

AN APPROACH TO NUTRITION EDUCATION FOR URBAN AMERICAN
INDIANS IN THE TWIN CITIES

A THESIS
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL OF THE
UNIVERSITY OF MINNESOTA
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE

CRAIG HASSEL

MAY 2017

Acknowledgements

I would like to express the deepest gratitude to our Heavenly Parent (Creator) and all good ancestors who guided me to this point and many thanks to my advisor Dr. Craig Hassel for being incredibly patient with me. Thank you for your kindness and understanding.

I am indebted to the wonderful people at Dream of Wild Health, notably, Ernie Whiteman, Hope Flanagan, Estella LaPointe, Jennie Krocak, Cassandra Silveira, Sammie Rivera, Frank Haney, Clara Sandberg, Heather Drake, and Diane Wilson. It was an honor and privilege working with these traditional foods. Also, I am indebted to Angie Hernandez, Amanda Dionne, Al De Gross Jr. and Larry, who without which this thesis would not have been possible. Thank you, wado-dv, pidamayaye, pinagigi, and che miigwech for your knowledge and teachings.

I offer thanks and appreciation to Dr. Tiffany Beckman and Dr. Len Marquart for agreeing to be my committee members. Also, many thanks to the Minneapolis Family Church community and friends for supporting and encouraging me during graduate school.

With all my heart, I would like to offer a huge thanks my husband, Florentin, for his amazing support, empathy, and for appeasing to my 'waves of emotions' while writing this thesis.

Lastly, I wish to express my utmost appreciation and gratitude to my parents (particularly my mother) for all of the unconditional love and support. My apologies for it is difficult to convey in English what is in my heart but thank you for instilling the virtues of education and "living for the sake of others" in me.

Dedication

To all my relatives, I pray to the Creator that good things will come from this thesis that will benefit our community.

"We do not learn from experience...we learn from reflecting on experience."

-John Dewey

Abstract

American Indians in the Twin Cities make up a diverse and geographically dispersed urban community. Historical experiences of colonization, through treaties, allotments, reservations, relocation, and dependency on commodity foods, have had a lasting impact and adverse consequences to health. Too often nutrition education makes little mention of this, if at all. With Indigenous knowledge as a framework, Community-based Participatory Research (CBPR), Participatory Action Research (PAR), and Action Research (AR) hold potential benefit to the community. This thesis presents the building of relationships through engagement with community members and American Indian organizations that, over time, led to three distinct projects: a vision for a Native food hub, guidelines for culturally appropriate nutrition education for SNAP-Ed Community Nutrition Educators (CNEs), and development of culturally appropriate recipes for heirloom Dakota flour and hominy corn. Grounded on American Indian epistemology and axiology, these projects unveiled knowledge of the collective already held within the community.

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General Introduction

The Twin Cities urban American Indian¹ population is diverse, geographically dispersed and economically disadvantaged. The causes of diet-related health problems are complex. Disease patterns among American Indians are strongly associated with adverse consequences from poverty, limited access to health services and cultural dislocation [1]. The changes in diet forced on American Indians by relocation to reservations and dependency on commodity foods has had a lasting impact on the population [2]. Traumatic historical experiences associated with a long history of land theft, family and cultural disruption, forced assimilation, high rates of unemployment, discrimination and cultural differences all contribute to unhealthy lifestyles, diet-related chronic diseases for many American Indians.

Many continue to experience limited access to healthy, cultural foods and high rates of diet-related health problems. These disparities have been documented to a limited extent in literature but implementing this knowledge into social action and change is lacking in this community [1], [3]–[6]. Research involving American Indians typically occurs with specific tribal communities on reservations. Little research occurs with urban American Indian communities because of many complicating factors, including the challenges of identifying and locating American Indians within an urban context [7]. There is a need to explore the cultural knowledge and relationship to food and nutrition held within this community. Also, there is a need to catalyze into action using these resources in ways that empowers the community to reclaim good health and wellbeing.

This thesis explores the issues around food and nutrition in the American Indian community of the Twin Cities. The goal was to engage in conversation with

¹ The term American Indian, Native American, Native, Indian, and Indigenous are often used interchangeably in conversation and in literature. For the sake of consistency, 'American Indian' is predominantly used in this thesis. Some people consider one term or another as offensive while others do not. In many conversations, people have identified themselves by tribe, band, and/or clan before identifying to the above terms.

community members around issues with food and to identify existing assets and leaders within the community. The purpose of these conversations was to find practical solutions to the problems that exist and to use the knowledge generated from these conversations to create a culturally appropriate approach for nutrition education in the urban American Indian community. The idea of developing a Native food system outlet or food hub, similar to a food cooperative, appropriate to and conducive within the community context, was explored as a potential longer-term project.

Chapter 1 Historical and Present Context

1.1 Introduction

In informal conversations, it has often been expressed that the historical experience of colonization, dispossession, and disenfranchisement are part of the root causes for contemporary health problems for urban American Indians. Too often the realm of nutrition education makes little mention of the impact of such systemic societal injustices, or are just beginning to acknowledge these deeper “upstream” realities. This section demonstrates an overarching theme in federal policies aimed primarily at assimilation of American Indians into Western Euro-American culture and society. Hence, to assimilate American Indians meant to put to an end American Indian cultures and traditional ways of living. Urban American Indian communities across the U.S. carry within their lived experience a larger shared history as well as unique histories according to the region. To understand how the urban American Indian community of the Twin Cities came into existence we must examine the history of relevant U.S. federal policies entered upon territories that would become the state of Minnesota. While a comprehensive and detailed history of U.S.-American Indian relations is beyond the scope of this thesis, this section provides a brief summary of three constructed eras: pre-contact, contact, and present.

1.2 Pre-Contact Era: Before Minnesota, Culture and Health of the Upper Midwest

Prior to contact with Europeans, American Indians experienced superior health virtually absent of diet-related chronic diseases [8], [9]. Traditional lifestyles, diets, knowledge, and cultural practices around edible foods ensured communities were healthy and well nourished [10]. The amount of physical activity required for daily activities and semi-nomadic lifestyle ensured people were physically fit [10], [11]. Foods typically were obtained directly from the land and water by hunting, gathering, gardening, and fishing [12]. Obtaining these foods required centuries of developed ecological, biological, and philosophical understanding of the world around them [10], [13]. This process of ‘coming to know’ the world is described by author, Gregory Cajete, as “Native Science” that

enabled the people through intimate relationships with the land to develop sustainable and sophisticated local food systems [13].

The diet-quality and physical lifestyle that were available to American Indian people of Minnesota reflected the balanced seasonal changes and rhythms of the land [12], [14]. In the Spring, food sources included fish, fish eggs, rabbit, bear, mushrooms, milkweed, watercress, aster, clover, and pigweed [12], [15]. Maple camp began when the first crows returned and syrup was boiled down from maple, box elder, and birch tree sap [12], [15]. The summer was the time for planting gardens and gathering wide variety of berries such as wild raspberries, dewberries, blackberries, blueberries, strawberries, juneberries, and elderberries (see Table 1.1) [14]. Wild birds were hunted along with small game such as muskrat and beaver [15]. The hunt for larger game, such as deer, occurred later in summer [14]. Gardens containing the 'Three Sisters' (corn, beans, and squash) and other edibles, such as sunflower, were planted and maintained then harvested in late summer and early fall [16], [14]. Fall season was the time of manoomin (wild rice) harvest and the gathering of a variety of nuts and seeds such as acorns, black walnuts, pine nuts, hazelnuts, and hickory nuts [14]. After the first frost killed off parasites, group hunting for large game commenced, including elk and moose as well as a time for hunting fowl including duck, turkey, pleasant and grouse [14]. Winter foods included provisions from the fall supplemented with fish, deer, elk, squirrel and rabbit, along with sumac fruits, wintergreen leaves, balsam fir leaves, white cedar leaves and black cherry bark [14].

American Indians have a developed understanding about nutrition. They knew certain foods alone or in combination with other foods had certain effects on the body [10]. A good example of this was the encounter of Jacques Cartier and his crew in the upper Midwest area (present day Quebec, Canada) with an American Indian person in 1535 [10]. His ship became trapped in ice during the early frigid spring [10]. He and his crew suffered a common deficiency experienced by

European sailors in those times: scurvy (vitamin C deficiency) [10]. Though American Indians at this time did not know of vitamin C, they were well aware of deficiency symptoms and how to treat and prevent it. The men were given a tea brewed from white cedar needles, a traditional food for upper Midwest American Indians, rich in vitamin C [10]. Unfortunately, American Indians would not receive credit for this life-saving knowledge. Credit would be giving to Scottish physician, James Lind to have “discovered” the cure for scurvy in citrus fruits [10].

These seasonal eating patterns were developed and maintained for countless generations. According to author Gregory Cajete, for American Indians “the entire realm of food provide a context in which all dimensions of Native Science are expressed” [13]. The environment, lifestyle, and view of the world shaped the cultures of the people. Culture played a central role in how to live and relate with one another and with the living world around them. Centered on culture, the people knew how to live and live it well. Today, these traditional food patterns are widely recognized by professional nutritionists as representing very healthy, whole food diets [9], [10], [17].

1.1 Contact Era: Treaties and Ceded Lands

Two tribal groups predominantly inhabited the lands of present-day Minnesota and are often referred under different names depending on the context and time period. Many refer to these groups as Ojibwe and Sioux [18]. These names and their variants (Ojibwa or Chippewa) originate from French fur traders [19]. The true name for the Ojibwe is Anishinaabe or Anishinaabeg (plural) [19]. Sioux is derived from two words: “nadowessi” from the Anishinaabe language meaning ‘snake’ and “oux” from French to make a word plural so “nadowessi-oux” translates to ‘snakes’ or ‘little snakes’ [20].

Table 1-1 A Sample list of pre-contact traditional foods of the upper Midwest [15].

Above ground	Fruits	Nuts & Seeds	Below Ground	Four-Legged	The Finned	Everything else
Squash	Strawberries	Wild rice	Indian turnips	Deer	Fish	Turtle eggs
Beans	Blueberries	Sunflower seeds	Cattail roots	Moose	Whitefish	Fish eggs
Pumpkins	Juneberries	Acorns	Bulrush roots	Bear	Sturgeon	Bird eggs
Milkweed	Chokecherries	White oak acorns	Wild onion	Buffalo	Largemouth-bass	Box-elder sap
Wild lettuce	Pin cherries,	Bur oak acorns	Arrowhead root	Rabbit	Walleye	Sugar maple sap
Cattail	Ground cherries	Chestnut	(Indian potato)	Porcupines	Northern pike	Red maple sap
Wild leek	Black cherries	Oak acorns	Jerusalem	Skunk	Perch	Black maple sap
Day lilies	Cranberries	Red oak acorns	artichoke	Beaver	Sunnies	Silver maple sap
Horsetail	Elderberries	Black oak acorns	Wild ginger	Muskrat	Trout	White birch sap
Lamb's quarters	Wild grape	Curly dock seeds	Yellow water lily	Grey squirrel		Yellow birch sap
Honeysuckle	May apples	Hazelnut	root	Raccoon		Alder sap
Moss	Bunchberries	Pumpkin &	Meadow	Elk		Inner bark of
Lichen	Black crowberry	Squash seeds	Horsetail tubers			Climbing-
Hog peanut	Bearberries	Shagbark	False Solomon's	The Winged		Bittersweet
Cow-parsnip	Huckleberries	Hickory nuts	seal rhizomes	Partridge		Inner bark & twigs
Peppergrass	Raspberries	American-	Large-leaf aster	Wild turkey		of Basswood
Field mint	Currents	hazelnut	roots	Grouse		Ashes
Spicebush	Gooseberries	Groundnut	Two-leaved	Duck		Balsam fir pitch
Sassafras	Hawthorn-	American-	pepper root	Canadian-		Jack pine pitch
Sweet fern	berries	beechnut	Toothwort root	geese		Red pine pitch
Yellow lotus	Wild plum	Cluster nuts	Water-	Pigeons		Spruce pitch
Wood-sorrel	Wild crabapple	Black walnuts	horehound	Prairie-		White pine pitch
Marsh-marigold	Dewberries	Pine nuts	Crow potatoes	chicken		Crayfish/crawfish
Cowslip leaves	Sumac berries	Balsam seeds	Balsam root	Dove		
Clover leaves	Rosehips					
Morel						
Wintergreen						
Balsam fir						

Hence, Sioux is slang of two words fused from two different languages. The true name of the Sioux in Minnesota is Dakota. These two tribal groups make up the eleven federally recognized tribes in Minnesota (see Figure 1.1).

In roughly six decades, the life and environment of the people would be forever changed through treaties and land cessions made between the Anishinaabeg and Dakota and the U.S. Federal government (see Table 1-2). The Indian Removal Act of 1830 forced many American Indian tribes east of the Mississippi River to relocate from their ancestral homelands to reservations hundreds of miles away [21]. The Anishinaabeg and Dakota in Minnesota were able to remain on their ancestral homeland to some degree. However, their territorial boundaries were drastically reduced to where traditional ways of gathering food through hunting, fishing and gathering by seasonal migration were no longer sustainable [22], [23]. The process of gradual and inevitable settler encroachment over these decades disrupted traditional culture and food patterns [24]. People who were once highly self-sufficient, healthy, and vibrant over time were forced into becoming more and more dependent on the federal government for survival.

These treaties were signed in exchange for cash payments and other resources but corruption and fraud along with loss of access to traditional food sources, pushed American Indians into an impoverished state, economically, physically, mentally, and spiritually. For some, it was more than they could bear. In 1862 several young Dakota men, overwhelmed from widespread starvation among their people, retaliated in an effort to drive Whites out of Minnesota in what became known as the “Dakota Uprising” or the Dakota War of 1862 [22]. Details of this conflict can be found in other literature but in summary it led to the largest mass execution of 38 Dakotas (plus 2 more two years later) in U.S. history, leaving a deep wound in the hearts of Dakota people [22], [25], [26]. The Dakota War of 1862 compelled the federal government to abolish all treaties made with the Dakotas and expel them from Minnesota [22]. It would take several decades

for the Dakotas to return home and form the four recognized Dakota nations in the southern half of Minnesota [22], [26].

The making of treaties officially ended in 1871 through one of several Indian Appropriations Acts that essentially ceased federal recognition of American Indian tribes as independent nations and declared all American Indians as “wards of the state” [21], [27]. Believing that American Indians were incapable of managing their own affairs, an onslaught of federal policies directed at eradicating what some considered as the “Indian problem” were to follow [24]. This problem can be understood as the federal government having to deal with “Indians” resisting and rebelling against assimilation to dominant Euro-American society [28]. To combat this, attacks on multiple fronts would be implemented in order to eradicate the very core of what it is to be “Indian”: culture. The following sections summarize policies that affected central aspects of American Indian culture: relationships to land (allotment), diet (commodity foods), and education (boarding schools).

1.1 Land Allotments: “Checker boarding”

Government officials and humanitarians sympathetic to American Indian welfare had difficulty grappling with the concept of collective ownership, particularly to land, in the way American Indians understood it [29]. They believed that individual ownership of land was the key to civilizing American Indians, eliminate traditional relationships to land, and assimilate them to Euro-American society as private land-owners [24], [30], [31]. Thus in 1887, Congress passed the General Allotment Act, also known as the Dawes Act, that essentially ‘broke up’ reservation lands across the U.S., communally owned by tribes, to individualized parcels allotted to male heads of households [24]. For the state of Minnesota, the Nelson Act of 1889 was an extension to the Dawes Act that would relocate all Anishinaabeg to White Earth and Red Lake reservations and allot lands to each tribal member [16].

Allotment of reservation lands were as follows: 160 acres to male head of family households, 80 acres to single individuals over 18 years of age or orphans under 18 years, and 40 acres to single individuals under the age of 18 [24], [29]. All 'excess' lands were put up for auction to non-Indian buyers [24].

As noted in Table 1-2, allotment of lands were already in effect for tribes in Minnesota through treaties such as the 1858 land cessions with the Dakotas [30]. However, allotments made through treaties were often designated to certain individuals, notably mix-bloods (biracial American Indian and White) and those whose relatives were involved with the signage of treaties [22], [30]. Red Lake nation eschewed allotment and remains as the only "closed reservation" in Minnesota (all lands communally owned by the tribe) [32]. White Earth, on the other hand, succumbed to allotment. White Earth as well as other areas of northern Minnesota, such as Gull Lake, were rich in Pine forests and deemed prime real estate by the lumber industry [33], [35], [36]. Treaties and land allotments were, in reality, engineered to benefit lumber business interests, among others, and paved the way for the vast wealth generated in Minnesota [30], [36], [37].

In addition to this, inheritance of allotted lands were sub-divided among siblings/heirs [24]. Consequently, over generations the parcels were divided such that not enough land was left to allow for farm production or even subsistence [24]. Unfamiliar with the Western concept of land ownership and steeped in poverty, many were swindled and exploited by land-hungry settlers and entrepreneurs to sell their allotments [29], [38], [39]. Thus, many allotments were ultimately sold to non-Indians [24]. By 1933, roughly 94% of allotments at White Earth reservation were acquired by non-Indians [35].

Table 1-2 Sample of Treaties Involving American Indians and Land Within Minnesota Territory [23], [26], [32], [33]

Date	Tribes	Location	Treaty Summary and Effect on the People
1805	Dakota	Pike Island, MN	Purchase of Pike Island at confluence of Minnesota and Mississippi Rivers; never proclaimed by U.S. president (necessary to making treaty official), treaty authenticity called into question; Fort Snelling is built on this site regardless.
1825 & 1830	Multiple	Prairie du Chien (Chêne), WI	First treaty to set territorial boundaries for nearly a dozen tribal nations in the upper Midwest; precursor to tracts of land to be purchased by the U.S.
1837	Chippewa & Dakota	Eastern Minnesota, Northwest Wisconsin	Lands ceded (north of present-day Twin Cities metro area) in exchange for annuity payments and debt payments; coincided the decline of fur trade economy
1847	Chippewa (Pillager Band) & Dakota	Central Minnesota	Land ceded to the Menominee and Ho-Chunk nations to settle disputes between Chippewa and Dakotas over scarce hunting resources; both nations never relocated; lands eventually ceded back to the U.S.
1851	Dakota (Mdewakanton, Wahpakoota, Sisseton & Wahpeton bands)	Southern-half of Minnesota	All lands in Minnesota Territory ceded (nearly half of the state in size); 10 miles strip along sides of Minnesota River (20 miles in diameter) set as reservation boundaries. Access to food severely limited due to reduced territory; starvation rampant; Dakotas dependent on government commodities; corruption in food distribution exacerbated starving conditions; ultimately led to the “Dakota Uprising”
1854	Chippewa	Extreme northeastern Minnesota	All land held in common by Lake Superior and Mississippi bands ceded; retained extensive rights to hunting and fishing; establishment of Grand Portage and Fond du Lac reservations

1855	Chippewa	Northern Minnesota	All land in northern Minnesota Territory ceded (except for defined reservations). Fur trade collapse increased dependence for annuity payments from ceded lands; Annuity recipients fall victim to fraud by Indian agents.
1858	Dakota	Western Minnesota/Minnesota River	Northern half of Dakota reservation along the Minnesota River ceded and sold to White settlers despite millions of acres ceded prior to this treaty; remaining lands allotted to individual Dakota families
1863 & 1864	Chippewa (Mississippi, Pillager, Lake Winnibigoshish Bands)	Northern Minnesota	Reservation lands ceded in exchange for extension on annuity payments; Mille Lacs band reservation secured for allied support to the U.S. during Dakota War of 1862; annuity payments to prominent Chippewa individuals impacts tribal politics and life ways.
1863 & 1864	Chippewa (Red Lake & Pembina Bands)	Northwestern Minnesota (North Dakota border)	Additional land ceded in exchange for annuity payments; reservation land never allotted; more than 3,000,000 acres lost.
1866	Chippewa (Bois Forte)	Northern Minnesota (Canada border)	Gold falsely found on Indian lands. All lands ceded in exchange for a reservation along with annuity payments and other resources; 160 acres allotted to specific individuals
1867	Chippewa of the Mississippi	Northern Minnesota	All lands ceded except for specific reservations (approximately 2,000,000 acres); Non-Indian timber business expands and fraudulently harvests 17,000,000 feet of timber from White Earth reservation

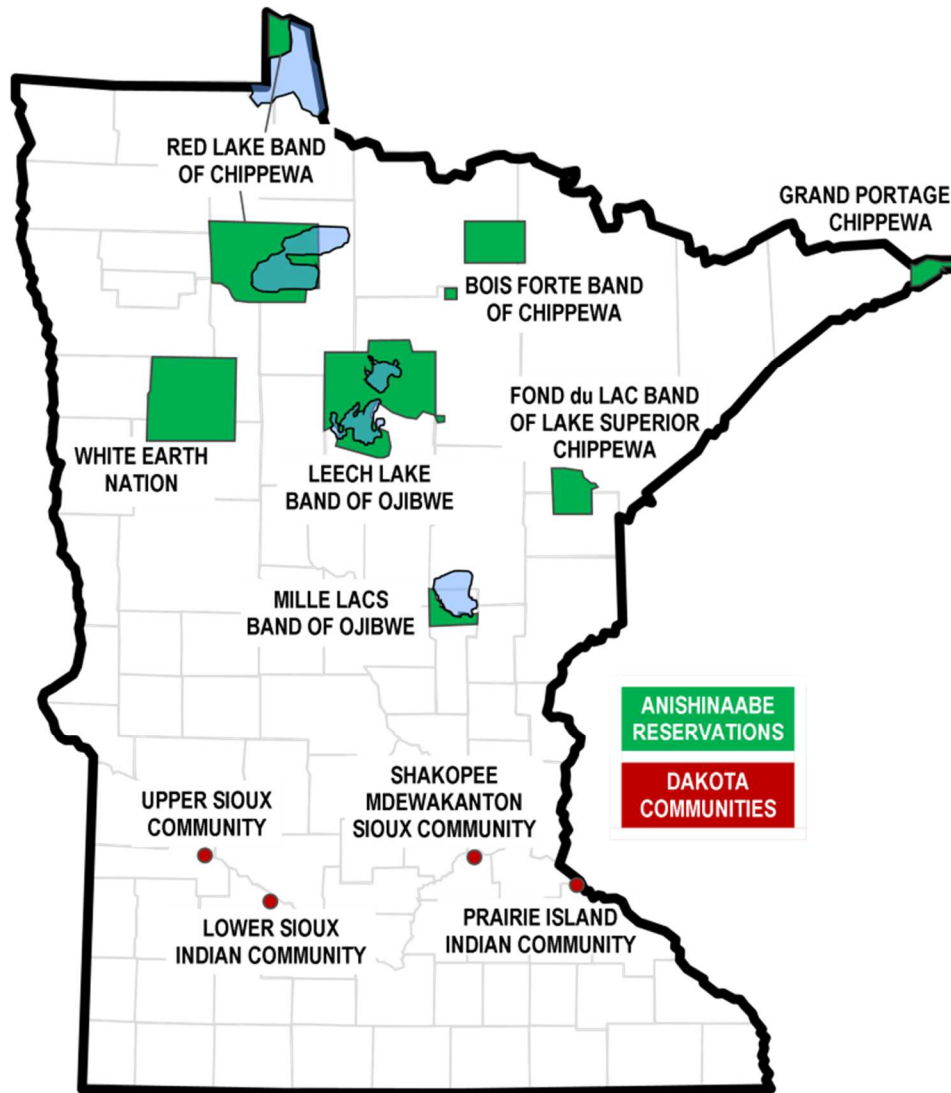


Figure 1.1 Map of the eleven federally recognized tribal nations in Minnesota; obtained from the Minnesota Department of Health website [34].

