

COMMUNITY-BASED HERBALISM
AND RELATIONAL APPROACHES
TO HARM REDUCTION IN HEALTHCARE

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Abstract

Community-Based Herbalism and Relational Approaches
to Harm Reduction in Healthcare

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Despite the ability of mainstream healthcare in the United States to provide essential care in emergency and life-threatening situations, it often falls short of a broader mission to ensure that effective, equitable, understandable, and respectful quality care is available to all. Instead, not everyone who needs or wants healthcare can access it; patients often do not experience their care as adequate and appropriate; and, far too often, it actually generates harm, which is referred to as *iatrogenesis*. This dissertation proposes that iatrogenesis can occur at a specific biomedical level with individuals, at a systemic social level with groups, and at a structural level with both society and the environment. Today, pharmaceutical drug medicine is central to mainstream healthcare delivery and is also a primary vehicle of iatrogenesis. Herbal medicine, which preceded pharmaceutical drug medicine, has in recent years been suggested as a partial solution to pharmaceutical iatrogenesis. While herbal medicine offers numerous benefits, the herbal *industry*, through which most individuals in the United States access herbal medicine, is limited in its potential to reduce pharmaceutical harm due to barriers from mainstream healthcare as well as the harms it can itself generate.

Motivated by concerns over the shortcomings of mainstream healthcare, especially pharmaceutical drugs, as well as shortcomings of the herbal industry, this dissertation proposes that an approach to plant-based medicine, referred to as *Community-Based Herbalism*, has the capacity to reduce healthcare-related harm. Community-Based Herbalism expands the concept of medicine beyond the prevailing pharmaceutical drug model to incorporate food-like medicinal plants, kitchen-based medicine making, and access to living plants. In so doing, Community-Based Herbalism generates relationships with self, others,

places, and plants. This dissertation further proposes that the types of relationships generated by Community-Based Herbalism are themselves key to reducing harm in healthcare.

In order to understand the importance of relationship to harm reduction in healthcare, the dissertation offers an extended consideration of the nature of relationship. Ethnobiology, and within it ethnobotany, provides a focal point for this consideration. Ethnobotany uses an intersecting framework of anthropology and botany to make observations, draw conclusions, and create theories about cultural relationships between people and plants including medicinal plants. Thus, ethnobotany is relational in at least two respects: (1) it observes through the dual lenses of two disciplines in relationship to each other; and (2) it observes relationships between people and plants. However, as the broader cultural perspectives in which ethnobiology's academic perspectives are embedded have changed, so too have the interdisciplinary lenses of ethnobiology — and therefore ethnobotany — changed. Drawing from the analysis of ethnobiologist Eugene Hunn, ethnobiology has transitioned through historical eras characterized by modernism (utilitarian), postmodernism (classificatory), and ethnoecology (situating and legitimizing), each of which has influenced ethnobiologists' understandings of their observations and, each of which, I propose, are embedded within distinct paradigms.

Further, the dissertation proposes that both the phases of ethnobiology and the identified levels of iatrogenesis can be correlated with each other on the basis of shared underlying paradigms, which I refer to as: *Specificity*, *Systemic*, and *Structural Paradigms*. Often, the differences between these paradigms present barriers to one another and operate in conflict. The dissertation introduces a *Relational Paradigm* that models engaged relationship across paradigms, and proposes that *engaged relationship* – relationship in which each agent (person, idea or paradigm) changes beneficially as a result of open, respectful, and caring interaction — is the form of relationship that has the capacity to reduce harm in healthcare.

In order to understand the nature, potential, and means of establishing engaged relationship, the dissertation also examines relationship from the perspective of various academic disciplines, attachment theory, and ecopsychology. Successful engagement across paradigmatic differences is further modeled through the concept of *ecotone*, which — borrowed from landscape ecology where it describes the influence that adjacent habitats have upon one another — is applied to ethnobiology and, within it, ethnobotany. Here, the concept

of an *ethnobotanical ecotone* depicts the way in which the underlying disciplines of ethnobotany – anthropology and botany – do not simply exist in a patchwork of proximity but rather exhibit dynamic mutual influence or, stated otherwise, engaged relationship. A case involving diverging approaches to environmental management on the part of a Pacific Northwest Tribe and the U.S. Forest Service illustrates both the potential of the ethnobotanical ecotone to generate relationality across paradigms as well as the challenges faced by individuals in attempting to generate such ethnobotanical relationality.

Finally, since engaged relationships are *situated* relationships, the dissertation situates the emergence of my understandings of both Community-Based Herbalism and means of fostering it through an autoethnographic accounting of my teaching and fieldwork over a period of two decades. This narrative incorporates ethnographic data that include student and community cases, and that (1) lead toward an informed analysis of the capacity of Community-Based Herbalism to integrate the Specificity, Systemic, and Structural paradigms; (2) model a Relational Paradigm; and (3) generate relational approaches that can reduce harm in healthcare. Potential pathways to foster Community-Based Healthcare complete the dissertation.

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Dedicated to my daughters, who have so much to give.

This is for you, from the heart.

