agricultural education in the four Oklahoma Native nations and the College of the Muscogee Nation is an important component to sustaining Indigenous culture and community. The first agricultural educators in North America were Indigenous peoples (Croom, 2008). In this light, each Native nation created robust agriculture programs and through those programs, there are educational opportunities to teach Indigenous youth and train them to be successful agriculturalists, as well as future leaders. This study creates a foundation for Indigenous agricultural education that was previously missing in literature. In the future, this study lends a foundation to future research to further explore Indigenous agricultural education. As both a citizen of a sovereign nation and an administrator of an Indigenous agricultural program, this study is important for the continued development of agricultural programming within my Native nation, as well as the groundwork for other nations seeking to create positive future Indigenous programs.

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Appendix A

Phone/Email Solicitation

Indigenous Tribal Representative,

My name is Jann Hayman and I am a doctoral student at Kansas State University, studying Educational Leadership. I am developing a study to explore the efforts that four Oklahoma tribal nations have taken to create Indigenous-specific agricultural education programs and to understand how these programs are implemented for the benefit of their people. I know you are in a position within your capacity to help me understand more about your knowledge related to Indigenous agricultural education program implementation. For this study, I am looking to meet with you and review any documents that might be available related to program development and implementation. Your participation in this study is voluntary. If you are interested in participating, please contact me at jannhayman@osagenation-nsn.gov or (918) 625-9698. I look forward to talking with you further. I appreciate your time.

Sincerely,

Jann S. Hayman

Osage Nation/Kansas State University

Appendix B

Informed Consent Form

PROJECT TITLE: A Look at Indigenous Agricultural Education in Oklahoma: A Case Study

PROJECT APPROVAL DATE: April 1, 2020

EXPIRATION DATE: May 30, 2020

LENGTH OF STUDY: 12 months

PRINCIPAL INVESTIGATOR: Dr. Jeffrey Zacharakis, Ed.D., Professor, Adult learning and Leadership, Educational Leadership Department

CO-INVESTIGATOR: Jann Hayman, Doctoral dissertation research

CONTACT DETAILS FOR PROBLEMS/QUESTIONS: Dr. Jeffrey Zacharakis, jzachara@k-state.edu or (785) 532-5872

IRB CHAIR CONTACT INFORMATION:

- Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-3224
- Cheryl Doerr, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, Kansas 66506, (785) 532-3224

PURPOSE OF THE RESEARCH: The purpose of this study is to explore the efforts that four Oklahoma tribal nations have taken to create Indigenous-specific agricultural education programs in an effort to understand implementation of those programs that benefit their people.

PROCEDURES OR METHODS TO BE USED: This descriptive multiple-case study will utilize semi-structured interviews, document analysis and field notes.

RISKS OR DISCOMFORTS ANTICIPATED: There are no foreseeable risks or discomforts associated with this pilot study.

BENEFITS ANTICIPATED: It is anticipated that the benefits from this study include understanding Indigenous agricultural education program development that can be used to guide future program development within other tribal nations.

EXTENT OF CONFIDENTIALITY: All data collected during this study will be stored securely and will be only available to the researcher. Data stored on the computer is only accessible to the researcher through password protection. Data stored in hard copy will be stored in a locked cabinet, which is only accessible by the researcher.

IS COMPENSATION OR MEDICAL TREATMENT AVAILABLE IF INJURY OCCURS?

No

Terms of participation: I understand this project is research, and that my participation is 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 or penalty.

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.

PARTICIPANT NAME: _____ DATE: _____

PARTICIPANT SIGNATURE: _____ DATE: _____

WITNESS TO SIGNATURE: _____ DATE: _____
(PROJECT STAFF)

Appendix C

Interview Guide

There will be semi-structured, open-ended interviews conducted with four participants during this study. Each interview will last approximately 60 minutes. The focus will be on two interviews for each participant, with one or two follow-up discussions to answer questions after reviewing the first interview. The questions will be used to guide the interviews, but will remain flexible to move where the participant guides the conversation. The focus of the interviews will be the following questions:

1. Tell me about your role within your respective Indigenous tribe.
2. Can you describe the timeline of events that led to the development of agricultural education programs?
3. Can you explain the successes in agricultural education program development?
4. Conversely, can you describe any challenges in agricultural education program development?

The interviews will be recorded, when appropriate. Since the interviews will be conducted within an Indigenous setting, the researcher is aware of the nuances of being recorded. If the participants do not feel comfortable being recorded, the researcher will take detailed notes during the interview sessions.

After each session, the researcher will take time to write down any additional notes that may seem relevant from the interviews. These field notes will include participant reactions, information regarding the setting of the interviews, or any other important information that might be relevant to the study.

Additionally, the researcher will work with each participating on member checking. After each interview session, the researcher will transcribe the interviews or put together typed notes and allow the opportunity for the participants the review the information. If there are corrections that need to be made, the researcher will coordinate with the participants on making the corrections and allow for another opportunity for member checking.

Appendix D

Debriefing Statement

Participants,

Thank you for volunteering to participate in this study focusing on Indigenous agricultural education programming. This study consisted of two interviews and document analysis at four Oklahoma tribal nations. The data collected from the interviews and documents will help to understand Indigenous agricultural education programs that currently exist for the benefit of Indigenous people.

Your participation in this study remains entirely confidential and your information will not be released or used in the final documents. The final data will be available for your review after May 30, 2020. If you are interested in seeing the final product, please contact the researcher at jannhayman@osagenation-nsn.gov or (918) 625-9698. If you would have questions or comments and would like to speak to someone other than the researcher, please contact Dr. Jeffrey Zacharakis at jzachara@k-state.edu.

Again, your participation in this study is appreciated. Your participation has furthered my knowledge within Indigenous agricultural education programs. Thank you for your time and effort.

Sincerely,

Jann S. Hayman

Osage Nation/Kansas State University