Though by 1986, with the congressional passage of the White Earth Land Settlement Act, White Earth was able to recover approximately 10,000 acres of land, making just 10% under tribal ownership [30], [35]. Surplus lands and allotments sold to non-Indians were located sporadically throughout tribal reservations forming a geographical landscape of parcels resembling that of a checkerboard (see Figure 1.2).

Moreover, this federal policy made substantial impact to tribes' sociocultural structures. Federal policy of land allotment based itself on Euro-American family culture that consists of patriarchal nuclear families [39]. While it is impossible to generalize the cultural values of hundreds of different American Indian tribes, many practiced a sophisticated matriarchal extended family structure that often classified relatives according to intricate clan systems [39], [40]. Many lived in multigenerational, multifamily households where familial roles by gender and age starkly contrast that of Euro-American families [39]. Socialized organization and clan membership provided American Indian family members roles and responsibilities that determined utilization and distribution of shared resources as well as a sense of cultural and community identity [39]. Disruption of these social and kinship structures demonstrates the federal government's effort in assimilating American Indians to Euro-American cultural values [39], [41].

Overall, the allotment act was disastrous in terms of achieving what government officials and humanitarians believed would assimilate American Indians, as individuals, to Euro-American standards of self-reliance and material prosperity [24], [39]. Many American Indians did not become farmers and most of the wealth generated from pine lumber went into non-Indian hands [29]. This wealth laid the foundation for key individuals in establishing the most successful food enterprises in Minnesota and nationwide: Pillsbury, Gold Medal Flour, General Mills, and Green Giant. [37].

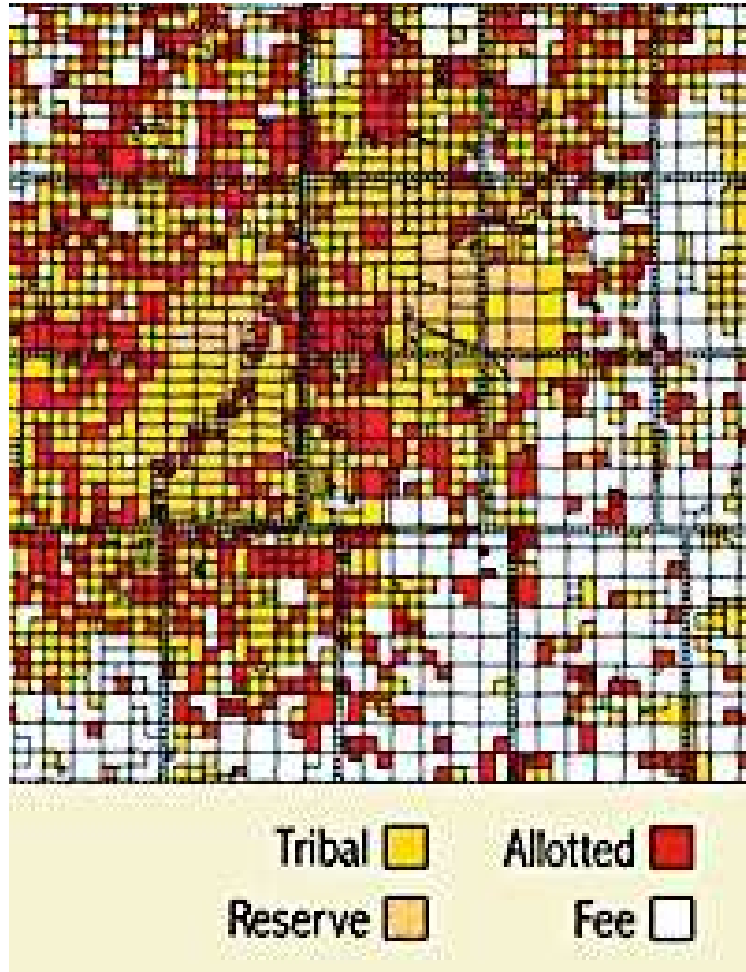


Figure 1.2 Example of land checkerboard with tracts of land in different colors under a variety of ownership, obtained from the Indian Land Tenure Foundation website [35].

Ironically, the detrimental loss of land and social resources experienced from this policy became the driving force of many American Indian tribes becoming entirely dependent on federal government food assistance (commodities) [2], [24]. This policy demonstrates how intervention developed outside of the context of American Indian culture can lead to unintentional damage to community health.

1.2 Federal Distribution of Food onto Reservations: “Commods”

When talking about food with American Indians, commodities or “commods” will come up in conversation without fail. Introduction of government commodity foods provided by the Federal government included, but not limited to, surplus flour, sugar, lard, beef, salt pork, cheese, often in the form of processed canned goods [11]. Unlike modern-day SNAP (Supplemental Nutrition Assistance Program), WIC (Women, Infants, and Children) and other food assistance programs, American Indians were not given EBT cards or stamps to purchase healthy foods at a nearby grocery store. They had little control over what foods (culturally-appropriate or not) and in what condition foods that were dispensed to them. These commodities typically arrived in poor quality and were at times deemed unfit for human consumption [11]. For American Indian people, the alternative to consuming these foods was starvation. Out of the need to survive, the palate of many American Indians rapidly altered, conditioned within a generation or two to a diet of highly processed, low quality food high in salt, sugar, and fat [11]. In many cases, these changes occurred before these foods were widely distributed and prominent within the mainstream American food supply [11]. Though this history is not well documented, it explains much about why we see unhealthy food preferences and food culture persist among American Indian people in urban environments [11].

A particularly symbolic food from the commodity food culture is frybread (also known as bannock) [2]. Frybread is a concoction of refined wheat flour, salt, sugar, baking powder or yeast, mixed with water then deep fried in oil or lard. It is an iconic food in contemporary American Indian culture met with bittersweet emotions [2]. On one hand it represents the subjugation of American Indians to

the U.S. federal government. On the other hand, it represents the undying resilience of American Indian people and their ability to create 'something out of nothing.' In the past, the high fat content of frybread provided the calories needed to survive [11]. However, as physical activity decreased in recent decades and the availability of food increased, frybread stands as symbolic of the changes in eating patterns and palate preferences that have contributed to the obesity epidemic among American Indians today [11]. There are efforts being made by some within the community to remove frybread and other similar foods from the food culture as a means to 'decolonize' their diets [42]–[46]. But for many people, it is deeply ingrained in their cultural identity despite its negative history, and remains an inexpensive and highly desired pleasure of contemporary life.

The relatively rapid development of chronic diseases among American Indians appears to reflect their vulnerability to the effects of rapid dietary and lifestyle changes over the past 200 years [11]. It is important to understand that American Indian communities experienced a dramatic change in lifestyle and diet involuntarily. These involuntary changes contribute to the high rates of chronic disease plaguing American Indian communities [17]. Diet-related chronic diseases such as Type 2 Diabetes and obesity were virtually absent before contact with European settlers [11], [47].

1.3 Assimilation Through Education: Indian Boarding Schools

The practice of assimilating American Indians through education dates back to colonial times as a means of conversion into the Christian faith [48]. Until the early 20th century, Indian boarding schools or mission schools were operated through Christian organizations supported by Imperial then federal funds [21]. After the declaration that all American Indians are "wards of the state," Congress redirected education to the Bureau of Indian Affairs [48]. The most well-known individual to fuel the momentum of assimilation through education was Lieutenant Richard H. Pratt, founder of the Carlisle Indian School in Carlisle, Pennsylvania, who coined the phrase, "kill the Indian, save the man" [48]

Attendance was mandatory such that Indian Offices, authorized by Congress in 1891, to withhold commodity foods, clothing, and annuity payments from American Indian parents and guardians who didn't send their children [49]. Children as young as 4 years of age were forcibly removed from their homes and taken to boarding schools, often located at long distances and were not allowed to return until after graduation [48].

The state of Minnesota had sixteen boarding schools that drew students from all eleven reservations, the first of which started in 1871 on the White Earth Reservation [49]. Upon arrival, American Indian children were stripped from their cultural clothing, washed, given Euro-American uniformed clothing, and given Euro-American/Christian names (see Figure 1.3) [48], [49]. For boys, their long hairs were cut short in Euro-American fashion [48]. Students were strictly forbidden to speak in their native language or exhibit any American Indian cultural practices and were punished severely for doing so [21], [48], [50]. After many years in the boarding school system, students went back to their home reservations unable to communicate with their families and, in some cases, were ostracized as they had become unrecognizable to their own parents [48]. For many students, this had a devastating impact on their sense of cultural identity and self-esteem.

These boarding schools operated in a military-like fashion [48]. Students experienced early morning wake-up calls either from bells or buglers around 5:45am, had tightly scripted schedules throughout the day, and were obligated to march between activities [49]. Typically, half of the day was spent on academic studies and the other half spent on manual labor, as part of their vocational training [48]. In the summers, students were assigned "outings" where they were leased out to American families for paid manual labor such as farm work and other chores [50]. This was to prevent students from returning home and potentially revert back to their 'Indian ways' [48].

Many of the boarding schools drew students from multiple tribal nations, even those who were considered enemies. Pipestone Indian School, located on the far southwest corner of Minnesota (near South Dakota border), enrolled students from Dakota, Oneida, Potawatomi, Arikara, and Sac and Fox nations [49]. Under a common language (English), language barriers were removed and they were able to form relationships with one another, developing a shared identity and a new common enemy (boarding school institution) [48]. Intertribal cohorts of students planted the seed for a “pan-Indian identity” that would become useful later on (to be discussed in section on self-determination).

It is impossible to summarize, at least in part, which gives justice to the boarding school experience. As author Mary A. Stout states, “...each person who attended boarding school had a different reaction and a different opinion about the process.” [48]. The key point to the Indian education policy was to assimilate, as well as indoctrinate, American Indians into emulating Euro-American culture and lifestyle. Though this policy failed in the sense that American Indian cultures continue to exist and to reclaim themselves, it is argued that the boarding school experience is a contributing factor to the high rates of health problems seen today: alcoholism, depression, suicide, and domestic abuse [21].

1.1 Termination Policy and Job Relocation

The earliest concept of relocating American Indians from reservations into urban centers took place after WWII [51]. The exemplary performance of American Indian men serving in the military led government officials to believe that if American Indians moved off the reservations into urban centers, they would become self-sufficient and assimilate into mainstream American society [51]. Henceforth, tribes would cease to exist and no longer be in need of federal subsistence. In 1956, Congress passed the Indian Relocation Act, also known as Public Law 959 that would relocate over 100,000 American Indians to nearly 20 major cities across the U.S., including Minneapolis, Minnesota [51]. In the same time period, efforts by the federal government, escalated by Indian commissioner Glenn L. Emmons, systematically dismantled federal recognition of numerous

tribes across the U.S. in what became known as the Indian Termination Policy [52], [53]. It does not appear in literature that tribes in Minnesota were affected from termination.

Participants of the program received up to 2 years vocational training and subsistence during training [51]. Customized pamphlets depicting pictures of American Indians wearing suits and housed in white picket fenced homes circulated throughout reservations to attract applicants [51]. It did not take long for word spread among tribal members about relocated relatives, fueling curiosity of the program [52]. As the number of applicants grew, so did the program. The program was entirely “voluntary” although some would argue that the ubiquitous sense of despair for life on reservations left no real other option but to relocate [51], [52].

Applicants had the choice of a designated city to relocate, each offering a particular type of employment (i.e. Seattle offered nursing positions and Texas offered steel welding, etc.) [51]. An implicit goal of the program was the strategic location of city sites for job relocation being far from home reservations to ensure little probability of returning home and increase the likelihood of assimilating into mainstream American society [51]. Target applicants were between the ages of 18 and 35 years and transported either by bus or train [51]. New arrivals were met with a relocation officer, taken to a local shop to buy groceries, toiletries, cookware, clothes, bedding, and an alarm clock [51].



Figure 1.3 Students and teachers at Red Lake boarding school (known as Government Indian School). Taken from Timothy G. Roufs' "When Everybody Called Me Gah-bay-binayss, 'Forever-Flying-Bird': An Ethnographic Biography of Paul Peter Buffalo" [54].

Many were assisted in finding a place to live, often in impoverished neighborhoods [51]. The first month rent plus food and other expenses (transportation to and from work) were supplemented [51]. In reality, the program relied on public employment agencies that typically gave the lowest pay and were often seasonal jobs [51], [52].

For many American Indians, the experience of relocation was an immense culture shock upon arriving to urban centers [51]. For many, basic utilities such as running water did not exist back on their home reservations; a privilege many Americans take for granted. Unaccustomed to mainstream American way of living, daily interaction with Euro-Americans such as a firm handshake with direct eye contact (a sign of strong character and courteous behavior) were deemed threatening, inappropriate, and disrespectful for American Indians [51]. As for mainstream American society, many had little to no exposure to American Indians and American Indian cultures [51]. Stereotypes and prejudice towards American Indians were rampant making relocation difficult and culturally isolating [51]. Many questioned where they stood in mainstream society and returning home was not always welcomed either [51], [52]. Tribal members remaining on reservations, feeling a sense of abandonment, often ostracized those who left [51]. Many of those who relocated experienced an extreme sense of isolation and depression with some resorting to suicide [51].

According to the 2010 census, nearly 78% of American Indians live off reservations [55]. Cities under the relocation program acquired an urban American Indian population that are multicultural and multi-tribal [56]. In some cases, a city can have nearly 100 different tribes represented in their urban American Indian population [56]. These statistics indicate the extent to which federal relocation policy forever changed the geographical and cultural landscape of American Indian people in the U.S.

1.2 Present Era: Toward Self-Determination

The experience of assimilation policies and government-designed ethnocide of American Indians, as well as living amidst a plethora of civil rights movements at the time, prompted a rise in American Indian activism. In 1968, the American Indian Movement (AIM), founded in Minneapolis, Minnesota, was established to contest the historical injustice incurred onto American Indian people [57]. AIM gained national attention for its occupation of Alcatraz Island (1969-1971; San Francisco Bay), marching on Washington D.C. (1972), and takeover of the site of the Wounded Knee Massacre (1973) [57].

Through activism, community grass-roots organizations, and a burgeoning desire for culture-centered spaces and cultural reconnection, urban American Indian community centers sprouted throughout urban centers to meet the needs of urban American Indians [51]. Establishment of urban American Indian community centers provided a space for intertribal interaction, further developing “pan-Indian” identities initiated from boarding school experiences [51], [52]. The Minneapolis American Indian Community Center and the Indian Health Board of Minneapolis are some of the first of many community organizations established in the Twin Cities (see Table 1-3) [58], [59].

1.3 Defining the Urban American Indian Community of the Twin Cities

Before delving into the demographics of the urban American Indians in the Twin Cities, we need to understand its complexity and the challenge for describing this community with current available data. Susan Lobo, cultural anthropologist and coordinator of Intertribal Friendship House’s Community History Project, published an article in 1998 describing the urban American Indian community in the Bay Area of California [56]. From my experience, Lobo’s observations and experiences with this community strongly resembles that of the urban American Indian community in the Twin Cities and many of her comments can be considered applicable to this community.

Lobo describes an urban American Indian community as: “fundamentally a widely scattered and frequently shifting network of relationships” [56]. These relationships of shared American Indian identity, cultural values, symbols, history, and social organization in an urban context are what forms an urban American Indian community [56]. The context and characteristics of this community make it difficult, if not impossible, to capture in statistical data. Castor *et al* best summarizes the challenges in research on American Indians living within an urban context:

“It is difficult to identify and target this group because of the geographic dispersal and small numbers of urban American Indians/Alaska Natives relative to the general population of the United States. Also, unlike reservation populations, the urban AIAN population comprises multiple tribal groups with diverse ethnic, cultural, and social characteristics. Political diversity exists between tribes that may or may not be recognized by the federal government or state governments. Moreover, degrees of urban acculturation vary, and movement around urban centers may be high as a result of feelings of social and cultural isolation associated with nonreservation living” [7].

In Castor *et al*'s observations, several factors make it difficult to estimate the urban American Indian population in the Twin Cities: geographic dispersal, small population size, high rate of residential mobility, and multiracial/multicultural identity [7], [60]. Despite these complexities, it is still beneficial and useful to know of the existing data available. With that said, the next chapter explores publicly available data on population, health, and socioeconomics with regards to American Indians living within the Twin Cities metro area.

Table 1-3 A Sample list of organizations and businesses servicing urban American Indians in the Twin Cities Metro Area.

Organization	Mission	Location
Ain Dah Yung Center	Ain Dah Yung (our home) is an emergency shelter for American Indian youth and families with culturally appropriate programs for healing and support.	1089 Portland Ave, St. Paul, MN 55104
All Nations Church	Christian church providing service and support for American Indian clergy and community	1515 E 23rd St, Minneapolis, MN 55404
American Indian Cancer Foundation	To eliminate the cancer burdens on American Indian families through education, prevention, early detection, treatment and survivor support.	615 1st Ave NE #125, Minneapolis, MN 55413
American Indian Community Development Corporation (AICDC)	To provide culturally unique initiatives, housing and entrepreneurial programs that will strengthen American Indian Communities.	1508 East Franklin Avenue, Minneapolis, MN 55404
American Indian Opportunities Industrialization Center (AIOIC)	Empower American Indians to pursue career opportunities by providing individualized education, training, and employment services	1845 E Franklin Ave Minneapolis, MN 55404
Ancient Traders	American Indian arts and crafts retail store	1113 Franklin Ave Minneapolis, MN 55404
Department of Indian Work (DIW)	A branch of a larger nonprofit, Interfaith Action of Greater Saint Paul, DIW provides emergency services, diabetes education, and youth enrichment for American Indians in Saint Paul/Ramsey county.	1671 Summit Ave, St. Paul, MN 55105
Division of Indian Work (DIW)	Part of the Great Minneapolis Council of Churches, DIW provides health education, family, and emergency services for American Indians in the Minneapolis/Twin Cities area.	1001 E Lake St. Minneapolis, MN 55407
Dream of Wild Health, Urban Office (DWH)	To restore the health of the American Indian community through recovery of access and knowledge of traditional Indigenous foods, medicines, and way of life	1308 E. Franklin Ave Minneapolis, MN 55404
Elder's Lodge	Affordable community housing for American Indian seniors ages 62 years and older.	1500 Magnolia Ave E. St. Paul, MN 55106
Indian Health Board (IHB)	Provide health services to the American Indian community living in Minneapolis	1315 E. 24th St, Minneapolis, MN 55404

Little Earth of United Tribes	212-unit subsidized housing complex giving preference to American Indian residents	1530 E. Franklin Ave Minneapolis, MN 55404
Minneapolis American Indian Center (MAIC)	Provide services conducive to the needs of the American Indian community based on cultural values	1530 E. Franklin Ave, Minneapolis, MN 55404
Minnesota Chippewa Tribes, Urban office (MCT)	Federally recognized tribal government comprised of six bands (Boise Forte, Grand Portage, Fond du Lac, Leech Lake, Mille Lacs, and White Earth reservations), provides services and technical assistance to each band.	1308 E. Franklin Ave Minneapolis, MN 55404
Minnesota Indian Women's Resource Center (MIWRC)	Provide culturally appropriate services and support for American Indian women	2300 15th Ave S. Minneapolis, MN 55404
Native American Community Clinic (NACC)	Provides medical, dental, and counseling services for urban American Indians	1213 E. Franklin Ave Minneapolis, MN 55404
Native American Community Development Institute (NACDI)	To partner with American Indian communities to build and execute 21st century community development strategies.	1414 E Franklin Ave suite 1, Minneapolis, MN
Powwow Grounds	American Indian owned and operated cafe	1414 E Franklin Ave Minneapolis, MN 55404
Women of Nations	Provides culturally specific emergency services and support to all who have experienced trauma and domestic, sexual, and dating violence, and empower Native American communities to put an end to all forms of violence through education and prevention.	PO Box 7125, St. Paul, MN 55107
Woodlands Bank	American Indian owned and operated bank.	1113 E Franklin Ave #108, Minneapolis, MN 55404

Chapter 2 Demographics and Health: A Review of Literature

2.1 Introduction

The previous chapter documented relevant historical experiences of American Indians in Minnesota that led to the establishment of an urban community in the Twin Cities. We learned that this community, as well as other urban American Indian communities, is unique in that they exist as a result of federal policies aimed at eradicating American Indian cultures in efforts to assimilate them into mainstream American society. Consequently, whether intended or not, many urban American Indians suffer from extreme poverty and poor health (physically, emotionally, mentally, and spiritually) [4]. This chapter provides a critical review of demographic and health parameters used to measure the contemporary health and social status of urban American Indians in the Twin Cities metro area. The following sections provide available data on population, socioeconomics, health disparities and inequities, and diet-related chronic diseases through the lens of institutional measures often used within mainstream society. In addition, this chapter contextualizes Historical Trauma, a conceptual framework for the persistence of health disparities and inequities and as a determinant of health for American Indians.

Of importance to note is that statistics are from random samplings of non-institutionalized adults [61]. The term “non-institutionalized” refers to individuals who are not in long-term care (i.e. nursing homes), prisoners, those in correctional facilities (i.e. living in a halfway house), citizens living abroad, military personnel, and wards for abused and neglected children [62]. American Indians are disproportionately overrepresented in institutional systems. The incarceration rates for American Indians confined in a federal or state prisons are 38% above the national average and of the highest in Minnesota [4], [63]. American Indians have the highest rate of participation in the U.S. military in proportion to the overall American Indian population compared to other ethnic groups [64]. Also, American Indian youth are overrepresented in the foster care as well as in state, and federal juvenile justice systems [65], [66]. Excluding these groups through a focus on “non-institutionalized” individuals may therefore

bias statistics for urban American Indians compared to those of other racialized categories. Such statistical bias is likely for practical purposes that data from these groups may be difficult to obtain by health professionals. However, it is important to acknowledge this as a limitation in reviewing demographic and health data for a very small population. This type of bias would likely underestimate current population, socioeconomic and health disparities for urban American Indians.

In relation to the use of available health statistics, Indian Health Service (IHS) is often referenced as a source of data on American Indian health. It is important to understand the complicated relationship of urban American Indians to IHS. It is a common misconception in mainstream society that by simply being American Indian entitles one to receive services from IHS. This is not the case. Receiving federal health services is not a 'privilege' but a legal right for American Indians through the special government-to-government relationship between tribal nations and the federal government [67]. IHS provides services to those who are enrolled with a federally recognized tribal nation [68]. American Indians enrolled with state-recognized tribes or not enrolled with any tribe are ineligible to receive services through IHS. Even for those who are enrolled members, there are strict eligibility criteria to receive services. One requirement is to reside on the reservation of enrollment or nearby within designated Contract Health Service Delivery Areas (CHSDA) [69]. It is beyond the scope of this thesis to discuss the complex issues with tribal enrollment but it should be noted that a substantial number of American Indians, particularly those in urban areas, are not eligible or do not have access to IHS services. Thus, data presented below from IHS most likely does not fully reflect the health of urban American Indians in the Twin Cities metro area.

2.2 Population

Finding an accurate estimate for the population of American Indians living in the Twin Cities metro area is complex and challenging. Existing literature and community organizations draw upon estimates from national and/or statewide

aggregate data from U.S. Census Bureau. Census data are based on racial demographics; data are obtained through self-identification and the resultant statistics provide population estimates for American Indians as a single race (American Indian and Alaska Native alone) and population estimates that include American Indians who identify as multiracial (American Indian and Alaska Native in combination with another race) [55]. Documented estimates of the American Indian populations in literature appear to vary significantly depending on the inclusion or exclusion of American Indians of multiracial heritage. Currently, little clarity exists with respect to multiracial identity and indigenous population estimates. For example, Dream of Wild Health, an American Indian-owned and operated 10-acre organic farm located in Hugo, MN, uses census data from the 2010 Census Briefs for a total estimate of 60,916 American Indians in the state of Minnesota [55]. This estimate accounts for those who self-identify as only American Indian, and does not include American Indians who identify as multicultural or multiracial. Had Dream of Wild Health used estimates for multiracial American Indians, the figure would have been over 100,000 [55]. Considering that multiracial American Indians constitute over 50% of American Indians, it is reasonable to suggest that they be included when describing the urban American Indian community [55].

Of course, including this data depends whether data on multiracial American Indians are distinguished. Consider the situation with population estimates from the U.S. Census reports and the Minnesota Department of Health (MDH): according to the 2010 Census Briefs, Minnesota has a total population of 60,916 American Indians identifying as a single race and 101,900 identifying as multiracial. MDH reports a total population of 81,661 American Indians in their Vital Statistics Trend Report of 1994-2013 [70]. It is unclear if or how multiracial American Indians were included in the Vital Statistics Trend Report. In another report by MDH (2015 County Health Tables), the estimated total American Indian population (as a single race) in Minnesota is 71,960 [71]. It is unclear why these population estimates do not correspond to U.S. Census data (even after

reviewing census estimates from previous years). Inconsistencies such as this makes it difficult to better understand the demographics of urban American Indians [72]. It can also serve to perpetuate misunderstandings by masking the complexities inherent in racializing demographics.

Population estimates can also vary due to the technical aspects of data collection. The American Community Survey (ACS) provides one-year and five-year estimate datasets, each serving different purposes [73]. One-year estimates offer the most current data available and are appropriate when currency is a priority and used to analyze large populations [73]. Five-year estimates, on the other hand, are data collected over a period of time that increases statistical reliability [74]. Coefficients of variations (CV), a measure of variability from the mean, are largely dependent of population size [75], [76]. As population size decreases, CV increases [76]. In a final report to U.S Census Bureau, small populations of similar size were found to have comparable CVs and reliability for their five-year estimates [76]. Thus, five-year estimates may be more appropriate from a statistical perspective when applied to very small populations such as urban American Indians in the Twin Cities [73].

In terms of regional data available on a city and county-level, finding an accurate population estimate becomes even more complicated. As mentioned in the previous chapter, the Job Relocation program and bleak living conditions on reservations (result of treaties and land allotments) were the primary driving forces for many American Indians relocating to the Twin Cities and are not defined by a specific geographic location [56]. The concept of residency, at least in the long term, holds a different meaning for some in the community. The transient nature of residency from urban to home reservations is not uncommon [12], [56], [60]. Despite using the term that describes an urban community in the 'Twin Cities,' does not necessarily mean that the community is strictly within the boundaries of Minneapolis and Saint Paul (see Figure 2.1). Also, many American

Indians may reside in surrounding counties and yet are very much part of the urban community.

Population numbers can differ depending on the definition of geographic location. If the population is defined strictly within the city of Minneapolis and St. Paul then the estimated population of urban American Indians would be 11,245 (not including those identifying as multiracial American Indian) [77]. If this geographic definition expanded to Hennepin and Ramsey counties then the population would be 30,373 [78]. But do the population estimates of these two counties alone represent the urban American Indian community?

The Minneapolis American Indian Center (MAIC) website claims the urban American Indian population to be “well over 35,000 in the eleven County Minneapolis-St. Paul metro areas” [58]. These eleven counties are defined by the Minnesota Pollution Control Agency as Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, and Wright [79]. Some 9,543 additional self-identified American Indians (not including multiracial American Indians) reside in these surrounding counties, many of whom are deeply tied to the urban American Indian community network [80]. To put this into context the Shakopee Mdewakanton Sioux Community (SMSC), a federally recognized sovereign nation located in Prior Lake, MN, is considered an extended entity of the urban American Indian community [56], [81]. The SMSC happens to be just outside of the Twin Cities, in Scott County. Many SMSC members frequent the cities and have relatives who live in the Twin City metro area and vice versa. Therefore, an accurate population estimate that reflects the complex realities of urban American Indian life should include counties surrounding the Twin Cities.

The U.S. Census Bureau provides a population estimate for American Indians self-identified as a single race and multiracial in the Minneapolis-St. Paul-Bloomington, MN-WI metro statistical area [82]. This is defined as Anoka, Carver,

Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, Wright, Sibley, Mille Lacs, Saint Croix (Wisconsin), and Pierce (Wisconsin) counties [83]. Here the population of American Indians is estimated to be 50,350 [82].

To this point it has been discussed that there are no strict geographical boundaries for the urban American Indian community. This community can be accurately described as a spider's web of dispersed social networks that transcends several counties to include extended entities such as the Shakopee Mdewakanton Sioux Community. More than half of American Indians are mixed with another race and should be included in this population estimate. With everything that has been discussed to this point, it is in my view that 50,350 urban American Indians can be considered the best available population estimate for the Twin Cities community.

2.1 Socioeconomic Status

The social position or class pertaining to an individual or group as a combination of income, employment, and education are most often used as a measure of status or 'achievement' in mainstream American society [84]. For the 50,350 urban American Indians, many are considered to be of low socioeconomic status compared to the general population. The Metropolitan Council is a regional agency providing planning and policy services to foster efficient and economic growth for the Twin Cities metropolitan area [85].

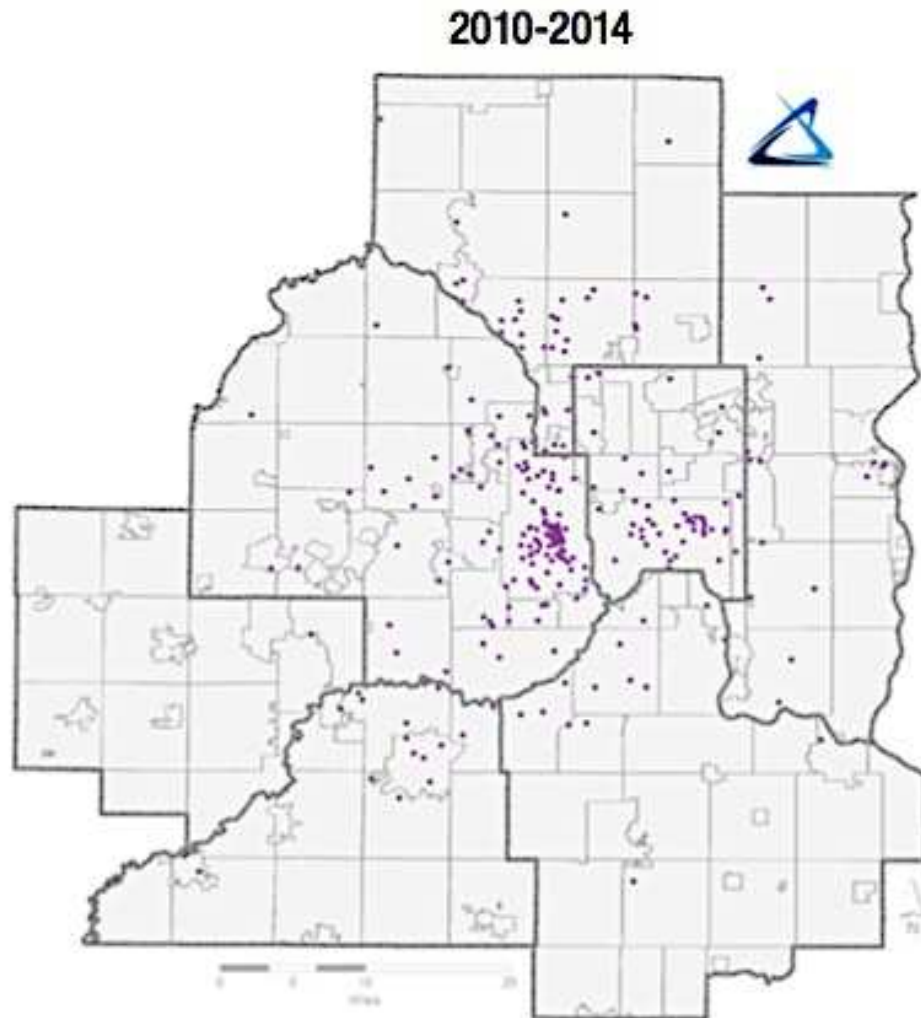


Figure 2.1 Map illustrating a geographically dispersed urban American Indian community throughout multiple counties. Each dot represents 50 residents within a census tract, defined by the Metropolitan Council as the Twin Cities metropolitan area; obtained from metro council.org [86].

This area is defined within seven counties: Anoka, Washington, Carver, Scott, Dakota, Hennepin, and Ramsey [87]. Despite the urban American Indian population concluded to be under a 13-county geographical area, 85% of the general population, including urban American Indians, is concentrated within these seven counties [88]. As stated in the previous section, 30,373 urban American Indians are estimated to reside in Hennepin and Ramsey counties [78]. Out of 50,350 this constitutes more than half (60%) of the population so it is within reason to consider the following data as significant.

The Metropolitan Council research team produces a publication series called MetroStats containing analysis of U.S. Census data as well as their own datasets [88]. In one report, for 2010-2014 employment disparities were found between urban American Indians and White residents [86]. Approximately 53% of urban American Indians ages 16-64 years are employed compared to 79% for Whites [86]. Per capita income is roughly half (\$20,600) than that of Whites (\$41,500) [86]. It should be noted that this data includes the Shakopee Mdewakanton Sioux Community (SMSC), who own and operate the successful Mystic Lake casino [81]. Higher income among the SMSC has likely skewed this estimate and, in reality, average income among American Indians, outside of SMSC, is lower than \$20,600. With that said, a median value could provide a more accurate estimate of per capita income for urban American Indians. In this report, homeownership is used as an indicator to measuring socioeconomic status. Though the rate varies between counties ($\leq 40\%$ to $\geq 60\%$), on average 44.2% of urban American Indians are homeowners compared to 75.7% for Whites [86]. In summary, urban American Indians have the lower rates of employment, income, and homeownership.

With regards to education, the Metropolitan Council conducted an equity assessment by analyzing data from the 2007-2011 American Community Survey pertaining to the seven county metro area [89]. For adults ≥ 25 years, 10% of urban American Indians hold bachelor's degrees compared to 42% for Whites

[89]. Interestingly, Asians hold the highest percent of adults with bachelor's degrees (45%) as opposed to Whites (42%) [89]. This difference is likely attributed to Asian cultural virtue towards education (as a person with Asian [Korean] heritage, I can attest to this) [90]. This estimate does not imply that American Indians do not value education but rather it underscores a relationship to education affected by historical experiences with Indian boarding schools, mentioned in the previous chapter.

It was assumed by government officials and humanitarians sympathetic to American Indians that assimilation policies would enable American Indians to 'climb up' the socioeconomic ladder [51], [52]. Given these statistics, it can be argued that the parameters used to measure 'status' or 'achievement' is according to Euro-American standards that do not align with the cultural aspects of American Indian axiology and ontology. The concept of ownership, employment, and education may carry a different meaning or priority for many urban American Indians based on historical experiences. To put this into perspective, over half of American Indians in Hennepin County believe it is very important to pass along cultural heritage and traditions of our ancestors to the next generation compared to about a third for Whites [91]. What this implies is that maintaining traditional culture is strongly valued and could be a measure of achievement within the urban American Indian community.

2.2 Health Status, Health Disparities and Inequities

The causes of diet-related diseases are complex. Changes in diet and lifestyle forced upon American Indians through treaties, land allotments, relocation to reservations then urban centers, dependency on commodity foods, and cultural dislocation has had a lasting impact and adverse consequences to health [2], [9], [17]. Health, as defined by the World Health Organization (WHO), is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." [92]. Though this definition acknowledges health as beyond physical wellbeing, from an American Indian ontological perspective, health must include spiritual wellbeing to balance all four aspects of the self (physical, mental,

emotional [social], and spiritual) [93]. Parameters used to assess health are often imposed by Western biomedical perspective [94], [95].

Under a Western biomedical model, health “experts” outside of the community context determine the approaches and strategies for “improving” health within a community or individual, leaving the people in a passive/submissive position [94], [96]. From an American Indian health model, the individual or community takes an active role in achieving balance (health) and the healer or “medicine man” responds accordingly, attending to all four aspects of health mentioned earlier [14], [16]. Cultural resources and assets that may contribute to health as understood within indigenous community contexts too often go unrecognized by “outside experts” holding Western biomedical perspectives [28]. Unfortunately, the Western biomedical model continues to dominate contemporary healthcare systems and neglects or marginalizes traditional Indigenous/American Indian models and practices [94], [95]. The previous chapter described that American Indians experienced superior health prior to contact with Euro-Americans. From the urban community’s perspective, health is not seen as something to strive towards but as something to reclaim.

Health disparity is a population-based difference in health outcomes and health inequity is a disparity of health based in inequitable (unequal) socially-determined circumstances [4]. An example of this is American Indians experience a higher rate of Type 2 Diabetes than other racial groups (health disparity) [4]. This can be attributed to the loss of access to traditional foods and forced dependency of unhealthy commodity foods (health inequity) [4]. Recall in the previous chapter that federal policies impacted the sociocultural circumstances of urban American Indians that greatly limited traditional hunter/gatherer lifestyles and created a state of forced dependency, poverty, and poor health. Therefore, health disparity statistics are, in reality, largely a reflection of federal government policies that inadvertently resulted in health inequities in pathology or disease states. This reality of health inequities has shifted attention to consider the importance of

social/behavioral/environmental determinants of health (see Figure 2.2) [97]–[104]. The underlying social and cultural living conditions (systemic contexts) contribute greatly to the development of health inequities. For urban American Indians in the Twin Cities, the extent to which these factors contribute to diet-related health inequities is only beginning to be fully understood.

It is appropriate to mention here that many American Indians see diet-related diseases as “downstream” manifestations of more “upstream” root causes. In other words, determinant of health embodies a historical and spiritual context. This contrasts with prevailing approaches within nutrition professions, where the focus of attention is more to correct the metabolic imbalances associated with the disease states themselves, seen as primary causative agents of poor health.

2.1 Understanding Historical Trauma

For many outside of the American Indian community context, and even for some within, there appears to be an underlying mechanism that interferes the path toward reclaiming good health that is not well understood. Epidemiological studies investigated ‘trauma,’ under the guise of Post-traumatic Stress Disorder (PTSD) across several American Indian communities [105], [106]. In a culturally modified study, Beals *et al* conducted a large cross-sectional probability sample survey called the American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPFP) [105]. About 3000 enrolled members from two culturally distinct American Indian reservations (half from each reservation) participated [105]. Data analysis for each tribe was conducted separately and further examined the relationship of PTSD to gender, age, formal educational attainment, employment, and marital status [105]. More than half of participants experienced some form of trauma [105]. Despite descent from different linguistic families, carrying different histories of migration, and cultural practices, both groups suffering from trauma share a similar history of colonization with widespread unemployment and poverty [105]. This implies that historically unresolved grief experienced within an American Indian individual,

group, and/or tribal nation transcends from one generation through the next and so forth [41], [107].

American Indian scholar, Dr. Maria Yellow Horse Braveheart, came to understand this phenomenon as “Historical Trauma.” Historical trauma is defined as the:

“...Cumulative emotional and psychological wounding over the lifespan and across generations, emanating from massive group trauma. Native Americans have, for over 500 years, endured physical, emotional, social, and spiritual genocide from European and American colonialist policy. Contemporary Native American life has adapted, such that, many are healthy and economically self-sufficient. Yet a significant proportion of Native people are not faring as well” [107].

-Dr. Maria Yellow Horse Braveheart

Historical Trauma stems from the concept of “Survivor Syndrome” used to refer to 2nd and 3rd generation holocaust survivors and war veterans [106]. Those afflicted exhibit numerous behavioral traits such as drug and alcohol abuse, belligerence, poor work histories, disrupted interpersonal relationships, emotional numbing, suspiciousness, and general self-destructive lifestyles [108], [109]. This is evident across American Indian communities having high prevalence of drug and alcohol abuse, high unemployment rates, domestic abuse, distrust toward Western health professionals/researchers, and overrepresentation in the criminal and foster care systems [21], [108]–[110]. With this in mind, how might Historical Trauma affect social, economic, and health behaviors for urban American Indians in the Twin Cities metro area?

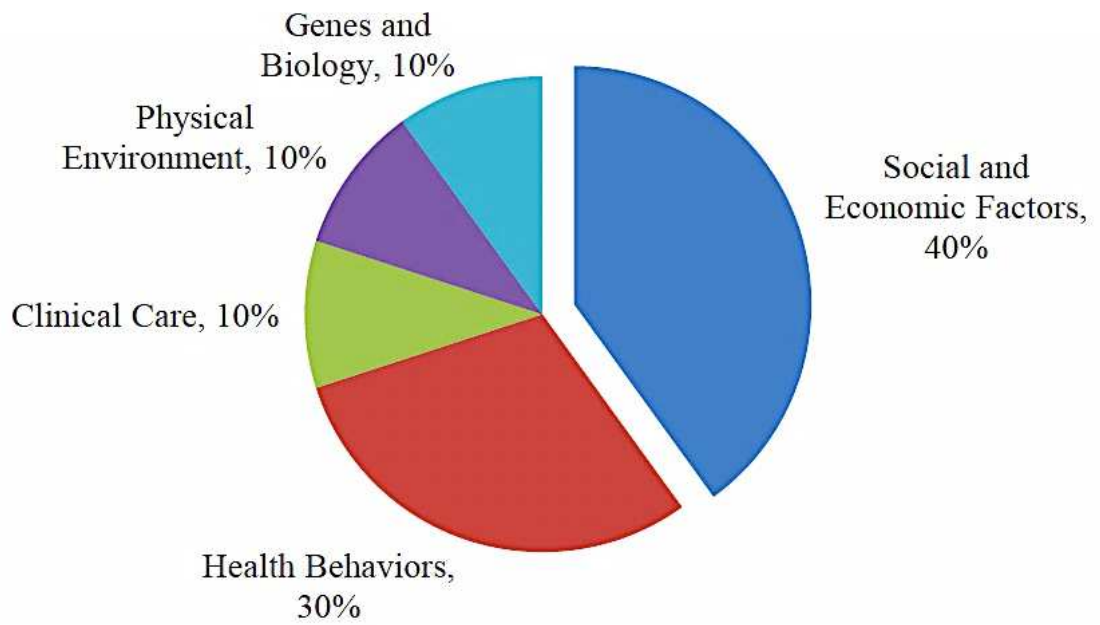


Figure 2.2 The relative impacts of various factors on population health, understood as determinants of health. Taken from the Minnesota Department of Health’s “Advancing Health Equity in Minnesota: Report to the Legislature” [4].

2.2 Literature Review of Diet-related Chronic Diseases

2.2.1 Obesity

Obesity is the state of having excess body fat and is commonly measured using a Body Mass Index (BMI) of weight (measured in kilograms, kg) over height (measured in meters squared, m²). The CDC defines obesity as having a BMI of 30.0 kg/m² or higher [111]. Obesity is associated with numerous health complications such as heart disease, type 2 diabetes, hypertension, stroke, and certain cancers [112]. In addition, obesity compromises overall quality of life making daily activities (i.e. household chores, walking) more arduous and less enjoyable.

Data on obesity rate or prevalence among urban American Indians (of all ages) in the Twin Cities is limited and available only in certain counties. Ramsey County's community health assessment in 2013 reports 28.2% of American Indian children ages 2 to 5 years enrolled in WIC are obese [113]. A 2011 community health profile of Indian Health Board of Minneapolis (IHB) reports 34.7% of American Indian adults in Hennepin and Ramsey counties are obese [78]. Obesity prevalence for American Indians residing in surrounding counties, defined in the previous section as part of the Twin Cities metro area, is unknown.

Population studies typically estimate obesity prevalence according to BMI standards. This measurement tool is convenient for it is relatively inexpensive, noninvasive, and can be self-reported by participants [114]. However BMI as a parameter to estimate obesity incidence has significant limitations. First, it fails to distinguish between lean muscle-mass to fat mass [114]. This is especially true as athletes and body-builders are often misclassified as overweight or obese using BMI standards. Second, it fails to reflect changes in body composition in situations where individuals (through exercise or other forms of increased physical activity) gain muscle mass equivalent in weight to fat mass that is lost would result in no changes to their BMI [114]. Third, BMI does not take age into account [114], [115]. As people age, muscle mass decreases and fat mass

increases while adiposity redistributes to different areas in the body [115]. Lastly, the location and distribution of fat mass in humans (central vs. peripheral and visceral vs. subcutaneous obesity) may pose greater risk to health than BMI alone [115]–[120].

BMI data for the urban American Indian community in the Twin Cities is lacking and aforementioned available data presented may not accurately reflect the disparity of health with regards to obesity. Given the limitations in population estimates and BMI/obesity estimates, it can be argued that this data underrepresents the actual health disparities with regards to obesity. Additional tools for measuring adiposity (i.e. waist-hip-ratio, waist circumference, bioelectrical impedance analysis, etc.) are suggested to be used in conjunction to BMI for future obesity research [121]. To discuss the feasibility, reliability, and accessibility of these measurements for obesity is beyond the scope of this thesis. Nevertheless, it would provide a better understanding of how obesity in this community influences the chronic diseases discussed below [114].

2.2.2 Cardiovascular Disease and Stroke

In Minnesota, American Indians experience disproportionate rates of mortality from cardiovascular disease (CVD), coronary artery disease (CAD), and stroke. CAD is a condition that affects the heart and characterized by to the narrowing of arteries (atherosclerosis) caused by the build up of plaque [122], [123]. Coronary arteries are small arteries surrounding the heart which function to provide the heart with its own blood supply [124]. When atherosclerosis occurs to the extent that it significantly narrows or occludes blood flow in coronary arteries, the condition is known as Coronary Artery Disease; sometimes referred to as Coronary Heart Disease (CHD) or, simply, “heart disease” [124].

Cerebrovascular disease (stroke), is a condition where blood flow leading to and within the brain is obstructed [125]. The most common form is atherothrombotic stroke where a vessel in the brain becomes ‘clogged’ (atherosclerotic) with

plaque [123]. Atherosclerosis in the heart and brain can instigate the formation of clots on the surface of plaque itself, further obstructing blood flow [126]. When blood flow is fully obstructed, heart cells and brain cells in the immediate area begin to die due to lack of oxygen [122]. When this happens, a heart attack or stroke (if in the brain) is occurring.

Mortality from heart attacks and strokes increases significantly with age and differs by gender [3], [123], [124], [127]. Minnesota Department of Health's Heart Disease and Stroke in Minnesota: 2011 Burden Report provides age-adjusted mortality rates by race and gender [3]. For 2005-2009, American Indian men had the highest mortality rate of 240.7 per 100,000 population compared to Hispanic men, having the lowest rate, at 65.1 per 100,000 population [3]. The mortality rate for American Indian women is about half that of American Indian men (131.7 per 100,000 population compared to 240.7 for men), yet is the highest rate among women from all other racial groups with the lowest rate of 42.4 for Hispanic women [3]. It should be noted that mortality rates for both genders have declined since the 1990s [3]. Mortality caused from stroke is less pronounced than that of heart attacks among American Indians of both genders. The age-adjusted mortality rate for stroke among American Indian men is 45.3 per 100,000 population and is third to Blacks (45.4) and Asian/Pacific Islander (50.6) men [3]. Age-adjusted mortality rate for stroke among American Indian women is 43.7 per 100,000 and is third to Blacks (48.7) and Asian/Pacific Islander (46.5) women as well [3]. However, mortality rates alone tell little of the impact that heart disease and stroke have on urban American Indians.

Taking into consideration the age at which Cardiovascular Disease (CVD) and stroke occur, there are striking differences in premature deaths, particularly under the age of 65, among American Indians compared to other racial groups [3]. CVD mortality was 53% for American Indian men under the age of 65 [3]. In comparison, CVD mortality in White men occurred at 22% under the age of 65 [3]. In American Indian women, 38% of CVD mortality occur under the age of 65,

compared to 8% for White women, respectively [3]. With premature death due to stroke, 48% of American Indian men and 34% of American Indian women died of strokes under the age of 65 as opposed to 13% of White men and 6% of White women, respectively [3]. To put this into perspective, nearly 5 out of 9 American Indian men and 2 out of 5 American Indian women have died from heart disease before the age of 65 as opposed to 2 out of 9 White men and 1 out of 6 White women. In addition, nearly half of American Indian men and about a third of American Indian women have died from strokes before the age of 65. With a national life expectancy standard of 75 years, these statistics illustrates a large number of years of potential life lost due to heart disease and stroke among American Indians [3].

2.2.3 Hypertension

Blood pressure is the amount of force exerted outward onto vessel walls [128]. Hypertension is an important health indicator because it is closely associated with many forms of CVD, including stroke and CAD [129]. Blood pressure is considered high for adults when systolic and diastolic readings are at least 140/90 mm Hg. Left untreated over a long period of time, hypertension can lead to serious health complications, such as heart attacks, stroke, and sudden death [128], [130]. Risk factors for developing high blood pressure are age, gender, sedentary lifestyle, obesity, excessive intake of alcohol, and poor diet (particularly diets high in salt) [130]. Other possible contributing factors are stress and smoking [130]. Each of these risk factors appears to be prevalent in the urban American Indian community.

Data on hypertension prevalence or incidence rates specifically for urban American Indians in the Twin Cities are lacking. Available data on American Indians in Minnesota come from the Inter-Tribal Heart Project (ITHP) involving three Tribal nations (Red Lake, White Earth, and Menominee of Wisconsin) back in 1996 [131]. Many urban American Indians in the Twin Cities are from (or have lineal ties) these tribal nations so the outcomes of this study may give some insight of the prevalence of hypertension within the urban community.

Hypertension risk increases with age and most participants in this study were between the ages of 45 to 64 years [131]. The prevalence of hypertension among adult American Indians were found to be 33% and slightly higher among men than women [131].

2.2.4 Diet-Related Cancers

Cancer is a collection of related diseases where cells in the body deviate from the normal process of cell division and growth to abnormal, uncontrollable division and growth [132]. When cancer develops, old and damaged cells fail to undergo programmed cell death (apoptosis) and new cells are continuously produced forming a mass of excess cellular tissue known as a tumor [132]. A cancerous tumor that remain in one location are considered benign (not harmful) but when cells “slough off,” spread to other areas of the body (metastasize), and form new tumors, it becomes malignant (infectious) and are often fatal [132], [133]. Types of cancer are determined by the location from which cancerous cells develop [132]. For example, stomach cancer begins from cells within the stomach organ. Regardless if a cancerous tumor diverges to other organs, the type of cancer maintains its name based on its original site of proliferation [132]. In the example stated earlier, if that stomach cancer spreads into the intestines, it is still diagnosed as stomach cancer that has metastasized to the intestines (also referred as metastatic stomach cancer). Of importance to note is that various reports and literature often label cancer as “malignant neoplasm” but will be referred to as cancer unless otherwise noted.

Dietary habits, obesity, Type 2 Diabetes, and physical inactivity are all risk factors for many cancers including cancer of the breasts, prostate, colon, kidneys, stomach, liver, gallbladder, pancreas, and intestines [134]–[136]. It is estimated that obesity, as a risk factor, attributes to cancer mortality by 20% and diet attributing by 5% [137]. Keep in mind the prevalence of obesity among urban American Indians is high (see section on obesity) than that of other ethnic groups. From the pre-contact era and well into the turn of the 20th century, cancer was considered a rare disease in American Indians, as well as other Indigenous

groups [21], [138]. However, it has become a growing problem across American Indian communities, including the urban Twin Cities community. So much so, that an American Indian Cancer Foundation (AICF) was established in Minneapolis for the purpose of eliminating cancer burdens in American Indian families through education, prevention, early detection, treatment, and survivor report [139]. Even with AICF, many do not associate cancer as a significant health disparity among urban American Indians as with other chronic diseases such as Type 2 Diabetes [21]. This is partly due to the statistical undercounting of American Indian mortality from cancer as a result of racial misclassification (race mistakenly classified as something other than American Indian on death certificates), especially among urban American Indians [21], [140], [141]. Fortunately, racial misclassification of American Indians is increasingly recognized and adjustments are made with current data in an attempt to better reflect the burden of cancer on American Indians [142], [67].

Data specific to the cancer incidence and/or mortality rates for urban American Indians in the Twin Cities is limited. The Minnesota Department of Health observed cancer incidence rates from 2003 to 2012 in the North/Northeast communities of Minneapolis residing in four zip code areas (includes age-adjusted rates for American Indians in the seven-county metro area) [143]. Select cancers listed are reported to being elevated among American Indians residing within the four zip code areas, segregated by gender. Of the cancers listed, those that are diet-related are as follows: colorectal, liver, inflammatory bowel disease (intestines), and pancreas were suggested to be elevated in among urban American Indian men [143]. Rates pertaining to both American Indian men and women in the metro area are higher than other racial groups but vary depending on the type of cancer. Unfortunately, the 95% confidence intervals are noted to being rather large, making rates statistically unreliable.

Other literature encompasses data on a statewide or regional (multistate) level. Indian Health Service's (IHS) Regional Differences in Indian Health 2012 edition

provides cancer mortality rates (labeled as malignant neoplasm) for service areas throughout the U.S. [144]. As mentioned in the introduction section, urban American Indians in the Twin Cities may or may not be included in IHS data. IHS is divided into “service areas” comprised of several states. Minnesota falls within the Bemidji service area [144]. Regional Differences in Indian Health 2012 edition reports for calendar years 2005-2007 with age-adjusted mortality rate per 100,000 population and are adjusted for race misreporting [145]. Rates are compared to U.S. general population 2006 mortality rate (U.S. all races) and all service areas in IHS (IHS overall) [145]. Overall mortality rate for cancer in the Bemidji service area is 255 compared to 180.7 for U.S. all races and 170.1 for IHS overall [144]. Compared to all service areas, Bemidji experiences the highest mortality rate for cancer. Cancers in this report that are associated to diet are breast, colon-rectal (colorectal), and prostate. Mortality rate for breast cancer in the Bemidji service area is 18.1 compared to 23.5 for U.S. all races and 19.6 IHS overall [145]. Mortality rate for colorectal cancer is the highest for all IHS service areas at 22.4 compared to 17.2 for U.S. all races and IHS overall [145]. Lastly, mortality from prostate cancer is the highest rate to all IHS service areas at 41.1 compared to 23.5 for U.S. all races and 21.3 for IHS overall [145].

In summary, it is suggested that incidence rates of several cancers are elevated among urban American Indians in the Twin Cities metro area (seven county). Also, American Indians in the Bemidji service area experience higher mortality rates from several cancers compared to other IHS service areas as well as the general U.S. population.

2.2.5 Diabetes

Diabetes is, perhaps, the most infamous chronic disease associated with American Indians [146]. Diabetes, or Diabetes Mellitus (DM), is a heterogeneous and complex chronic disease with diverse etiological mechanisms classified into four main categories: Type 1, Type 2, Others, and Gestational (occurs during pregnancy) [147]. In literature, treatment-based terminologies previously used, Insulin Dependent Diabetes Mellitus (IDDM) and Non-Insulin Dependent

Diabetes Mellitus (NIDDM), were replaced with Type 1 and Type 2 (also known as “adult-onset diabetes”) [147], [148]. The third category, “Others,” consists of less common forms of diabetes, associated and/or caused by specific conditions or syndromes such as Maturity Onset Diabetes of the Young (MODY), a monogenetic disorder affecting glucose sensing or insulin secretion [147]. An intermediate category, sometimes referred to as “pre-diabetes,” consists of marginally high blood glucose levels that do not meet the criteria for diabetes and, instead, are classified as Impaired Fasting Glucose (IFG) and/or Impaired Glucose Tolerance (IGT) [147]. It is important to note this as the body of literature investigating ‘diabetes’ in American Indians may use any of these terms. Type 2 Diabetes Mellitus (T2DM) is the most common form of DM affecting American Indians [21]. Therefore, this section will focus on literature and data regarding T2DM and urban American Indians in the Twin Cities metro area.

T2DM is characterized as a chronic condition where cells fail to respond to insulin properly (insulin resistance) resulting in abnormally high levels of glucose (hyperglycemia) and insulin (hyperinsulinemia) in the blood [147]. Under this condition, Type 2 Diabetic individuals overproduce insulin to compensate (non-Insulin dependent) [147], [148]. Symptoms include, but are not limited to, frequent urination, unquenchable thirst, blurred vision, increased hunger, fatigue, and unexplained weight loss [149]. Long term overproduction of insulin in the pancreas eventually ‘wears down’ pancreatic β -cells to which insulin production is no longer sufficient and hyperglycemia prevails [147]. Diagnosis of T2DM is determined by a variety of tests: glycated hemoglobin (A1C), random blood glucose, fasting blood glucose, and oral glucose tolerance [150]. Risk factors associated with T2DM include overweight/obesity, fat distribution (particularly central or visceral), physical inactivity, family history, race, age, and pre-diabetes [149]. When left untreated, T2DM can manifest into various health complications such as cardiovascular and cerebrovascular diseases, hypertension, neuropathy (nerve damage), nephropathy (kidney damage), retinopathy (eye damage), as well as hearing impairment and skin infections [149]. Current strategy for

treatment of T2DM is to achieve and maintain blood glucose levels within, what is defined as, a normal healthy range [151]. This typically involves oral medications, insulin therapy (when insulin production becomes insufficient), a healthy diet, regular exercise, and blood glucose monitoring [151]. This will prevent or delay the onset of complications listed above.

T2DM is considered to have been very rare among American Indians prior to 1940s [47]. However by the 1960s, T2DM was documented as a serious public health problem in several American Indian communities such as the Pima of Arizona [11], [152]. Data and documentation of T2DM mortality, incidence, or prevalence are robust with reservation communities but sparse for urban communities, including the Twin Cities. Available statistics are found primarily in two reports produced within the last six years: IHS' Regional Differences in Indian Health 2012 edition and Blue Cross Blue Shield's The Unequal Distribution of Health in the Twin Cities.

In the Regional Differences in Indian Health 2012 edition, age-adjusted T2DM mortality rate for Bemidji service area is 90.9 per 100,000 population compared to 23.3 for U.S. all races and 65.6 for IHS overall [153]. To put these numbers into perspective, it is the second highest mortality rate out of twelve IHS service areas and more than 3 times than that of the U.S. all-race category. Recall in the previous section that the Bemidji service area encompasses Minnesota, Wisconsin, Michigan, and Indiana and not all urban American Indians in the Twin Cities are eligible or have access to IHS.

A study commissioned by the Blue Cross Blue Shield of Minnesota released a report in October 2010 on the unequal distribution of health in the Twin Cities (Wilder Report) [1]. Prevalence rate of T2DM for urban American Indians is reported to be 18% [1]. However, it is noted that this data is sourced from the Survey of the Health of All the Population and the Environment (SHAPE) 2002: Racial and Ethnic Data Book [1]. It is based on a survey question asking

respondents whether or not a doctor or health professional told them they had diabetes (excluding gestational) [91]. The survey question does not distinguish between Type 1 or Type 2 and is a result of 224 American Indian respondents in Hennepin County, of which, 202 are within Minneapolis [91]. For Hennepin county total, 17.6% responded “yes” with a 95% CI of ± 14.2 , of which 15.1% with a 95% CI of ± 16.5 responded “yes” in Minneapolis [91]. It appears that the Wilder Report rounded 17.6% up to 18% and is noted that such large margins of error should be “treated with caution” [1].

The CDC’s National Vital Statistics System (NVSS) provides age-adjusted T2DM mortality rate for American Indians in Minnesota (see Figure 2.3) [154]. Available rates are for years 2010 through 2014 [154]. The mortality rates for each consecutive year are as follows: 209.8, 241.6, 236.9, 197.8, and 282.7 per 100,000 population [154].

For comparison purposes, data from Minnesota all races (non-Hispanic White, non-Hispanic Black, Hispanic, Asian or Pacific Islander, and American Indian or Alaska Native) were averaged. Mean values (to the nearest tenth) for T2DM mortality rates of all races in Minnesota are as follows: 107.8, 116.8, 113.9, 111.7, and 127.0 per 100,000 population [154]. These statistics show that American Indians in Minnesota died from T2DM at roughly twice the rate than of all races combined within a four-year period. This also indicates that when data on American Indians are grouped with other races, health disparities such as T2DM can be masked. It is still unknown what the current incidence rate or prevalence of T2DM for urban American Indians in the Twin Cities metro area. It is unacceptable and rather unsettling to have this gap in data. Many community members would consider this as critical information.

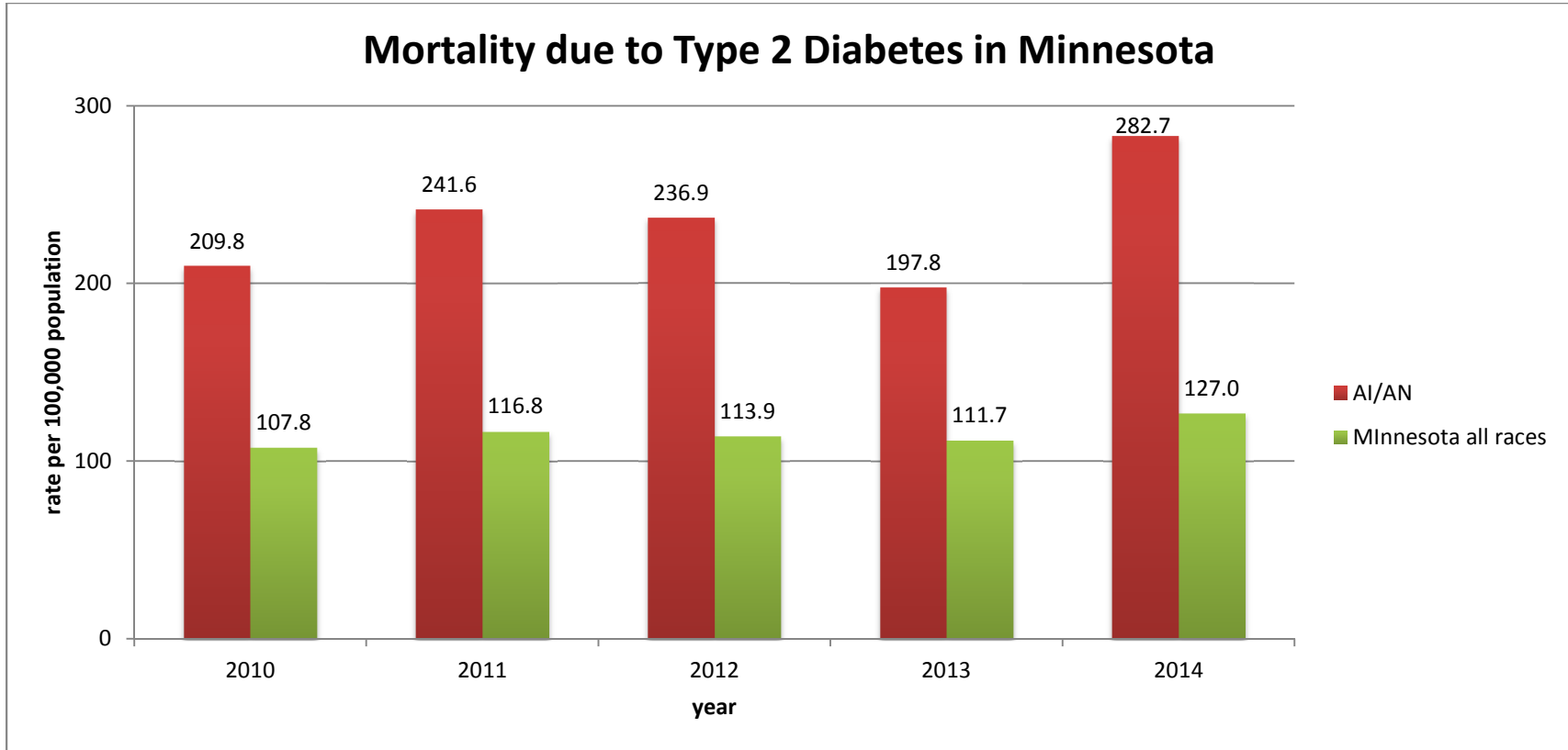


Figure 2.3 Type 2 Diabetes Mellitus Mortality rates for American Indians, including Alaska Natives, (AI/AN) shown in red and for all races in Minnesota.

Chapter 3 Research Approach and Methods

3.1 Introduction: Finding an Appropriate Approach to Research

American Indians have a longstanding, negative relationship with academic research [13], [21], [28], [155]. Research conducted with American Indians and their communities typically resulted in benefits for researchers and their institutions with little corresponding benefit for the community involved [21], [155]. The case of the Havasupai and Arizona State University (ASU) researchers exemplifies this. In 1989, the Havasupai gave blood samples to ASU researchers with consent for Type 2 Diabetes research [156]. Some years later, members were shocked to learn that those samples were used in other unrelated, stigmatizing genetic studies, including inbreeding, biological basis for schizophrenia, and links to Asia, all without their consent [156]. This act of betrayal led to a multimillion dollar lawsuit and banishment of ASU researchers from the Havasupai reservation [156]. Word of this case spread throughout Indian Country, resulting in some tribes enacting policies for participation in genetic research with others opting out entirely [156]. Relationships between researchers and research subjects tend to emphasize power and privilege gradients that are seen and experienced by communities as authoritative, paternalistic, distant (as a means to maintain 'objectivity') and distinctly 'non-Indian' [28], [155]. Because many research professionals lack intercultural sensitivity and knowledge of cultural context, they are often unaware of these experiences [28], [157], [158].

The professional orientation of much academic research has its roots in Western European epistemological ways of knowing and understanding that are dominant in academic institutions [13], [28], [155], [159]. Nutrition education, in academia, is taught from a Western scientific perspective, rooted in biochemistry, organic chemistry and physiology [10]. Food is deconstructed from a relationship with nature to an isolated object of study, from a whole substance into its individual nutrients or chemical constituents [10]. This approach has been imposed by researchers from an external cultural context and further contributes to relational and cultural fragmentation, disconnect and great distrust among American

Indians with respect to conventional research and researchers. The challenge for American Indian communities has been piecing together all the parts to re-create and re-indigenize a holistic story about the food. This re-creation process can sometimes contest or conflict with an academic perspective, especially when teaching nutrition to urban American Indians whose culture and worldview is more holistic in nature [13]. Therefore, research approach and methods implemented in these projects should better align with American Indian community values and worldview.

Research approaches that bear promise of potential benefit to the community are Community-based Participatory Research (CBPR), Participatory Action Research (PAR), and Action Research (AR). CBPR and PAR are descendants of AR that was developed by Kurt Lewin, a social psychologist, shortly after WWII [160]. The premise for Lewin's AR methods is for a symbiotic, participative relationship between researchers and research 'subjects' [160]. From the standpoint of AR, the researcher starts with the desire for change *with* others and address questions and issues significant to those who participate [161]. To authors Reason and Bradbury, a working definition for AR is:

“...A participatory process concerned with developing practical knowing in the pursuit of worthwhile human purposes. It seeks to bring together action and reflection, theory and practice in participation with others, in the pursuit of practical solutions to issues of pressing concern to people and more generally the flourishing of individual persons and their communities” [161].

AR is based on the practice of participation and self-reflection [161]. The style of inquiry emerges over time in an evolutionary process starting with lived experiences that often manifests into an inquiring statement of 'how can we improve this situation?' [161]. As authors Reason and Bradbury states, “it is to liberate the human body, mind, and spirit in the search for a better, freer world.” [161]. PAR emerged from AR with an emphasis on researcher and participant participation in the cyclical reflection-action process [162]. According to Baum *et al*, PAR:

“...Seeks to understand and improve the world by changing it. At its heart is collective, self-reflective inquiry that researchers and participants undertake, so they can understand and improve upon the practices in which they participate and the situations in which they find themselves. The reflective process is directly linked to action, influenced by understanding of history, culture, and local context and embedded in social relationships. The process of PAR should be empowering and lead to people having increased control over their lives...” [162]

CBPR is a frequently used form of participatory research used with American Indian communities [163]. It is distinct from AR and PAR in that it places emphasis on partnering with communities whom, supposedly, are actively involved in all aspects of the research process (from inquiry to dissemination of results) [164]. Israel *et al* describe CBPR as a partnership approach to research that equitably involves community members, organizational representatives, and researchers in all aspects of the research process [165]. In addition, community partners contribute expertise, are involved in decision making, and have ownership [165]. Rice *et al* reviewed thirteen studies implemented from 2008 to 2014 exclusively on Indigenous/American Indian populations [166]. Rice *et al* argues that the research must be “historically deep and sufficiently broad” that it include historical and cultural context of colonialism, racism, and social exclusion as broader determinants of health [166]. Interventions that collaborated closely with communities in all stages of the research process and drew on local community human resources as key actors were met with the most success [166]. This suggests that culturally sensitive CBPR approaches could be seen as essential when working with American Indian communities.

CBPR work carries with it many challenges, as Burhansstipanov *et al* illustrates in eight lessons learned from implementing CBPR in Indian Country. Ample time (years even) is needed to invest in building relationships to develop sufficient trust with communities, given a history of colonization, mistrust and misunderstanding [167]. This can be frustrating for researchers and academics working under strict, institutionally-driven timelines for grant submissions and

publications of results [168]. Grant funds should support community partners and provide competitive salaries to community members involved in the project work [167]. It is inappropriate for researchers and institutions to capture financial benefits while asking community members to do the work as volunteers, especially when they live in poverty [167]. Researchers should seek and develop ongoing relationships with community-recognized “leaders” who have authority in their community or organization [167]. There must be effective communication among all partners and all raw and summary data related to the CBPR project are to be shared [167]. Burhansstipanov *et al* adds that it is essential to have at least one recognized, respected community elder or traditional healer as part of the CBPR partnership. Elders and traditional healers are relied on for their wisdom, knowledge, experience, advice, and spiritual support for the community and for the research [13], [167]. If all components described above are fulfilled, the research process can provide a “win-win” relationship between academic institutions and tribal organizations or communities.

Themes that arise from AR, PAR, and CBPR are, in essence, to be participative, experiential, and self-reflective in pursuit of practical solutions pertinent to community members. These qualities align well with the Indigenous/American Indian epistemological way of ‘coming to know’ [13], [155]. Author Bagele Chilisa contends that participatory research enables the “colonized Other” (Indigenous peoples) to “collectively share and analyze their knowledge, life experiences, and conditions and to use indigenous knowledge as a frame of reference to plan and to act” [155]. Indigenous knowledge is accumulative, representing generations of lived experiences, careful observations, reflections, and trial and error experiments [13], [155]. This knowledge is expressed and communicated through stories, songs, dances, cultural values, spiritual beliefs, rituals, ceremonies, local language, artifacts, organization, and oral forms of communication [13], [155]. Using Indigenous knowledge as a frame ‘indigenizes’ the research, unveiling previously ignored knowledge and enable reclamation of cultural and traditional

heritage [169]. Thus, an indigenized form of AR, PAR, or CBPR may be the most appropriate approach.

The next section tells the story of my research ‘journey’ working with American Indian community members and organizations in the Twin Cities. The beginning entails the building of relationships that evolved over time in three distinct projects. The first project, Natives Empowering the World through Local Indigenous Food Environments (NEW LIFE), was in partnership with the Native American Community Development Institute (NACDI) in developing a vision for a Native-owned and community-driven food hub. The second project, guidelines for a culturally appropriate nutrition education for urban American Indians, came out of participation in Supplemental Nutrition Assistance Program-Education (SNAP-Ed) classes adapted by a community nutrition educator for urban American Indian audiences. The third project was in partnership with Dream of Wild Health to develop recipes and culinary uses for traditional Dakota corn. In each of these projects, I used elements of AR, PAR, and CBPR grounded on American Indian/Indigenous values and principles to unveil knowledge already held within the urban American Indian community. To engage in each of these projects, I first had to build authentic, trusting relationships with the community.

3.2 Methods: Building Relationships with the Community

My journey begins with my graduate advisor taking me on a tour around the American Indian Cultural Corridor located in the Phillips neighborhood of Minneapolis [170]. In this tour I got to see Little Earth of United Tribes’ housing complex, Minnesota Chippewa Tribes (MCT) urban office, Native American Community Clinic (NACC), Native American Community Development Institute (NACDI) and several other Native-own and operated businesses and organizations. Though called a “cultural corridor,” it reminded me of ethnic enclaves back in my home state of California (i.e. Chinatown, Korea town, Little Italy, etc.). We stopped in Powwow Grounds café and met with a community member working there. I was given an edible treat featured at the café: wild rice and berry parfait. It was my first taste of food featuring traditional ingredients

indigenous to the Upper Midwest region. This food experience served to activate my curiosity and frame my state of inquiry: Who is the community? What is our relationship to traditional foods as Indigenous people? How has historical trauma and current conditions of existence impact this relationship? How can we restore our Indigenous relationship to food and manifest it into an Indigenous food environment that will empower and nourish our people? In following months, my graduate advisor connected me to SNAP-Ed extension at the UMN and Dream of Wild Health as a means to further engage with the urban American Indian community.

An important strategy in developing relationships is to physically “show up” at community events and demonstrate respect through willingness to meet on the community’s own turf [171]. Through funding and support from SNAP-Ed extension, I visited several annual “open house” events hosted by community organizations in the spring of 2012. I learned of these events through The Circle, a local newspaper published monthly presenting news from an American Indian perspective [172]. I went to as many of these open houses as possible often walking to the locations from home, about 2 miles away. Each event typically offered a community feast, at least one information booth, and some kind of fun activity such as a raffle drawing with prizes. I attended open house events for the Minneapolis American Indian Center (MAIC), American Indian Opportunities Industrialization Center (AIOIC), and Indian Health Board (IHB). Despite being of American Indian heritage, I was still looked upon as an outsider to the community. It was unclear to me how to approach people at these community events or if it would be appropriate to do so. For the most part, I spent time observing people at these open houses.

On one occasion, an elder befriended me at the MAIC open house. I saw him sitting at a table but with no plate of food. I noticed a cane beside him and I perceived that he might have difficulty standing in the long line for food. I kindly asked if I could bring a plate of food to him and he obliged. It is common cultural

practice to assist elders in situations such as this [173]. This helped initiate a conversation between this elder and me. A simple act of service such as this helped build trust with this elder. I believe others at this event may have seen this as well, helping me to build trust with other community members. The lesson here was that simply showing up may not necessarily be enough. Taking action in serving others, showing compassion and demonstrating sensitivity is needed to gain credibility within the community [171].

The opportunity to serve the community came from a relationship to Dream of Wild Health. I started out as an intern, assisting with cooking/nutrition classes held at the farm during the summer youth Cora's Kids and Garden Warriors program. In following summers, DWH brought me on as a fellow staff member to lead these classes part-time. Over the years DWH entrusted me with additional responsibilities: preparing foods for their community feasts, investigating nutritional properties of Hopi Black Turtle beans, and lead cooking demonstrations at workshops and community events. This not only helped me garner a reputation as a skilled cook and nutritionist with DWH but with members in the urban American Indian community as well. Taking action in serving others in a respectful and humble manner came naturally. It is a cultural and spiritual virtue rooted in my ancestry and instilled in me from my family. It was not something that I needed to learn as it came from within. I have come to understand this disposition to resonate well with the urban American Indian community.

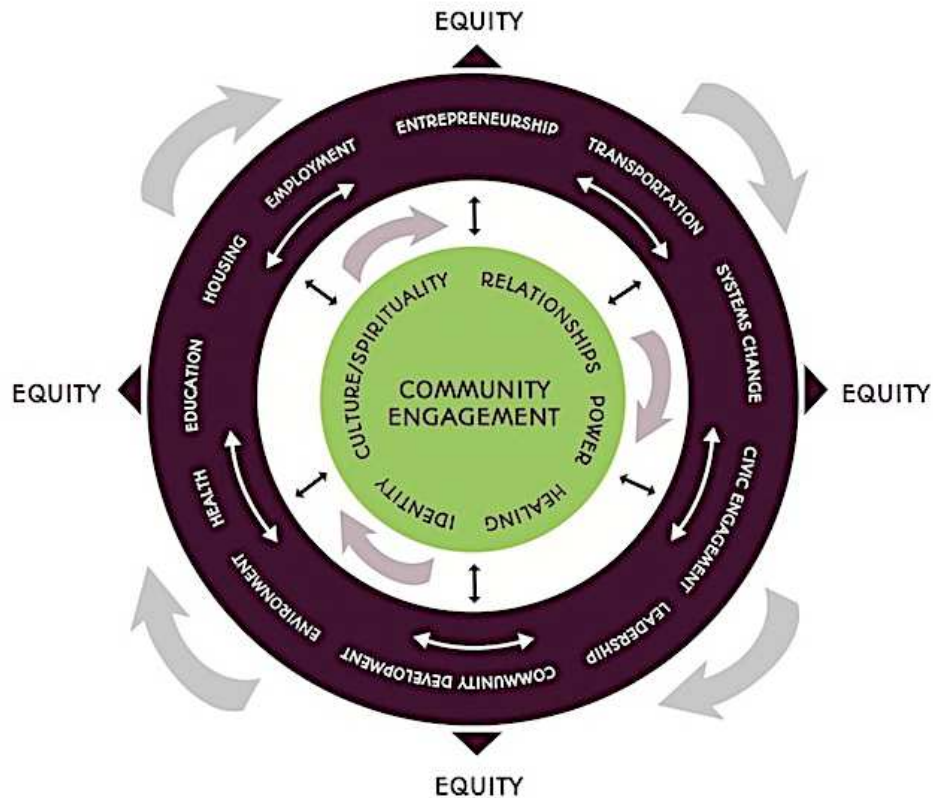
Interestingly, the conceptual framework of "Community Engagement" was under development with local community organizations during the course of my research journey. Community Engagement is a process that promotes the participation of community members in community life, to engage them in a collective action to promote a healthy community [174]. It requires the building of authentic, long-term relationships involving trust, respect, and reciprocity that nurtures the practices, beliefs, traditions, and ways of knowing [174]. It activates

and exercises the ability to act for personal and community benefit, building upon the community's strengths and resilience [174]. These are some of the guiding principles of Community Engagement generated by non-academic organizations, independent of this thesis work (see Figure 3.1). This supports my approach to engaging with the community and signifies knowledge from the collective.

3.3 NEW LIFE Project

This project aimed to identify existing assets and leaders within the community that might be advocates for a localized Indigenous food hub. A food hub is similar to a cooperative or “food co-op” but integrates Native cooking and nutrition classes, a Native ‘teaching’ garden, along with traditional foods sourced from local Indigenous food producers. Upon the development of relationships with community members and Dream of Wild Health (DWH), I learned of an initiative by the Native American Community Development Institute (NACDI) for a Native food hub. By that time, I developed an independent proposal (see Appendix 1), using CBPR principles and Indigenous research methodologies, to engage in conversations with urban American Indians around issues with foods that are considered fresh, healthy, and traditional. The primary aim was for the conversations to create a gateway toward practical solutions to current problems with food and health in the community.

IMPACTS OF COMMUNITY ENGAGEMENT MODEL



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Figure 3.1 Impacts of Community Engagement Model; outcomes that result from authentic community engagement. The outer circle represent outcomes that are tangible, visible goals of work that community members do together. The inner circle represent outcomes that are achieved in the process of doing the work and are foundational elements of a healthy community in their own right. These assets are the building blocks for positive change in all of the areas of the outer circle and need to be attended to or strengthened in a long-term process, during and beyond the process of achieving an outcome in the outer circle. The importance of these elements is often overlooked and communities' work in these areas is often under-resourced. The wheel as a whole is fluid and dynamic, demonstrating the perpetual interconnectedness of the elements. The model demonstrates the power of community engagement to impact multiple levels and systems, and to create sustained change that lasts beyond a project or campaign. Taken from Building the Field of Community Engagement collaborative "The Impacts of Community Engagement" [174].

The secondary aim was to use the knowledge generated from these conversations to create a culturally appropriate revision of the former “Simply Good Eating” curriculum (project discussed in the next section). The vision for a Native food hub would be explored as a potential long-term project. An idea ‘came to me’ to call this proposal: Natives Empowering the World through Local Indigenous Food Environments (NEW LIFE).

Turtle Island Market was developed and proposed by NACDI, having similar objective and goal (see Appendix 2). The goal was to create a food hub that would provide healthy, traditional foods and products sourced from local producers for urban American Indians in the South Minneapolis area. The objective was to build partnerships with American Indian entrepreneurs, small businesses, organizations (i.e. DWH), and Tribal nations of the Upper Midwest to create a Native food system and economy that would benefit the community. A staff member was appointed to lead the Turtle Island Market initiative that I contacted via email. I introduced myself, informed her of my proposal and that it may complement their food market proposal, and asked if we could collaborate. With her supervisor’s approval, she agreed to collaborate and meet with me. Forming this partnership inevitably led to a fusion of both proposals that was shared with community members involved in this project.

For the next several months, we met with each other to plan meetings with community members, and keep each other updated. We reached out to people we knew would have interest in this work. An example was one member was local Native chef while another was a farmer. We made sure to reach out to at least one elder as well. We met with five community members individually, shared with them the proposal and discussed what, among other things, they would expect to see or experience from a Native food store. Sometimes we met in Powwow grounds café, other times we’d drive to another location, whichever was most convenient for the community members. We did not formally interview community members other than record conversations via cellphone (by NACDI

staff member) after obtaining verbal permission. Author, Bagele Chilisa argues that conventional research interview methodologies may be individualistic, developed from Westernized assumptions and theory that ignore Indigenous culture and value systems [175]. The process of formally interviewing participants often projects power with the interviewer rather than interviewee; thus we held informal conversations to equalize power dynamics [175]. This approach was our attempt to decolonize the interview method, in hopes of gaining trust from community members. This trust-building interview approach enabled us to subsequently raise the possibility of forming a community food review board.

After meeting with everyone individually, we were successful in organizing a community food review board meeting held at the Minnesota Chippewa Tribes (MCT) building located on Franklin Avenue, along the Minneapolis American Indian Cultural Corridor. I prepared the main meal while the NACDI staff member reserved the meeting space and arranged the refreshments (coffee, tea, utensils, etc.). The meal featured traditional foods such as bison, squash, corn, and beans. An estimated 10 members of the community, ranging from elders to working professionals, attended. Much like meeting with everyone under informal settings, this meeting was casual and conversations informal. The staff member presented our proposal of having a Native food hub in the community; the purpose of the meeting was to stimulate conversation and gather input. The outcome from this meeting is reported in the next chapter under the results section.

Unfortunately, the NEW LIFE project ended shortly after this general meeting. The funding period for NACDI had ended and efforts to secure new funding had been unsuccessful. The staff member's employment inevitably ended with NACDI and this project was heavily dependent on the working relationship between this person, NACDI, and myself. Nevertheless, my relationship with the community continued to develop and strengthen as new circumstances emerged.

3.4 SNAP-Ed Curriculum Revision Project

Simply Good Eating (SGE) was a curriculum implemented by SNAP-Ed. SGE had been culturally adapted for African Americans and Southeast Asians. However, this curriculum had not been adapted for American Indian communities of any kind. I received an opportunity through SNAP-Ed extension to adapt the SGE curriculum to be culturally appropriate for an urban American Indian audience. In a fortunate stroke of serendipity, SNAP-Ed had recently hired Angelina “Angie” Hernandez as a Community Nutrition Educator (CNE) to work directly with the urban American Indian community in the Hennepin and Ramsey county areas. Angie was already confronted with the challenge of teaching the Simply Good Eating (SGE) curriculum to her classes. As an American Indian grounded through her own cultural knowledge, she immediately recognized that SGE was not framed to be culturally appropriate for American Indians and that she had to make adaptations to SGE along the way. Since Angie had begun her adaptations “on the fly,” it was suggested that I shadow Angie’s work in the community.

The goal of this project was to develop “culturally appropriate” nutrition lessons. To do so meant that I would participate in the actions taking place, aligning with Participatory Action Research (PAR) principles. Over the span of about a year, I participated and observed in about eight classes with Angie. I engaged in conversations with other participants and listened to what they had to say. Classes were held at various locations such as the Minneapolis American Indian Center (MAIC), Minnesota Indian Women’s Resource Center (MIWRC), Division of Indian Work (DIW), and Waite House. Most participants were American Indian women and attendance varied from one to nearly a dozen.

To guide this curriculum revision in a direction that aligns with community cultural context and values, a curriculum revision board named “Aho SNAP-Ed” (Aho is “I agree” in the Lakota language) was formed. Angie and I invited several community members that we had established trusting relationships with and who

were willing and able to be part of the board. Angie arranged for meetings to be held at the Urban Research Outreach-Engagement Center (UROC) located in North Minneapolis [176]. About 5 community members agreed to participate and provide feedback. Angie presented condensed versions of each lesson she had modified in the SGE ELL curriculum and, through conversation, board members relayed their experiences and suggestions. Three curriculum revision board meetings were held; each of which consisted of two condensed lessons presented by Angie and culturally relevant foods and refreshments prepared by me. One board member lacked transportation so I borrowed a car to transport him to and from meetings.

During the course of this project, I was informed that SNAP-Ed was transitioning to a new curriculum that would replace SGE. Consequently, the project was reframed to give a stronger focus on Community Nutrition Educators (CNEs) working with American Indian audiences.

3.5 Indigenous Seeds Project

As mentioned in Chapter 2, Dream of Wild Health (DWH) is a 10-acre American Indian owned and operated organic farm in Hugo, Minnesota. DWH was founded in 1998 by Sally Auger and John Eichhorn as an extended program to Peta Wakan Tipi (Sacred Fire Lodge in Lakota language) [177]. Peta Wakan Tipi started in 1986 as a transitional home for American Indians in Saint Paul, Minnesota [177]. The founders and community members recognized that reconnecting to culture and traditional foods were essential for a holistic recovery of mind, body, spirit, and emotion [177]. DWH began as a half-acre garden in Farmington, Minnesota that grew into a 10-acre farm in Hugo in 2005 [178]. Much of the Native heirloom seeds grown today were donated from Cora Baker, a Potawatomi elder and “Keeper of the Seeds” [178]. Once word spread of this unique American Indian-operated farm in Minnesota, additional heirloom seeds were donated by American Indian seed savers across the nation [178]. To this day, DWH provides education and cultural programs for urban American Indians

of all ages as well as protecting and sustaining heirloom indigenous seeds for future generations [178].

DWH has been propagating heirloom varieties of Indigenous corn since its founding but has been limited in its capacity to grow these varieties for food. Situated amongst genetically modified (GMO) corn farms, hand-pollination and the physical covering of each ear of corn are required to prevent cross-pollination and maintain genetic purity [179]. This is a labor-intensive process. Through years of hard work and dedication, DWH produced enough seeds to begin sharing as food for the American Indian community. However, DWH was challenged with better understanding the culinary properties of these seeds. Questions arose as to how these seeds are to be prepared in ways that were both culturally respectful and palatable. Through the generous support and funding by the Center for Urban Regional Affairs (CURA), DWH had an opportunity to bridge the gap between traditional indigenous foods from land to plate. CURA coordinates the Kris Nelson Community-based Research Program that provides community organizations, such as DWH, with community-driven, applied student-based research that addresses and takes action to solve problems within the urban community [180].

This project involved two varieties of heirloom indigenous seeds: Dakota flour corn and Dakota hominy corn (see Figure 3.2 and Figure 3.5). I received an opportunity to ‘meet the sisters’ on a cool September afternoon at DWH farm. After an informal meeting and lunch with DWH staff, one of the farmers took me out to the field to introduce me to the sisters. The farmer informed me that some corn experienced cross-pollination, evidenced by yellow kernels speckled across a predominantly purple, pink, and white ear. Since these cannot be saved for seed, I could use it for the recipe project (no food be wasted). Holding an ear in one hand, I learned that the sisters ‘tell us’ they are ready for harvest by removing a kernel to reveal a dark spot on the cob. Dakota flour corn, as it is named, is a variety of corn from the Dakota people. It was suggested by DWH

staff that this corn was traditionally ground into cornmeal or flour. Dakota hominy corn, as named and reaffirmed by DWH staff, was traditionally used to make hominy. Preparing hominy requires soaking and/or boiling the corn in an alkaline solution, a process called nixtamalization [181]. Traditional materials used were slaked lime (calcium hydroxide), lye (sodium hydroxide), or hardwood ash [181]. These are difficult to obtain and can be dangerous to work with. A modern alternative is the use of baking soda (sodium bicarbonate) as a viable alkali substrate [181]. The methods of preparing Dakota flour corn and Dakota hominy corn are presented below.

3.5.1 Dakota Flour Corn

A WonderMill® machine, designed for home-scale use, was selected and purchased by DWH to grind the Dakota flour corn into cornmeal/flour. The mill was cleaned and assembled according to package instructions [182]. In accordance to package instructions, two cups of grain (any kind listed as acceptable for this mill) were pass through, on “coarse grind” setting, to clear out any residue left from the manufacturing process [182]. With limited supply of Dakota flour corn, whole grains available ‘on-hand’ were used: a combination of Dakota flour corn, peeled and split dry mung bean, and short grain white rice. Once the residue was removed from the mill, Dakota flour corn kernels were picked clean of any debris using a clean, dry sheet pan and a fine mesh strainer. Approximately 8 cups of Dakota flour corn were ground using the coarse grind setting. The grinder produced a final product that is approximately double in volume to the original quantity added (measured in cups) for corn (see Figure 3.3). To test the mill’s capacity in making bean flour, 1.5 cups of dry Black Turtle beans were passed through, producing bean flour that was 25% greater in volume in flour form (1.5 cups yielded 2 cups). Characteristics of the Dakota corn flour (sight, texture, scent, taste) were recorded.

3.5.1 Dakota Hominy Corn

Instructions and recipe for preparing hominy using baking soda were obtained from *Original Local*, a book authored by Heid E. Erdrich [183]. Dakota hominy corn was sorted and picked clean of debris then rinsed clean. A large stainless steel pot filled with roughly 8 quarts of cold, filtered water then brought up to a boil. Three “heaping” tablespoons of baking soda were dissolved in water-filled pot prior to adding the corn. Once the water reached to a boil, approximately 8 cups of Dakota hominy corn were added and stirred occasionally at a gentle boil for 3 hours. Changes in color and smell were observed and recorded within this time period (see Figure 3.6). After 3 hours, the corn was drained and rinsed with fresh cold water. The pericarp (hull or outer layer of corn kernel) of the corn had softened enough to be removed by rubbing the corn kernels and rinsing under cold water [181], [183]. The corn was rubbed, drained and rinsed multiple times thoroughly cleaned, resulting in a tripling in size of roughly 24 cups, or 6 quarts, of prepared hominy. In accordance to recipe instructions in *Original Local*, prepared hominy was boiled again for about 30-40 minutes to further soften [183]. The final product was drained, rinsed with cold water, stored in a large container then refrigerated (see Figure 3.7).

With the heirloom indigenous seeds prepared and ready for recipe development, I met with DWH director, Diane Wilson, to discuss the appropriate next step. She suggested recipes be in accordance to the season (late spring) and demonstrate versatility. Diane also stressed the importance of community members having an opportunity to sample these foods.



Figure 3.2 Personal photo of Dakota flour corn from Dream of Wild Health (DWH) farm in Hugo, MN. Kernels were grown, harvested, dried, and shucked then picked clean of debris in preparation for grinding.



Figure 3.3 Personal photo of freshly ground Dakota flour corn.



Figure 3.4 Personal photo of foods presented at community meeting.

Theoretically, there was no limit to the number of recipes that could be developed but we were limited by the quantity of corn products and recipes had to be tested prior to the community sampling. We concluded that our goal was to develop six recipes (see Table 3-1 and Table 3-2).

3.5.2 Dakota Corn Bread

The Dakota corn flour was fine in texture and we were curious how it would 'hold up' as cornbread. I used a Cherokee bean bread (duya gadu) recipe as inspiration. Instead of a 1:1 ratio, I increased the corn flour by a third and decreased the whole-wheat flour by a third. I later added an additional tablespoon of corn flour and whole-wheat flour because the batter had a thin consistency. Maple syrup and sunflower oil were used as substitutes in efforts to maintain cultural integrity of ingredients that are significant within the Upper Midwest region. Even further, I used sunflower oil that was produced locally in Minnesota.

3.5.3 Dakota Corn Bread (savory version)

For a savory version of cornbread, I developed a recipe, Two Sisters corn muffins, inspired from a recipe in the DWH cookbook: Double Corn Muffins. The addition of Hopi Black Turtle beans (also grown at DWH farm) has cultural and nutritional significance. Corn, beans, and squash, known as the Three Sisters, teach us valuable life lessons on relationships. I did not have any squash available to make it a Three Sisters corn muffin recipe but this can easily be adapted by substituting buttermilk for equal parts pureed squash diluted with water (should have the consistency of heavy cream). With regards to nutritional value, the combination of corn and beans provide complementary proteins in the diet.

3.5.4 Dakota Corn Bread (sweeter version)

For a sweeter version of cornbread designed for broader community acceptance, I added blueberries, increased the amount of maple syrup, and decreased the amount of buttermilk to maintain a thick batter consistency. Even so, the batter is looser than the original Dakota Cornbread recipe. Nevertheless, it baked up into light fluffy corn muffins studded with vibrant blueberries and a strong maple

aroma. This recipe can be substituted with a variety of other seasonal, traditional berries. This recipe is, indeed, versatile. I should add that I did not bake these in an oven so I do not have a recorded temperature or time for this recipe. I used a mini-muffin maker to make sample sizes. I recommend using other corn muffin recipes as guides for time and temperature. Another recommendation is to check muffins after some time and check by inserting a toothpick in the center of a muffin. Be aware of the aroma; baked goods release pleasant aromas when close to done. This can be confirmed with a toothpick that comes out clean from the center of a muffin.

3.5.5 Cranberry Streusel Shortbread Bars

This recipe was adapted from finecooking.com [184]. The purpose for this was to demonstrate that corn flour could go 'beyond' cornbread. This recipe was selected because shortbreads have a natural crumbly texture, suitable for the texture of corn flour. Also, it used cranberries, another traditional indigenous food. I substituted a third of the flour in the original recipe with Dakota corn flour. At the time, I used granulated sugar as a sweetening agent rather than maple syrup, as the additional moisture would have affected the texture of the dough and the cranberry filling.

3.5.1 Sautéed Hominy and Black Turtle Beans with Chili and Lime

Dakota hominy had a smooth texture and pleasant nutty flavor. Unlike commercial hominy from a can, Dakota hominy did not have a salty flavor note. This recipe yields a quick dish that can be cooked up in minutes using already cooked hominy and beans. The amount for each ingredient and type of ingredients used are not so critical. The idea is to whip up a dish that is slightly spicy and a little tangy. How spicy and tangy is up to the cook. I used red bell pepper and fresh herbs for color and texture but these can be easily substituted with alternatives depending on what is on hand. Red Bell pepper can be substituted with green, yellow or orange.



Figure 3.5 Personal photo of Dakota hominy corn from Dream of Wild Health (DWH) farm in Hugo, MN. Kernels were grown, harvested, dried, and shucked then picked clean of debris in preparation for hominy making.



Figure 3.6 Personal photo of the color change in Dakota hominy corn within minutes into the boiling process with much of the original color returning about an hour later.



Figure 3.7 Personal photo of prepared Dakota hominy that had been boiled, rinsed, cleaned, and drained.

Table 3-1 Dakota flour corn recipes

Recipe Name	Ingredients	Directions
Dakota Corn Bread-yields 10-12 servings	<ul style="list-style-type: none"> • 1 1/3 Cup + 1 Tbsp. Corn Flour • 2/3 Cup + 1 Tbsp. Wheat Flour • 2 Tsp. Baking Powder • ½ Tsp. Baking soda • 1 Tsp. Salt • 1/3 Cup Sunflower Oil • 1 Large Egg • ¼ Cup Maple Syrup • 1 Cup Buttermilk 	Preheat oven to 350 F. Mix together dry ingredients (corn and wheat flours, baking powder, baking soda, and salt). In a separate bowl, whisk together oil, maple syrup, egg, and buttermilk until smooth. Add dry ingredients to liquid ingredients. Using a spoon or spatula, mix gently until everything is combined. You should have a thick batter. If it is too thin, add an extra tablespoon of flour (corn or wheat). Pour batter into a greased pan and bake for around 40-45minutes or until an inserted toothpick comes out clean.
Herbed Two Sisters Corn Muffins	<ul style="list-style-type: none"> • 1 1/3 Cup + 1 Tbsp. Corn Flour • 2/3 Cup + 1 Tbsp. Wheat Flour • 2 Tsp. Baking Powder • ½ Tsp. Baking soda • 2 Tsp. Salt • 1/3 Cup Oil • 1 Large Egg • 2 Tbsp. Maple Syrup • 1 Cup Buttermilk • 1Tsp Dijon Mustard • ½ Cup Shredded Sharp Cheddar • Big handful of chopped herbs (parsley, cilantro, scallions) • 1 Cup Black Turtle Beans, cooked 	Preheat oven to 350 F. Mix together dry ingredients (corn and wheat flours, baking powder, baking soda, cheese, and salt). In a separate bowl, whisk together oil, maple syrup, egg, buttermilk, mustard, and herbs until smooth. Add dry ingredients to liquid ingredients. Using a spoon or spatula, mix gently until about half of the dry mix is incorporated. Gently fold in beans and mix until no more flour can be seen. You should have a thick batter. Pour into muffin cups and bake until a toothpick inserted come out clean.
Blueberry Maple Corn Muffins	<ul style="list-style-type: none"> • 1 1/3 Cup + 1 Tbsp. Corn Flour • 2/3 Cup + 1 Tbsp. Wheat Flour • 2 Tsp. Baking Powder • ½ Tsp. Baking soda • 1 Tsp. Salt • 1/3 Cup Oil • 1 Large Egg • 1 Cup Maple Syrup 	Preheat oven to 350 F. Mix together dry ingredients (corn and wheat flours, baking powder, baking soda, and salt). Sprinkle a handful of dry mix onto blueberries and toss to coat. This helps prevent blueberries from sinking to bottom while baking. In a separate bowl, whisk together oil, maple syrup, egg, and buttermilk until smooth. Add dry ingredients to liquid ingredients. Using a spoon or spatula, mix gently until most of the dry mix is incorporated. Fold in blueberries. Batter should resemble thick pancake batter. If it is too thin, add an extra tablespoon of flour (corn or

	<ul style="list-style-type: none"> • 3/4 Cup Buttermilk • 1 1/2 Cup Fresh Blueberries 	<p>wheat). Pour batter into muffin cups and bake until a toothpick comes out clean.</p>
<p>Cranberry Streusel Shortbread Bars- yields about 12 squares</p>	<ul style="list-style-type: none"> • 1 Cup + 5 Tbsp. Unsalted Butter, melted and cooled to just warm • 1 Cup Sugar, divided • 3/4 tsp. Salt • 2 Large Egg Yolks • 2 Cups + 3 Tbsp. Whole Wheat flour • 1 Cup Corn flour <p>• <i>Cranberry filling:</i></p> <ul style="list-style-type: none"> • 12 oz. bag frozen cranberries • 1 Cup sugar • 1/4 Cup Water 	<p>Preheat oven to 325 F. Line a 13x9-inch baking pan with foil. In a medium bowl, stir together the butter, 3/4 cup of sugar and salt. Whisk in egg yolks. Combine corn and wheat flour then add to wet ingredients to make a stiff dough. Transfer about 2 cups of the dough to the prepared pan. Press the mixture evenly into the bottom then prick dough over with a fork. Refrigerate for 30 minutes (or freeze for 5 to 7 minutes), until the dough is firm. Bake the dough until the crust begins to set but does not brown on the edges (the center will be soft), about 20-25 minutes.</p> <p>In a medium saucepan, bring cranberries, maple sugar, and 1/4 cup water to a boil. Reduce heat and gently boil until the liquid is reduced to a syrup consistency, 5 to 8 minutes. Remove from heat and let mixture cool for about 10 minutes (cranberry filling will continue to thicken as it cools).</p> <p>With fingers, combine the remaining 1/4 Cup maple sugar with reserved dough until crumbly.</p> <p>Spread the cranberry filling evenly over crust. Sprinkle streusel topping over cranberries. Increase oven temperature to 350°F and bake the bars near top of the oven until golden and set, about 25 minutes.</p> <p>Let bars cool on counter for at least 1 hour or until firm then cut into squares.</p>

Cilantro pairs well with chili but can be substituted with chives, scallions, or even parsley. Lime can be swapped for lemon or even vinegar. Chili powder is the flavor warrior in this dish but it can be substituted with cumin, paprika, or coriander. In fact, all of these spices can be added together to make a more complex flavored dish. This recipe is made to be flexible. The addition of beans makes this a nutritious meal.

3.5.2 Coconut Hominy Pudding

This was an attempt to really “think outside the box” when it comes to hominy. A Brazilian dessert called Canjica seen on a blog from pinkbites.com inspired this recipe [185]. The idea of hominy as a dessert is a new one for many of us but it works considering that hominy itself has a somewhat neutral flavor. The original recipe uses quite a bit of dairy (milk and sweetened condensed milk). Lactose intolerance is common among American Indians so I adapted and simplified the recipe making it coconut milk-based. This dish was quick to prepare with precooked Dakota hominy and was done once the hominy was heated through.

3.5.3 Blueberry Hominy Salad

The primary purpose was to introduce the concept of hominy in a summer-friendly salad. This recipe was adapted from blog.sanuraweathers.com and was inspired from a “Blues Crawl” (blueberry-themed dinner) the author attended [186]. Blueberries are a traditional and healthy food [183]. The sweetness of the berries, bitterness from salad greens (especially if using arugula, dandelion, or kale), spiciness from fresh red onion, and a hearty bite from ‘sister’ hominy corn make this an attractive well-balanced dish. This recipes incredibly versatile, measurements do not need to be exact, and can be adapted depending on personal preference. Even the most inexperienced cook can assemble a nutritious and flavorful salad filled with traditional ingredients that would make our ancestors proud.

3.5.4 Community Taste Test

To engage members of the urban American Indian community with these foods, a meeting was held at the Dream of Wild Health (DWH) urban office in Minneapolis. Twelve community members, consisting of American Indian elders and seed savers came together to taste dishes featuring Dakota flour corn and Dakota hominy corn (see Figure 3.4). For comparison purposes, I purchased commercial cornmeal and canned hominy and placed alongside the Dakota corn flour and Dakota hominy. As custom to many American Indian cultures, a ‘spirit dish’ was prepared before any food was eaten [187]. As described by one community member, a spirit dish is a spiritual offering to “all the spirits”: the Creator, ancestors, and land. It contains sample portions of all foods and beverages present in a meal and ‘offered’ out of respect and gratitude of the gifts (sustenance) received. The spirit dish was then set outside by a tree [187]. An elder within the group held the spirit dish and offered a prayer. During the prayer, a bundle of dried sage was lit and ‘smudging’ commenced. Smudging is a common practice in the American Indian community of cleansing one’s mind and spirit by wafting over one’s body the smoke emitted from smoldering herbs, such as sage, cedar, or sweet grass, typically burned from an abalone shell [188].

Table 3-2 Dakota Hominy Corn Recipes

Recipe Name	Ingredients	Directions
<p>Sautéed Hominy and Black Turtle Beans with Chili and Lime</p>	<ul style="list-style-type: none"> • 1 red onion chopped • Some minced garlic (I used about 2 Tbsp.) • 1 Red Bell Pepper (diced) • 1 Serrano Chili (seeded, finely diced) • Salt and Pepper to taste • About 2 Tsp. Chili powder • 3 Cups Hominy, cooked • 1 Cup Black Turtle Beans, cooked • Big handful of chopped cilantro • Splash of lime juice • 1 Tbsp. Butter + 2 Tbsp. Oil 	<p>Start on a med high heat; add oil and butter to a pan or wok. When butter and oil is hot, add chopped onion, a pinch of salt, and sauté for minute or so until the onion looks soft and turns slightly translucent. Pan should be hot enough to hear a good strong sizzle but not too hot to where the onion starts browning before your eyes. Add chili powder and garlic and stir constantly for a few seconds. Adding spices directly into the oil helps the flavor come out strong. Add hominy, beans, bell Pepper, diced chili, a pinch of salt, and sauté for a few minutes or until everything is heated through and peppers are tender yet still has a crunch. Turn off the heat, add cilantro and lime juice; season with salt and pepper as needed.</p> <p>Note: removing seeds from chilies give this dish nice chili flavor and crunch without the intense heat. The amount of heat can always be adjusted by sprinkling a little cayenne pepper or your favorite hot sauce.</p>
<p>Hominy Coconut Pudding-yields 6 cups pudding</p>	<ul style="list-style-type: none"> • 4 Cups Coconut milk • 2.5 Cups Hominy (cooked) • 1 Cinnamon stick (can use ground cinnamon, about a teaspoon or to taste) • Pinch of nutmeg (optional) • ½ Cup Coconut milk + 3 Tbsp. cornstarch • ¾ Cup Maple Syrup (more or less to taste) • Pinch of salt • Toasted shredded coconut (optional) 	<p>Pour coconut milk, cinnamon, nutmeg, and hominy into a pot. On med high heat, bring to a boil. Stir frequently so hominy doesn't burn at the bottom. When hominy is heated through and softens, pour in maple, coconut milk-cornstarch mixture, and stir until pudding thickens. Lower the heat to a gentle simmer (it will thicken a lot). Let it cook about a minute longer. Keep stirring to avoid bubble splatters.</p> <p>Let pudding cool down a bit before serving. About an hour if left out or 30 minutes or so in the fridge. Sprinkle toasted coconut on top. Best served warm.</p>

<p>Hominy Blueberry Salad with Sunflower Balsamic Vinaigrette</p>	<ul style="list-style-type: none"> • 1 Bunch of Salad greens (spinach and arugula works well) • A small handful of thinly sliced red onion or to taste • 2 Cups fresh Blueberries (~2 cups) • 2 Cups Hominy, cooked • A handful of Feta cheese, crumbled (optional) <p><i>Vinaigrette:</i></p> <ul style="list-style-type: none"> • ¼ Cup Balsamic Vinegar • ¾ Cup Sunflower Oil • 1 Tsp. Dijon Mustard • 1 Tsp. Maple Syrup • Salt and pepper to taste 	<p>For this recipe, use as much or as little as you want. The vinaigrette recipe makes about 1 cup and I used about half for about 4 starter portions of salad. Just to give an idea how much to use. Some like a well-dressed salad and others like salads lightly dressed so I'd recommend a small drizzle, toss then taste and adjust accordingly.</p>
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Chapter 4 Results and Discussion

4.1 Introduction

This chapter presents the results of the three projects undertaken in the urban American Indian community of the Twin Cities metro area. As described in the previous chapter methods for each project used an indigenized form of action research (AR), community based participatory research (CBPR), and participatory action research (PAR).

4.2 NEW LIFE Project

Community members involved in these conversations expressed an overwhelming desire for an American Indian/Indigenous food hub that is accessible and affordable. They envisioned a store that not only consist of fresh healthy traditional foods but also emanates the sights, sounds, and scents of all things considered “Native.” This vision includes a space that community members can walk into and hear the traditional drum. Inside, one could see products harvested, packaged and labeled by local American Indian producers. These products would depict American Indian cultural images, symbols, and languages. Outside of the building would include a garden consisting of healthy indigenous foods and herbs to be used in the store’s teaching kitchen, a space for free cooking classes to help community members learn how to prepare these foods in ways that are healthy and honors cultural traditions. Community members would be able to experience the lingering scent of sacred sage and other traditional herbs, adding to the full circle of mind, body, emotion, and spirit experience. Similar to food outlets existing for other ethnic communities, such a place would create a strong sense of ownership and pride within the urban American Indian community.

This project was intended to continue on toward building a business plan or model by the NACDI and staff member I collaborated with. Proposed plans were to network and create partnerships with local indigenous food producers and raise funds for a physical location for the food hub. Unfortunately, the funding timeline for NACDI ended and the staff member was unable to continue the project. My responsibility in this project was dependent on the relationship with

NACDI. Therefore, I was unable to continue this work. However, I learned some years later that NACDI established a farmers market called “Four Sisters” held within the community’s cultural corridor. Though not a direct result of NEW LIFE, this demonstrates the community taking action towards a localized indigenous food system.

4.3 SNAP Ed Project

A final report and executive summary of this project was prepared and presented to SNAP-Ed extension staff on April 25th, 2014. The final report to SNAP-Ed provides guidelines for a cultural-centered approach and recommendations for CNEs implementing the new curriculum to an American Indian audience with emphasis for those living within an urban context. In this report, Community Nutrition Educator (CNE), Angelina (Angie) Hernandez developed a model that is community/class-driven with goals and objectives not pre-determined (by the educator) or tightly scripted according to the curriculum. Despite having no formal training in nutrition, she acquired a wealth of knowledge around nutrition, food, and health through her own lived experience and cultural understandings. Having culturally relevant goals and objectives enabled Angie, as a CNE, to respond with appropriate lessons and resources to achieve participants desired outcomes. This model was described as a “Backwards Design,” in that it “flips” the usual process of culturally appropriate design by nutrition professionals. The Backwards Design model moves cultural context to the forefront as the primary consideration for creating more effective nutrition education. It consists of four stages: desired results, assessment of conditions, learning plan, and reflection. These stages are further explained below.

4.3.1 Desired Results

To seek out desired results typically involves the question, “what do participants wish to gain from these classes?” In my experience, this was not always verbally expressed in class. Angie used keen observation and personal intuition ‘to come to know’ class participants. Occasionally, brief surveys were used as helpful aids. Majority of participants were women. I noticed Angie would engage in

conversations by identifying herself *with* them as a fellow mother and Native woman who experienced similar struggles relating to health and nutrition. Relating to participants in this manner reduced the authoritative quality of being an educator, becoming an equal in the eyes of these participants, myself included. This leveling of power dynamics and forming relatable connections made a welcoming atmosphere for sharing desired results.

The desired results gathered from her engagement with community members were expressed as high priority. The first desired result, “participants will understand their empowerment as American Indian people to make healthier food choices” can be interpreted as American Indian people endured traumatic histories and, by surviving, developed resiliency that will empower them to make healthier food choices. The second desired result addresses the issue with the MyPlate model. While MyPlate is a significant improvement to the former MyPyramid, it is still a construct of Western nutrition science that many American Indians do not necessarily embrace [189]. Angie was placed in a position to develop a ‘My Native Plate’ to fit within the cultural context of class participants (see Figure 4.1). The third desired results, (decrease intake of sweetened beverages) addresses the issue of Type 2 Diabetes and obesity that is widespread in urban American Indian community. The fourth desired result (Improve calcium-rich food/beverage intake) deals with the issue of dairy as a nutrition topic that is stressed heavily as a superior source for calcium despite a high prevalence of lactose intolerance among American Indians. The fifth (decrease intake of sodium) and sixth (improve intake of healthful oils and reduce trans fat/saturated fats) desired results, address the excessive consumption of highly processed foods within the community, stemming largely from historical dependence on federal government commodity foods. The seventh desired result (become more physically active as part of a healthy and balanced lifestyle) indirectly addresses the historical experience of forced changes in traditional and cultural ways of living.

4.3.2 Assessment of Conditions

In the Backwards Design Model, assessment of conditions is to understand the circumstances and level of knowledge that participants hold regarding nutrition, food, cooking, budgeting, and/or connection to culture and traditions. Through participation and observation, I learned that participants did not always reveal these conditions or were even aware of a lack of knowledge or understanding. Angie came to make such conditions more explicit in a variety of culturally appropriate ways, one of which involved a modified Jeopardy game that she adapted to fit within the cultural context of her class participants. This was followed by an introduction to her My Native Plate construct, to gain a better understanding of “where they were at.”

4.3.1 Learning Plan

Once an assessment of conditions was established, Angie drew up an appropriate series of learning plans that involved lessons, activities, exercises, and demonstrations targeting each of the desired results mentioned earlier. As a tool and resource, Angie used the Simply Good Eating (SGE) English Language Learner (ELL) curriculum. From her own cultural understanding and lived experience in the community, Angie knew the ELL version would have a greater impact through its use of visuals and hands-on activities. Extensive use of visual illustrations, hands-on activities, games, and stories are proven to be more effective in groups with low-literacy levels [190]–[192].

4.3.1 Reflection

Despite having to adapt ‘on-the-fly,’ these lessons resulted in meaningful conversations and interactions. Angie reflected on her experiences after each lesson.



Figure 4.1 My Native Plate developed by former SNAP-Ed Community Nutrition Educator for Hennepin and Ramsey county MN, Angelina Hernandez.

In the Backwards Design model the following questions guided the reflection process: “What did my participants learn?” “How do I know?” “What did I learn?” “How will I improve my lesson next time?”

Upon reflection, Angie came to recognize two definitions for what constitutes ‘traditional’ with regards to contemporary urban American Indian food culture; “pre-boarding school” traditional and “post-boarding school” traditional. Pre-boarding school traditional refers to foods that were consumed and prepared in ways without European/foreign influence. An example of this is Ojibwe wojapi (stewed blueberries thickened with arrowroot or cornmeal and sweetened with maple syrup or maple sugar). Post-boarding school traditional is often described as “what my grandma used to make.” Post-boarding school traditional can be considered any food or dish incorporated into American Indian food culture over the course of generations of colonization and forced assimilation with European/foreign influence. The most notorious example of this is frybread: wheat flour mixed with any combination of water, milk, yeast, baking powder, salt, or sugar then deep fried in either lard or vegetable oil. None of these food ingredients (water being an exception) were part of the North American food landscape prior to European settler immigration. Hence, frybread, Indian tacos, macaroni and cheese, and other foods commonly consumed are non-Indigenous to these lands, only later becoming ‘traditional’ within the context of American Indian culture as a matter of simple survival. Often, these foods became part of the cultural fabric as government commodities were distributed onto reservations in a system of forced dependency.

This important historical context was completely absent within the Simply Good Eating curriculum. Drawing upon the experiences in Angie’s classes and the Aho SNAP-Ed curriculum review board, I was able to adapt the background sections for lessons on Fat and Salt, Sugar, Calcium (the Dreaded Dairy), and Fruits and Vegetables in the Simply Good Eating ELL curriculum. These were topics covered in Angie’s classes and, with the retirement of the SGE curriculum, were

readapted to serve as guidelines for SNAP-Ed CNEs working with American Indians. Below are brief summaries of each adapted background sections.

4.3.2 Fats and Salt

Research demonstrates a high-fat Western-style diet contributes to obesity, heart disease, cancer, and diabetes [193]. It is recommended for those with hypertension to lower their intake of salt [194]. Fats are neither good nor bad independent of how they are used within the context of a person's diet or lifestyle [195]. Fats are used for a variety of physiological functions (i.e. energy storage, hormone production, cellular health, etc.). In past generations, American Indians lived an active lifestyle and dietary fats from traditional sources provided the calories needed. However, physical activity has decreased significantly in recent decades.

Herbs and spices can add flavor to foods that often makes for an acceptable substitute for foods flavored with excess fat and salt. Engaging participants to sample unfamiliar herbs and spices can be very effective. Once people have tried something new that is appealing, there is a greater chance of them seeking it out during a future trip to the grocery store. Use this opportunity to discuss with participants what they think their ancestors did to flavor food. Take note of accessibility issues and the local food environment. Some herbs and spices can be found at a local dollar store. Be sure to check what food stores are available in their area, especially ones frequented by participants.

4.3.3 Sugar

Table sugar (sucrose) and high fructose corn syrup are not considered as traditional foods. Refined sugar was among the commodity foods introduced to American Indians confined to reservations. Sugar, along with salt and fat, helped make poor-quality, unappetizing foods more palatable. Excessive caloric intake from a diet high in refined sugar is a contributing factor for overweight and obesity, a risk factor for Type 2 diabetes and other diet-related chronic diseases.

With that said, it should be unsurprising that sugar carries a negative reminder of the history of colonization and forced dependency.

Reconnecting with pre-boarding school traditional and cultural foods appeared to be an important topic for many participants. Lessons and conversations revolving around sugar from a cultural perspective will likely garner attention. Pre-boarding school traditional foods are symbolic of healthy cultural traditions and a resource many are looking to reclaim. Traditional sweeteners used by American Indians of the Upper Midwest region include maple syrup, maple sugar, berries, and honey. Traditional ways of harvesting maple syrup is an important cultural practice that some members in the community continue to do. Much like how fats are neither inherently 'good' nor 'bad' independent of how they are used, sweeteners can be a healthy component of a person's diet when used within a traditional cultural context.

4.3.4 Calcium and The Dreaded Dairy

The topic of calcium presented from a Western academic nutrition educational approach is strongly associated with dairy foods. However, much of the world population experience some degree of lactose intolerance [196]. Nutrition as a scientific discipline emerged from a Western European worldview consisting of cultures with long histories of consuming dairy foods. Dairy consumption was not traditionally practiced by American Indians and many are lactose intolerant [197]. Pre-boarding school traditional diets obtained calcium through a high intake of nondairy foods such as beans, leafy greens, and powdered animal or fish bones [198], [199]. An example of this is Juniper ash traditionally used by the Navajo (Diné) as a seasoning for a variety of foods [200]. Juniper ash derives from needles and stems of Juniper that is burned down to ash [200]. A mere teaspoon contains a calcium content that is equivalent to 1 cup of milk and is a good source for iron, as well as a moderate source for magnesium [200].

Dairy foods were introduced as government distributed commodities, often in the form of cheese bricks, and powdered or canned milk. Hence the 'dreaded dairy'

often serves as a reminder of a history of colonization. Even to suggest alternative ‘milks’ such as soy, almond, or coconut, can trigger resentful feelings because it reasserts the notion that good dietary practice requires dairy foods. Not all American Indians are lactose intolerant and some enjoy dairy foods so participant responses can be unpredictable. This is a sensitive topic that should be addressed from a cultural and historical context.

4.3.5 Fruits and Vegetables

Fruit and vegetable intake among many urban American Indians tend to be low. There are many reasons for this including limited access or resources in obtaining fresh fruits and vegetables. These challenges and barriers should be discussed with participants in efforts towards creating practical and relevant solutions. As mentioned under the topic of sugar, reconnecting with pre-boarding school traditional and cultural foods appeared to be an important topic for participants so conversations, teachings, and stories involving fruits and vegetables are likely to garner attention as well. An example of this is the story of the Three Sisters (corn, bean, and squash).

The story of the Three Sisters is used across many American Indian tribes that typically include an important lesson in social relationships [201]. From an agriculture perspective, the combination of corn, beans, and squash is an ingenious method for growing food. Tall, slender cornstalks provide structure for bean vines to grow upon. Beans fix nitrogen into the soil, contributing to soil fertility. Broad squash leaves provide shade for soil, retaining moisture and deprive weeds of sunlight needed for growth. The prickliness of its leaves is unpleasant for flying pests, serving as a pest deterrent. In terms of nutrition, corn provides ample supply of carbohydrates and complementary protein when consumed with beans. Squash provides additional vitamins and minerals as well as fiber. All together, the Three Sisters supply a well balanced diet. From a cultural standpoint, this story teaches us that each has a unique quality and we are strongest when uniting and supporting each other. The sisters came together to “fill the cooking pot” (provide nourishment). This story illustrates the nurturing

relationship between human beings and food. Storytelling conveys knowledge and wisdom, teaching people how they ought to live a good and healthy life, in harmony with nature. There are variations of this story that have evolved over time and inconsistent versions should not be regarded as wrong or inaccurate.

An exception to the presupposition that a diet high in fruits and vegetables leads to good overall health is that some indigenous populations, from lands with little natural vegetation, developed diets concentrated on animal sources. This typically applies to people indigenous to the arctic region. Often referred to as Alaska Natives or First Nations (Canada), traditional methods of preparing available foods ensured a balanced nutritious diet and consumption of traditional foods resulted in overall good health [9]. In addition, the consumption of organ meats such as liver, heart and tongue provided many essential nutrients [9]. Under this condition, promoting and/or insisting that a diet high in fruits and vegetables is necessary for good health can be culturally inappropriate.

4.3.6 My Native Plate

The USDA's MyPlate being the shape of a circle resonates well with American Indians, as it resembles that of the sacred medicine wheel. The Medicine Wheel typically consists of a center with four branches pointing to the four directions: east, west, north, and south. All are enclosed in a circle signifying interconnectedness and interdependence [202]. The cultural framework of the traditional Medicine Wheel formed the basis for Angie's My Native Plate (see Figure 4.1). Though this lesson was not part of the SGE ELL curriculum, nutrition education targeting an urban American Indian audience that promotes MyPlate, should use My Native Plate as a culturally appropriate replacement. This lesson addressed how historical trauma "still plays a part in our food choices." Participants were asked to name at least one traditional food for each of the sections of My Native Plate. For example, an answer for protein could be fish. Relating this to historical trauma, fishing rights continue to be disputed between tribal nations, state, and the federal government [203]. The activity concludes

with a discussion around traditional and ceremonial foods “then and now” as well as gardening and food access.

Though it is not believed that the medicine wheel was used to teach healthy eating it had been adapted as a useful contemporary cultural model to address contemporary diet-related health issues among American Indian communities [17]. Years before the development of MyPlate and My Native Plate, Kibbe Conti, an American Indian registered dietician, worked with the Three Affiliated Tribes (Mandan, Hidatsa, and Arikara nations) and the California Rural Indian Health Board Committee for Traditional Indian Health to develop culturally relevant food models [17]. American Indian tribes carry stories of involuntary changes to their traditional food systems and culture as a result of European contact and colonization [17]. The food wheels are made up of four basic food groups: nourishing plants, nourishing meats, nourishing starches, and nourishing liquids [17]. Each quadrant represents whole foods rather than by nutrient composition.

Indian Health Services (IHS) has a version of My Native Plate (see Figure 4.2). However, I argue that aside from having the word “Native” in the title, this model has little to do with what is ‘Native’ and is culturally inappropriate. This model depicts mostly nontraditional foods along with the ‘dreaded dairy’ (cup of milk) that I find contradictory. By contrast, in Conti’s work with the Three Affiliated Tribes and tribes in California, the food wheels depict what each tribal nation views as a balanced healthy diet and it “tells the story” of the changes in their traditional food system [17]. In Angie’s My Native Plate model, foods traditional to American Indians in the Upper Midwest region are represented: berries, beans, corn, squash, and walleye fish. These foods correspond to categories in USDA’s MyPlate: fruit (berries), vegetables (squash), corn (grains), beans and walleye fish (protein). The stylized words surrounding the plate are in the Ojibwe/Anishinaabe language, a dominant language group in Minnesota as well as in the Twin Cities metro area. Each quadrant is accompanied with landscape imagery, connecting each food group to the land. Along the border of the plate

are the four directions represented in colors red, white, yellow, and black. Lastly, the cup of milk is replaced with water, something that is revered as sacred, traditional, and a “medicine” to the people.

Having these food models emerge independently raises the issue of what “culturally appropriate” means. The term “culturally appropriate” can have very different meanings, depending on people’s experience engaging with different cultural groups or individuals. Nutrition professionals who are grounded and steeped in nutrition subject-matter expertise often develop what they consider to represent “culturally appropriate” nutrition education materials, curricula, lessons and programs. However, because of their training and professional status, academic nutrition knowledge and expertise becomes the central organizing force and driving framework for the development of educational programs and materials. Cultural context and cultural difference are typically secondary considerations when considered at all.

Consider this example, the California Adolescent Nutrition and Fitness (CANFit) youth leadership committee and project staff modified the former USDA Food Guide Pyramid to be culturally appropriate for American Indians (see [204]). The goal was to create a ‘Native American’ food pyramid. A depiction of an eagle and images of traditional foods such as wild rice, rabbit, venison, and bear were included in the attempt to create a more “culturally appropriate” pyramid. Despite the developers believing their modified pyramid as culturally appropriate, many American Indians, would consider the pyramid construct itself as a representation of an “outsider’s” perspective not aligned with their culture. For some it symbolizes not of healthy eating patterns but a continued legacy of colonization that does not acknowledge the cultural resources of American Indian people [28]. Henceforth, what would a culturally appropriate food model look like from an “insider’s” perspective? The food wheels from Conti’s work and Angie’s My Native Plate are based on each community’s cultural context. Each model unveils and expresses knowledge and values from an Indigenous

framework regarding nutrition and food systems. Since the models come from the community, it is culturally appropriate.

4.1 Results of Indigenous Seeds Project

The Indigenous Seeds Project resulted in a 15-page report to CURA and Dream of Wild Health (DWH) introducing seven recipes (see Table 4.2) using Dakota flour corn and Dakota hominy corn. This report documented processing Dakota flour corn using a home grain grinder and hominy made using baking soda, described in chapter 3. My participation in this project would not be possible without the trusting relationship I developed with DWH.

The germ became of particular interest because its presence affects the shelf life of the Dakota flour corn. The germ, referred by a local elder as the “heart of the seed,” is essentially the embryo of the kernel. It contains vitamins, minerals, and healthy polyunsaturated fatty acids [205]. Unsaturated fatty acids, upon prolonged exposure to oxygen, inevitably degrade and become “rancid” [205]. In commercial cornmeal, the germ is removed (degerminated) to substantially extend product shelf life [205]. Because the germ contains a substantial portion of nutrients, commercial cornmeal is ‘enriched’ or fortified with the vitamins and minerals [205]. In the case of processing Dakota flour and hominy corn the germ is not removed, preserving its original nutritional value, and shortening its shelf life [205].

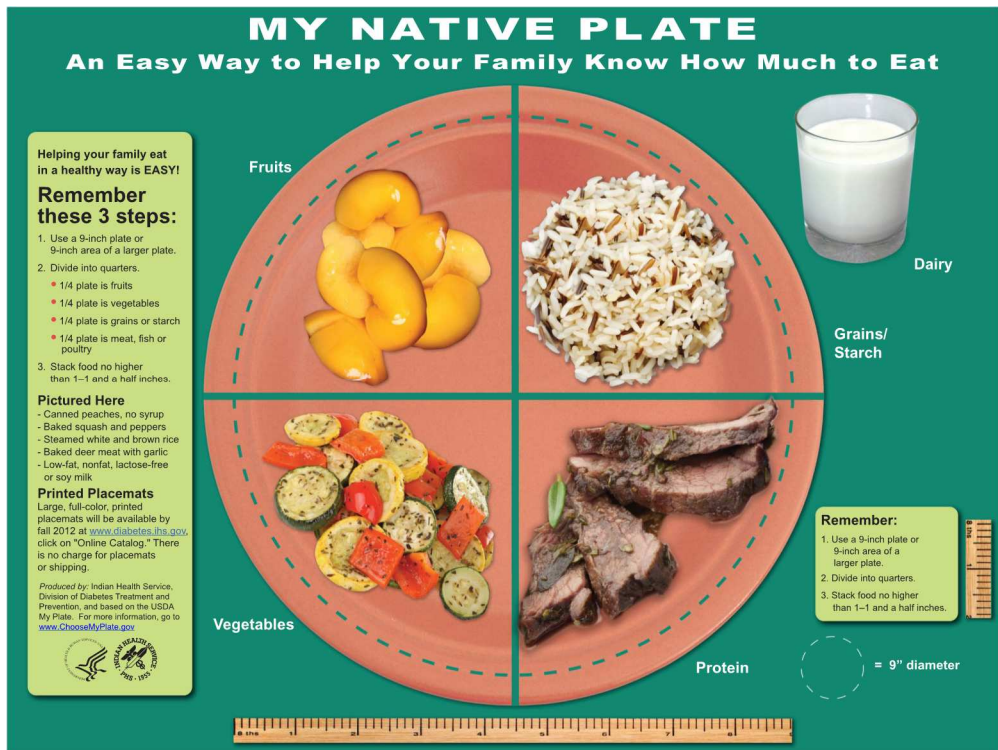


Figure 4.2 My Native Plate from Indian Health Service [206]

A Guide to Daily Food Choices



Figure 4.3 USDA food pyramid modified by CANFit youth committee for Native Americans [204].

Table 4-1 All recipes used and tested in the Indigenous Seeds Project

Corn Type	Dakota Flour Corn	Dakota Hominy Corn
Recipe 1	Cornbread	Hominy using Baking Soda
Recipe 2	Blueberry Maple Corn Muffins	Sautéed Hominy and Black Turtle Beans with Chili and Lime
Recipe 3	Cranberry Streusel Shortbread Bars	Hominy Blueberry Salad
Recipe 4	Herbed Two Sisters Corn Muffins	Hominy Coconut Pudding

4.1 DISCUSSION: Lessons Learned

4.1.1 From Participation to Involvement

By now participation has been stressed as an important quality in community-based research or work in the urban American Indian community. On the side of researchers, nutrition educators, and health professionals, participation in the community is essential to building relationships [168]. On the side of the community members, participation in all aspects of the research process is needed for the community to have ownership of the project [168]. Yet, the meaning and context of “participation” should be viewed with a critical lens. A wellness project aimed at exploring the experience of Alaska Natives (Yup’ik) engaged in a CBPR process, described the effect of the process from an Indigenous perspective [207]. Community members introduced the concept of “involvement” as a process qualitatively different than that of participation [207]. Community members’ involvement in the CBPR process occurred when they saw themselves growing out of passive participant roles to active leaders in the project [207]. In other words, anyone can attend and ‘participate’ but not be personally ‘involved.’ I believe to reach the level of involvement depends on the strength of relationship with community members and time allowed for growth from passive participants to active leaders.

4.1.2 Backwards Design in Practice

In one of Angie’s classes, there was an elder who used to carry a saltshaker in her purse. It was used to add extra salt on foods, even before tasting. According to one of her children, the foods this elder prepared was “always too salty.” This scenario presented a *desired result* to lower her intake of sodium. The saltshaker and testimony was the *assessment of conditions* for a high intake of sodium. Subsequently, the *learning plan* would become a lesson on salt with alternative ways to flavor foods using herbs and spices. Angie bought various herbs and spices from a local dollar store and sample containers. Participants, including this elder, were able to smell each herb and spice and take samples home. Shortly after, this elder stopped carrying that saltshaker and used less salt in her

cooking. Both Angie and I saw this elder again at another class. She proclaimed, with utmost pride and relief, how cutting down the salt seemed to have relieved the “shakes” in her legs. Through *reflection*, we came to know this experience as being a success.

4.1.3 Special Note for Educators of Predominantly European Heritage

In the report to SNAP-Ed, a special note was written to help CNEs of predominantly European heritage understand the unique position they potentially stand in when working with American Indian audiences. This note can be useful for researchers or nutrition professionals working with American Indians or on American Indian issues. Below is a summary of this note:

I speak to you as a person with European heritage (English, Irish, and German), married to a Frenchman. There is ongoing resentment and distrust, among many American Indians, towards those with predominantly European or “White” heritage. It is a difficult reality to accept. At first it is easy to feel defensive and, in response, claim no direct involvement (‘my ancestors came after all that happened’). The feeling of guilt can be so overwhelming that it seems better to disengage from the past and forget it even happened. These responses are understandable but are not emotionally, psychologically, or even spiritually healthy.

From the Western worldview, individuals are not responsible for the actions of others, particularly in the past. From an Indigenous worldview, we are connected to our ancestors and share collective responsibility for each other’s actions. I believe both concepts to be true. Whether we choose to or not, we stand before others as a representative of our ancestors. We are in a unique position to indemnify and facilitate healing in American Indian communities. To acknowledge awareness of our own cultural context and heritage is a tremendous step forward. We should become fully aware that learning to step into this intercultural space with integrity and respect for all perspectives

becomes a very important part of our work. It offers us powerful personal and professional learning and development. By recognizing this responsibility and genuinely committing to this work, we will find that building relationships and trust will come, in spite of a painful history.

4.1.4 An Approach to Understanding Food Systems and Food Sovereignty

This thesis supports the idea that nutrition education must be culturally-based in order to take into account the historical and socio-cultural events surrounding food and food systems. In the realm of nutrition education and research, the current food system in the U.S. is taken as a given and professionals are trained to navigate within the existing mainstream system.

Through the course of the three projects presented in this thesis, the topic of the current food system frequently arose in conversations with respects to traditional foods. These conversations were virtually unavoidable and community members have expressed frustration and confusion. We stand upon American Indian land yet few traditional foods are readily accessible. Some traditional foods, such as wild rice, corn, beans, squash, and tomatoes, are currently available but only those that can be cultivated on a commercial scale. Also these commercial varieties have been hybridized, fabricated and/or genetically modified to the point where American Indian ancestors would likely not recognize them. I refer to this fabrication process a 'cosmetic makeover,' presumably to maximize consumer appeal.

There is a longing among American Indians, especially among the younger generation, to reconnect with traditional food ways. It is considered a pathway to reconnecting with cultural heritage and American Indian identity. There are efforts being made to reclaim traditional food ways. American Indians and tribal nations are relearning traditional agricultural and horticultural practices. An example of this is the Tohono O'odham (formerly "Papago" of Southern Arizona). They are people of the desert and their ancestors developed sophisticated ways

to cultivate and harvest a myriad of foods through harvest and irrigation of rainwater [43]. Despite the arid environment the Tohono O’odham thrived under their traditional food system [43] These perspectives are all held within the concept of food sovereignty. According to the Food Sovereignty Assessment tool of the First Nations Development Institute:

Food sovereignty is that state of being where “all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” [208].

Drs. Michael W. Hamm and Anne C. Bellows [208]

Food sovereignty is the right of peoples, communities, and countries to define their own agricultural, labor, fishing, food and land policies which are ecologically, socially, economically and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and societies.

Food Sovereignty: A Right for All
Political Statement of the NGO/CSO Forum for Food Sovereignty
13 June 2002, Rome [208]

The concepts of food sovereignty hold that food is a matter of human rights and fundamental freedoms. Currently, the United States policy is based upon the premise that food is a matter of production and economic development [208]. Under this premise, the production of more food and industrialized agriculture will increase food supplies and wealth. From an American Indian ontological perspective, food sovereignty is a right to be Indigenous [45]. This concept extends beyond the production and consumption of food to an indistinguishable right to a relationship with the land [45].

According to the International Indian Treaty Council, current U.S. policies support a global food system that undercuts Indigenous Peoples food security [209]. The United Nations (UN) declares that every man, woman and child has the “inalienable right to be free from hunger and malnutrition in order to develop fully

and maintain their physical and mental faculties” [209]. The UN also declares in Article 1 of its Declaration on the Right to Development that the right to development encompasses not only economic rights, but as social, cultural and political rights inherent to development. By contrast, current U.S policy does not see the right to food as an enforceable human right, but as an economic right where the responsibility of government is to provide conditions where the individual is able to meet their own economic needs, including obtaining adequate food, through their own initiative.

It is unrealistic to expect nutrition educators to take responsibility for making changes to our current food system. But nutrition educators can take responsibility for raising their own awareness of the highly significant systemic issues and concerns around food systems and the concept of food sovereignty. We all participate in these global systems, but awareness of these large-scale issues will make for better nutrition education. Conversations about our food system are important ways for people to share their knowledge and experience. As more people become aware of food system issues, the demand for change will grow. Reflect on the concerns raised and think about what changes can happen and be shared among participants within the current food system realities of every-day life.

4.1.5 On the Meaning of Sacred

When talking with American Indians, you often hear about something or some place that is considered sacred. We hear in the news about how, say, a corporation wants to build something at a particular location or construct a mining site and a tribe or several tribes will protest because that particular site is considered sacred. Think about the Black Hills. It’s a sacred site for the Lakota people. What is it about these mountains that make it sacred?

“To the Western ear, “sacred” may be synonymous with “sacrosanct” — inviolably holy — but to an indigenous culture, a place labeled as “sacred” may instead mean something spiritually alive, culturally essential, or simply deserving of respect [210].”

Non-Indian professionals working with American Indian people need to gain some understanding of sacredness as expressed by American Indians because this will likely come up in intercultural interactions. Consider the case of the Ojibwe and the University of Minnesota over the history and research of wild rice (manoomin) [12]. Manoomin is a sacred food and medicine to the Ojibwe people and revered as a gift from the Creator but the university and research scientists struggle with this reality.

Understand that because something is considered sacred does not mean it is forbidden to use or touch. For something that is sacred, how it is used, implemented, or consumed along with purpose and intent within one's heart are central to the matter. Another way to convey this point is that gifts lose value and meaning if the recipient or recipients never use it. The giver will feel joy in their heart if the gift is used, and used respectfully. From an American Indian perspective, all things are alive with spirit and all things are gifts from the Creator. Gifts are to be respected. They have value and we are responsible to take care and protect these gifts. If we fail to fulfill this responsibility, the one who gives these gifts would be sad (even angry) and not want to give any more gifts. Many cultural groups share this concept.

4.1.6 Conflict of ideologies

The Western worldview is rooted and shaped by European culture and Christian traditions where values of the physical world differ from American Indian worldviews. In recent times, the concepts of civilization, progress, individualism, and ownership have contributed to seeing nature, including undeveloped land, as "the other," distanced from the self and "civilized" society [211]. The natural world is something to understand, manipulate, and control for the benefit of humans. The natural world is imperfect; therefore needs to be improved upon.

“The vocabulary used to organize nature typically betrays the overriding interests of its human users. In fact, the term “nature” is, in utilitarian discourse, replaced by the term “natural resources” in which the focus is on those aspects of nature that can be appropriated for human use... Thus, plants that are valued become *crops*; the species that compete with them are reclassified as *weeds*, and the insects that ingest them are reclassified as *pests*.” [211].

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In contrast, American Indian or Indigenous worldview conceptualizes nature as sacred, that all elements, plants, animals, and natural processes embody a moving spirit in which humans continually communicate with [13]. Rather than exercise control or dominion over nature, American Indians view resources as gifts and practice reciprocity with the natural world [13]. An example of this is the offering of traditional tobacco. Traditional tobacco, unlike commercial tobacco, is regarded as sacred and a medicine and is commonly offered out of respect and gratitude for gifts received. It is common to see members in the community offer pinches of tobacco onto the ground after gathering plants for food or medicine. This conflict of ideologies is a tremendous source of contention between American Indian communities and Western societies. Cross-cultural engagement, a distinct type of community-based engagement partnering citizens holding knowledge that does not correspond to Western standards, may be able to reconcile the two [157].

General Conclusion

In summary, the aim for this thesis was to explore an approach to nutrition education relevant for urban American Indians in the Twin Cities. Such an approach requires recognizing that traumatic historical experiences are a social determinant of health and should be a cornerstone to American Indian nutrition education. Prior to contact with Europeans, American Indian ancestors lived healthy lives and were nourished from local indigenous foods. Traumatic post-contact experiences of treaties, ceded lands, allotments, commodity foods, Indian boarding schools, and relocation greatly affected American Indians in such a way that it transcends from generation to generation. All of which were the result of federal government policies and Euro-American societal pressures to assimilate American Indians into mainstream society.

American Indians in the Twin Cities metropolitan area continue to suffer from the effects of these historical policies. Scholars have come to understand this as Historical Trauma, an intergenerational condition that has transcended to American Indians living today. This is evidenced by health disparities and inequities documented in available health statistical data. However, data specific to American Indians in the Twin Cities is severely lacking, despite having a sizeable urban population that is presumed to suffer epidemic proportions of diet-related chronic diseases. This is, in part, due to the reality that the community is difficult to identify and has an ongoing distrust with Western research. This brings to question as to which approaches to research are considered appropriate within the context of the community.

This thesis presented, through literature and three community projects, that an appropriate approach is an Indigenized participatory-style of research, be it CBPR, PAR, or AR. This involved dedicated efforts in developing genuine relationships with community members, organizations, and heirloom indigenous foods. Members in the community, outside the realm of academia, define these efforts as part of Community Engagement. By applying an Indigenized approach

and the virtues of Community Engagement, valuable knowledge such as the community's dual definition for traditional foods and a culture-centered nutrition education model (Backwards Design) emerged.

I strongly suggest that future research and work with American Indians in the Twin Cities utilize these strategies, as researchers, educators, and community members will all benefit from this. In support, this thesis touches upon a collective effort to change the way nutrition education, research, and work around food is done in American Indian communities. In September 2016 the Shakopee Mdewakaton Sioux Community, with University of Minnesota's Healthy Foods, Healthy Lives Institute, hosted the First Annual Conference on Native American Nutrition in Prior Lake, MN [212]. This conference highlighted important work to sustain and restore traditional teachings and practices in American Indian communities with emphasis on culture, growing and processing traditional foods, gardening initiatives, nutrition education programs, and food-based economic development efforts [212]. Therefore I conclude this thesis as but a mere echo to a much louder call to action.

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Appendix 1

Project Title : Natives Empowering the World through Indigenous Food Environments (NEW LIFE)

Problem Statement/Need and Proposed Outcomes (including how results will be applied to SNAP-Ed educational interventions)

My universal question: What is our relationship to food?

My Indigenous Inquiry: What is our, as Indigenous people, relationship to traditional foods?

My research inquiry: How has historic trauma and current conditions of existence impact our relationship to Indigenous and non-Indigenous foods?

My project inquiry: How can we restore our Indigenous relationship to food and manifest it into an Indigenous food environment that will empower and nourish our people?

The Twin Cities American Indian population of over 38,000 is diverse, geographically dispersed and economically disadvantaged. The causes of diet-related health problems are complex, including individual lifestyle decisions as well as factors related to the physical, social and economic environment in which people live 'social determinants of health'. Disease patterns among Indian people are strongly associated with adverse consequences from poverty, limited access to health services and cultural dislocation. The changes in diet forced on Native people by relocation to reservations and a dependency on commodity foods has had a lasting impact on the Native population. Historical trauma associated with a long history of land theft, family and cultural disruption, forced assimilation, high rates of unemployment, discrimination and cultural differences all contribute to unhealthy lifestyles, diet-related chronic disease and disparities in access to health care for many Indian people.

Many continue to experience limited access to fresh, healthy, traditional and cultural foods and high rates of diet-related health problems. These disparities have been well documented in previous research but implementing this knowledge into social action and change is lacking in many communities. There is a need to explore the cultural and traditional knowledge and relationship to food and health held within this community and to then catalyze action in using these resources in developing a local Indigenous food system that empowers the community to reclaim good health and wellbeing.

Research involving American Indians typically occurs with specific tribal communities on reservations. Little research occurs with urban American Indian communities because of many complicating factors, including the challenges of identifying and locating American Indians within an urban context.

Project Description

The goal of this one-year project is to engage in conversation with urban American Indian people around issues with foods that are considered fresh, healthy, and traditional to Native culture. The primary aim of these conversations is to find practical solutions to the problems that exist with food and health among the urban American Indian community. A secondary aim of this project is to use the knowledge and learning generated from these conversations to create a culturally appropriate revision of the “Simply Good Eating” curriculum for urban American Indian people. The idea of developing a Native food system outlet or food hub, similar to a food cooperative, appropriate to and conducive within the community context, will be explored as a possible longer-term project.

Native people have a long negative history with academic research. The vast majority of research conducted with Native peoples and their communities has resulted in benefits for researchers and their institutions with little corresponding benefit for the community involved. The professional orientation of much of this research has its roots in Western European epistemological ways of knowing and understanding that are dominant in academic institutions. Relationships between researchers and research subjects tends to emphasize power and privilege gradients that are seen and experienced by communities as authoritative, paternalistic, distant (as a means to maintain ‘objectivity’) and distinctly non-Indian. Because many research professionals lack intercultural sensitivity and knowledge of cultural context, there is often great distrust among Native people to conventional research and researchers.

Recent efforts by research professionals to engage communities in a more authentic manner have led to the evolution of a spectrum of Community-Based Participatory Research (CBPR) approaches. A fundamental characteristic of more progressive variations of CBPR is to involve the community from the outset as full participants in ownership of the research process. As such, CBPR holds promise as a means of giving voice and attention to issues framed from community perspectives (as opposed to expert researchers framing issues from professional, non-Indian perspectives). CBPR represents a willingness by professional researchers to learn to adapt research methods that better accommodate community perspectives. Such evolution in research design offers communities possibility for research that is more relevant to and welcome within a given community context. While the emergence of CBPR approaches represents positive step, most are grounded within Eurocentric (Western) worldviews. CBPR must be taken one step further to incorporate Indigenous research methodologies: stories and Indigenous inquiry.

The project will facilitate and moderate conversations/talking circles using a progressive Community-Based Participatory Research (CBPR) approach in

combination with Indigenous research methodologies. In American Indian worldviews, knowledge is generated and transmitted through story, ceremony, dreams and prayers. This is often overlooked under Western research methodologies. To avoid this limitation, I will apply the Indigenous method of inquiry as it is grounded through relationships. These relationships build trust and with trust, stories are surfaced. Stories and knowledge are inseparable in Indigenous epistemology and can be communicated, with permission, in the form of personal narrative. In partnership, we aim to identify existing assets and leaders within the community that might be advocates for a localized Indigenous food system. A potential community-based assessment tool, Environmental Nutrition and Activity Community Tool (ENACT) could be introduced, modified and adapted to fit within the context of this community.

Project plans:

This project will continue a journey of engaging directly with the urban Twin-Cities native communities by meeting people on 'their own turf', attending community events, building relationships, becoming a 'familiar face' integrated into social networks. This informal engagement offers a means to build trust, gaining appreciation for the community context in which people speak freely and exchange knowledge and ideas.

Initial questions:

- Who is the community? How do we find potential leaders that represent the needs and interests of their community?
- How do we gain trust and build reciprocal relationships with community members so that we can learn from them?
- What are we going to learn?
 - A. The amount of knowledge shared will depend on the level of trust from the community.
- What are the potential barriers to be experienced? How can these be overcome?
- Is this something the community is willing and able to take ownership and foster its development? What will be their model/vision/mission?
- Does the community have the capacity and assets (capital, labor, knowledge, skills, support, assets) for NEW LIFE? If not, how can these skills be developed? What resources are needed?

And lastly...

- What will be their next step?

Using a CBPR approach brings about many uncertainties. Since the community will be the active researchers of this project, the community will determine the direction and final outcomes.

Since this will be a community-based project, results from the research will directly benefit the community being served.

Research Summary

Please provide a brief summary of existing research that supports the feasibility and effectiveness of nutrition education methods and/or the need for new approaches to nutrition education, as outlined in the project description

A study was done with a rural California Indian reservation community using a CBPR approach to assess food-insecurity (Jernigan, 2011). The researcher and community members came together to form a coalition and utilized an assessment tool, Tool for Health and Resilience in Vulnerable Environments (THRIVE) that was culturally adapted for a series of focus groups. Through these methods, they were able to identify structural determinants of food-insecurity and develop novel strategies in addressing these issues. The strength in using this approach was for the community to build its capacity in addressing food-security. The success of this project was its effectiveness in engaging with an American Indian community on a level that was both culturally appropriate and empowering for their own community.

In another study done by the same author, a CBPR approach was used for an American Indian community in an urban context to translate the Stanford Chronic Disease Self-Management Program into practice (Jernigan, 2010).

Work Cited:

Conti, K. "Diabetes prevention in Indian country: developing nutrition models to tell the story of food-system change." *Journal of transcultural nursing* 17.3 (2006):234.

fisher, P. "Tribal participatory research: mechanisms of a collaborative model." *American journal of community psychology* 32.3/4 (2003):207.

Jernigan, V.B.B.. "Community-based participatory research with Native American communities: the Chronic Disease Self-Management Program." *Health promotion practice* 11.6 (2010):888.

Jernigan, V. B.B.. "Addressing food insecurity in a Native American reservation using community-based participatory research." *Health education research* (2011)

LaRowe, T. "Development of a culturally appropriate, home-based nutrition and physical activity curriculum for Wisconsin American Indian families." *Preventing chronic disease* 4.4 (2007):A109.

Work with SNAP-Ed staff

How will the project include EEs (and/or other SNAP-Ed staff)?

This work will be used to implement a culturally appropriate revision of Simply Good Eating for American Indian families in urban and reservation communities. I will use this research assistantship to build relationships with EE's, supervisors and community nutrition educators currently working with American Indian communities in Minnesota. These relationships contribute to the development of the revision plan and will be integral in informing and implementing the revision plan that is developed during this summer internship.

Project's Relationship to Minnesota SNAP-Ed State Key Messages

We are required to provide information to all adult participants about the Minnesota Food Support Program. In addition, Minnesota SNAP-Ed promotes the following "key messages" identified by USDA. Please check which apply to your project (check all that apply):

These first five key messages are emphasized statewide by Minnesota SNAP-Ed:

- X Increase intake of fruits and vegetables
- X Become more physically active everyday as part of a healthy lifestyle/
Promote healthy weight
- Improve intake of low-fat or no-fat calcium rich foods and beverages
- Improve intake of whole grains
- X Make wise food shopping and preparation choices:
Plan healthy meals and snacks to save money
Increase reading food labels to help make healthy food choices
Use a shopping list to plan purchases
Prepare foods from scratch using basic ingredients to save money

Please select any of the other key messages that will be used by the project:

- X Practice safe food prep techniques:
Practice kitchen cleanliness
Practice proper hand washing regularly
Improve safe handling of food (no cross contamination, food stored at safe temps, meats properly cooked, wash fruits and vegetables)
- Improve intake of fiber-rich foods
- Limit added sugars or caloric sweeteners
- Decrease intake of sodium
- X Increase frequency of eating breakfast
- Improve intake of healthful oils & reduce amount of transfat/saturated fats
- X Improve intake of lean proteins such as lean cuts of meat, beans, and tofu

- X Decrease intake of sweetened and/or increased caloric beverages
 MyPyramid

Existing Educational Materials (if any) that will be used

Include the following for existing educational materials:

Simply good eating curriculum will be used as a basis for culturally appropriate revision.

Collaborating Agencies/Organizations and their roles

Dream of Wild Health (DWH) is a 10-acre, organic farm in Hugo, Minnesota. DWH began in 1998 as a program of Peta Wakan Tipi, a St. Paul based non-profit that provides transitional housing for American Indian people in recovery. At the heart of Dream of Wild Health is a collection of more than 300 rare heirloom seeds that have been donated by tribes and families from around the country. In addition to growing out a select number of heirloom seeds each year, we raise organic vegetables for sale at farmers markets in the Twin Cities, and provide educational programs for Native youth and families. We partner with urban organizations on programs that work to restore the mental, physical, and emotional health of our community.

DWH offers several youth programs each year. One program, Cora's Kids, involves Native youths ranging from 8-12 years of age and their parents for one week. Youths are taught about organic farming, health and culture and are engaged in traditional and cultural activities. Another program, Garden Warriors, involves high school aged youths in a 4-week session where they grow, harvest and cook fresh organic fruits and vegetables. They are also engaged in cultural physical activities and learn traditional crafts. Youths demonstrating maturity, leadership and are doing well in school are invited to a year-around Youth Leaders circle where they create public presentations and become advocates for the American Indian community for healthy choices.

Evaluation Plans (See USDA Food and Nutrition Service definitions found at www.fns.usda.gov/ora/menu/Published/NutritionEducation/Files/EvaluationPrinciples.pdf)

Appendix 2

REVIEW

Turtle Island Market Business Draft

Executive Summary (overview of main points of a business plan)

Turtle Island Market will provide access to healthy American Indian produced foods and products for the residents of the Phillips and Ventura Village neighborhoods. Turtle Island Market will offer unique fresh foods such as: bison meat, venison meat, walleye, salmon, wild rice, fruits, vegetables, and other specialty foods that reflect more of a traditional diet of American Indians. The market will feature some prepackaged items from indigenous products produced by American Indian owned businesses. For example: Sister Sky- specializes in lotions and soaps, Bedre- specializes in chocolates, Native America Tea Company- specializes in the production of Tea, the Mille Lacs Band of Ojibwe Maple Syrup, White Earth Nation's Wild Rice products, etc. are some examples of prepackaged products from American Indian owned businesses that we want to offer in our market.

Currently in the foods industry as a whole there is high demand in healthy and locally grown foods. South Minneapolis' Phillips neighborhood holds the highest concentration of American Indians living in an urban setting in the country. Turtle Island Market will provide access to healthy American Indian produced foods and products that will meet the demands for healthy foods and products with an indigenous flare for this population along with creating a line of direct access to healthy foods for the residents and the working population in the Phillips and Ventura Village neighborhoods. Our long-term goal will be to gain market share in the greater Twin Cities Metro area that demand these types of specialty foods.

Our goal is to partner with Tribal businesses, American Indian owned food businesses, and American Indian entrepreneurs that supply these unique foods/products. In the Foods and Grocery industry today there is heavy competition in regard to placement on grocery store shelves. It is difficult if not impossible for small American Indian owned food producers to gain access to these points of sale. Because our market will be exclusive as possible to American Indian owned produced products we will create accessibility to the urban market to these American Indian owned businesses where there was and has not been an opportunity.

While these American Indian entrepreneurs' and businesses have made a name for themselves in rural Minnesota, we want to help them expand their business by providing them a city retail opportunity. We are going to focus first on Minnesota American Indian

Tribal Nations that supply specialty foods, American Indian owned produce businesses to ensure we are supporting our American Indian Entrepreneurs while also gaining appeal and support by being environmentally conscious with providing our customers insurance that the foods are as fresh as possible.

Due to the low income demographics of the neighborhood in which we will be located there will be a heavy focus on making the indigenous foods offered in this store affordable and accessible to all and we will achieve this by teaming up with government agencies to ensure our food will be SNAP (food stamp) accessible.

A long-term goal for Turtle Island Market will be the creation of jobs in the American Indian Cultural Corridor, where presently limited job opportunities exist along with on-the-job training. We want to provide basic job training to youth and individuals who want to build on their work skills and management training to those individuals who are ready to make and take the next steps in their professional career.

Turtle Island Market will contribute to the economic vitality of the community by providing job opportunities and bringing dollars into the community therefore, furthering the recycling of dollars in this area and contributing to the economic sustainability of the neighborhood.

Turtle Island Market will be successful because it will fill a necessary niche in the market that is currently not being served. Our foods and products will be demanded because they are unique and are not easily accessible in the urban setting. Also with the creation and expansion of the American Indian Cultural Corridor we are expecting to get others from outside the community to become customers of our market as those individuals become ever more interested in educating themselves in American Indian culture. This is possible as we continue to make the American Indian Cultural Corridor a world destination for American Indian Art and Culture.

“American Indian Cultural Corridor, Minneapolis’ new destination for food, art and culture. This is the only urban American Indian corridor in the country. The Cultural Corridor is home to many of the city’s finest destinations including Woodland Indian Crafts, All My Relations Gallery, Maria’s Café, Northland Visions, Roger Beck Florists, the Franklin Street Bakery and more! Located at the Franklin Light Rail station, the Cultural Corridor is minutes from Downtown Minneapolis and the Minneapolis-St. Paul International Airport. Come visit our unique combination of shops, restaurants, galleries, and Tribal offices. There’s no other place like it!” – www.aiculturalcorridor.com

Mission/Vision

Mission: The mission of Turtle Island Market is (1) to provide access to American Indian produced food(s) and product(s) to the community members of the Phillips and Ventura Village Neighborhoods at a competitive price. With a strong emphasis on providing a retail outlet for purchasing American Indian produced foods and products to the

American Indian population in the Twin Cities and surrounding suburbs. (2) To support blossoming American Indian owned food businesses by providing access to sell their products in an urban environment.

Vision: Turtle Island Market will act as a social enterprise for the community of South Minneapolis. The vision of Turtle Island Market is to create access to healthy American Indian food and product options for community members, provide American Indian owned food and product entrepreneurs access to South Minneapolis' urban retail market, contribute to the economic security and sustainability of the area, and continue building the American Indian Cultural Corridor as a world destination for American Indian Art and Culture. It is NACDI's Mission "To partner with American Indian communities to build and execute 21st century community development strategies." Therefore Turtle Island Market will create a training program that will help youth and adults who want to develop soft skills in employment and possible management training.

Business Type: Specialty small food and products market.

Products & Services: Turtle Island Market will sell specialty indigenous foods and products. Some, but certainly not, all examples of indigenous foods that will be featured at Turtle Island Market are:

- Bison
- Venison
- Walleye
- Salmon
- Wild rice
- Various fruits, and vegetables.

As a community development institute NACDI is committed to supporting American Indian Entrepreneurs. NACDI will strive to stock the store with foods grown, produced, and or manufactured by American Indian Business Owners and Tribal Enterprises.

Description of the Target Market/Niche

Market Area: 5 Minute Driving Distance from store location (Specifically serving the Phillips, Ventura Village, Seward, and Pillsbury Neighborhoods)

4 Target Market(s):

1. American Indian community residents
2. American Indian working professionals
3. Non-American Indian working professionals who demand, healthy, organic, locally grown specialty foods.
4. Neighborhood residents who demand, healthy, organic, locally grown specialty foods.

Target customers: 18-55 years of age, minimum of some college experience, working professional, health conscious, living in single family home with no more than two

children.

Describe in detail people/organizations who will buy your products: Community Members who live at Little Earth of United Tribes and in the Ventura Village Neighborhood, Working professionals working at the following non-profits: The Minneapolis American Indian Center, Anishinabe Wakaigun, American Indian Community Development Institute, Minnesota American Indian Chamber of Commerce, Minnesota Indian Women's Resource Center, PPL, Hope Community, The Circle Newspaper. Working Professionals from local tribal urban offices such as: The Leech Lake Urban Office, The White Earth Urban Office, Fond Du Lac Urban Office, Bois Forte Urban Office, Lac Courte Oreilles Twin Cities Urban Office, Mille Lacs Band Urban Office, and other service organization located within the Minnesota Chippewa Tribes Building. Community members who reside in the Ventura Village neighborhood who value, fresh, locally grown specialty produce and meats.

How old are your customers

Our main customers will be between the ages of 24 and 55.

- a. **Gender:** 55% woman and 45% Men
- b. **Ethnic Origin:** Mainly American Indian
- c. **Family Status:**
 - i. American Indian Community Member: 1-3 children with a blended family, and multi-generational, little to no college experience.
 - ii. American Indian Working Professional: 0-2 children, 25-50, married, and lives in Suburban Metro Areas, some college to Master's Degrees.
 - iii. Working Professionals: 0-3 children, 24-55, married or single, lives in local neighborhoods, some college to Master's degrees.
 - iv. Local Neighborhood Residents: 0-2 children, married or single, some college- masters degree. Mainly White.

Suppliers/Partners:

Farms:

Dream of Wild Health- Healthy Produce

Little Earth Garden- Healthy Produce

Business Name

Intertribal Buffalo Council-56 Inter-Tribal

Bison Programs

Lakota Buffalo Caretakers Cooperative

Intertribal Agriculture Council

Bedr'e Fine Chocolates- Fine Chocolates
First American Natural Foods- Fish Products
Lakota Foods- Popcorn and Buffalo Jerky
Little River Smoke House- Jerky Products
Native Natural- SW Products
Navajo Agriculture Products Industries-
Potatoes, Corn, Beans, etc.
Sugpiag, Inc- Alaskan Fresh Fish
Umqua Indian Foods- Dried Foods
Wilderness Delights- Prairie Foods
Yakama Nation Land Enterprises- Fruits
Great Lakes Indian Fish and Wildlife
Commission- Regional Fisheries

MN Reservations

Red Lake
White Earth
White Earth Land Recovery Project
Mille Lacs
Bois Forte
Grand Portage
Fond Du Lac
Leech Lake
Lower Sioux
Upper Sioux
Prairie Island
Shakopee

WI Reservations

Oneida Nation Farm and Ranch

Appendix 3

Project Title: Natives Empowering the World through Local Indigenous Food Environments (NEW LIFE)

Project Title: Natives Empowering the World through Local Indigenous Food Environments (NEW LIFE)

The Twin Cities American Indian population of over 38,000 is diverse, geographically dispersed and economically disadvantaged. The causes of diet-related health problems are complex. Disease patterns among Indian people are strongly associated with adverse consequences from poverty, limited access to health services and cultural dislocation. The changes in diet forced on Native people by relocation to reservations and dependency on commodity foods has had a lasting impact on the Native population. Historical trauma associated with a long history of land theft, family and cultural disruption, forced assimilation, high rates of unemployment, discrimination and cultural differences all contribute to unhealthy lifestyles, diet-related chronic disease and disparities in access to health care for many Indian people.

Project Description and Vision

The goal of this project is to partner with Native American Community Development Institute (NACDI) and Dream of Wild Health (DWH) to develop the idea of a Native food system outlet, retail store or food hub, similar to a food cooperative, appropriate to and conducive within the community context. South Minneapolis' Phillips neighborhood holds the highest concentration of American Indians living in an urban setting. **Turtle Island Market** is a vision for a retail store that will provide access to healthful American Indian-produced foods and products for the residents of Phillips and Ventura Village neighborhoods. The market will feature bison meat, venison meat, walleye, salmon, wild rice, berries, corn, squash, beans and other foods of the traditional diet of American Indians living upon the land of Minnesota. The market will feature some prepackaged items from indigenous products produced by American Indian owned businesses. For example: Sister Sky specializes in lotions and soaps, Bedre specializes in chocolates, Native American Tea Company specializes in production of cultural teas, maple syrup from Mille Lacs and Fond du Lac, manoomin from White Earth are some examples of pre-packaged products from American Indian owned businesses that we want to offer in our market.

Our goal is to partner with Tribal businesses, American Indian owned food businesses, and American Indian entrepreneurs that supply these unique food products. Because our market will have supply chains as exclusive as possible to American Indian owned/produced products, our store will create new accessibility for many businesses to the large urban market that demand these specialty foods. Due to the low-income demographics of the neighborhood in which we will be located, we will focus on making

the indigenous foods affordable and accessible at a competitive price with assistance from SNAP (food stamp) program.

Turtle Island Market will also have an educational mission that will draw from the recent successes of DWH cooking classes and nutrition education curricula developed by Angie Hernandez, a Native community nutrition educator with SNAP-Ed. There is a need for people to explore the cultural and traditional knowledge and relationship to food and health held within American Indian cultures and to then catalyze action in using these resources to reclaim good health and wellbeing. Turtle Island Market will be a venue for these activities.

A long-term goal for Turtle Island Market will be the creation of jobs in the American Indian Cultural Corridor in South Minneapolis. We want to provide basic job training to youth and individuals wishing to build their work skills and management training to those individuals who are ready to take the next steps in their professional career.

My project inquiry: How can we restore our Indigenous relationship to food and create a viable Turtle Island Market vision that will empower, nourish, educate and employ our people?

As a MS graduate student at the University of Minnesota, I will be able to bring both the lens of research literature and the lens of the community to the work of developing the Turtle Island Market vision. Using the lens of literature research I will keep current on other similar indigenous retail food efforts and food system efforts in the US and Canada. I will be able to bring the learning and lessons to NACDI and help determine how these examples apply to the unique urban context here in Minneapolis. In addition, I will be working closely with the community, having established a Community Food Review Board in partnership with NACDI. The Community Food Review Board will be kept apprised of and help to guide the vision of Turtle Island Market through their knowledge of the community and the cultural context. This vision will be the subject of my thesis: Natives Empowering the World through Indigenous Food Environments (NEW LIFE).