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Chapter 1. Introduction

Skinned Knees

One summer day, my then 8-year-old daughter and I were walking through the neighborhood on our way downtown. Suddenly, she tripped, fell, and skinned her knee badly. After the tears subsided, my daughter knew what she needed. As she limped along, still bleeding, we scoured each yard in search of three plants: yarrow (*Achillea millefolium*), plantain (*Plantago* spp.), and calendula (*Calendula officinalis*). She could recognize them on her own and, one by one, we found them. First, she lightly chewed some yarrow leaves and then placed the small poultice on the oozing blood. Within minutes, the bleeding slowed. She repeated the treatment with a fresh yarrow poultice and the bleeding quickly stopped. Next, she chewed a bit of plantain leaf and used it like a tiny sponge to dab and clean the wound. Finally, she chewed some bright orange calendula flowers and held them to her knee while we talked about the helpfulness of these common plants.

This was Community-Based Herbalism in action. Together, mother and daughter engaged living plants to help address the kind of minor healthcare issues that occur in our families and neighborhoods on a regular basis. Without using technical language, we identified the *indication* — in this case, a topical wound — and understood the *medicinal actions* needed. These included hemostatic properties to stop the bleeding, one of yarrow's many actions; antiseptic properties to help prevent infection, one of plantain's attributes; and vulnerary properties to help speed the healing of the cut, one of the virtues of calendula. We were able to identify the plants, knowing they would be available at that time of summer and could be found in local neighborhood gardens. We knew the parts of the plants to harvest and use and how to prepare an appropriate application — in this case, an emergency poultice.

This type of simple healing activity requires specific knowledge of both personal health and local environment; it engages mutual care and cooperation, and is readily accessible; and it represents a form of healthcare that can reflect and respect individual,

community, and cultural values through the engaged relationships it generates. This dissertation focuses on Community-Based Herbalism and its inherent relationality. After exploring types of harm present in mainstream healthcare in the United States, the work examines relationality in several contexts, building the argument that the kinds of relationships fostered by Community-Based Herbalism play an important role in reducing this harm. The premise of this work is that Community-Based Herbalism can expand the concept and context of healthcare and help reduce harm in healthcare through the relationships it fosters. My specific research questions are: What contributions can Community-Based Herbalism make to healthcare in the United States? What is the nature of these contributions and how are they made? In what ways do these contributions address issues of harm in healthcare? Lastly, how can Community-Based Herbalism be fostered?

What is Community-Based Herbalism?

Community-Based Herbalism is the practice of engaging the medicinal attributes of living plants at the family and community levels including accessing, processing, and preparing the plants, along with sharing plants, applications, and knowledge. In contrast with industrialized herbalism — defined as the use of herbal products manufactured on a large-scale and often far removed from the living plant — Community-Based Herbalism places the locus of activity in the community, and emphasizes the kinds of relationships it generates. Further, Community-Based Herbalism recognizes individual, social, cultural, and environmental health as fundamentally intertwined. This recognition is based on the experience of being in relationship with plants, with place, with self, and with one other. Thus, relational engagement is fundamental to Community-Based Herbalism, which offers means and opportunities for meeting health needs and preventing health harms on biomedical, socioeconomic, and structural levels. It also offers a paradigm for relational engagement across these levels. This dissertation proposes that Community-Based Herbalism can help reduce harm in healthcare due to its relational engagement with plants, place, self, and others. In so doing, it expands the concept and context of both medicine and healthcare.

Definitions: Health, Healthcare, Western, Mainstream, and Indigenous

Since the concepts of *health* and *healthcare* are fundamental to this work, they must be defined. I also wish to be clear about my usage of the terms *Western*, *mainstream*, and *Indigenous*, since these terms are employed in articulating areas of focus, arenas of experience, and sources of information. These terms are examined first. Concepts of *relationship* are explored in future chapters.

Health can be defined variously. One formal definition introduced by the World Health Organization (1946:100) in 1946 is: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” However, the apparent simplicity of this definition belies the complexity that can be found by further examining the concept of health and discovering, on one hand, biological phenomena that align with a full range of biological functioning and, on the other hand, human values that construct notions of ease, fulfillment, and adaptability (Huber et al. 2011). Situated somewhere between these two perspectives can be found *experience*. For example, health can also be understood phenomenologically as one’s lived experience in the body, not only as the biological functioning of the body (Murphy 2009; Carel 2007). This circles back to the original World Health Organization’s definition that describes health as *multiple levels* of wellbeing.

Care can be described as service, comfort, relating, and empathy as well as the effort to undertake actions safely and correctly without causing damage or harm. In healthcare, such actions typically refer to the maintenance or restoration of a state of health (Kitson et al. 2010; Mitchell 2008; World Health Organization 2008a; Weiner and Auster 2007; Bowers et al. 2001). *Mainstream* (defined below) *healthcare* often involves professional or paraprofessional practitioners who make contact with individuals in a sequenced fashion, frequently beginning with a primary care provider and potentially moving on to appropriate specialists. Additionally, mainstream healthcare is often organized into regional and national healthcare *systems*. These systems may include a broad range of elements such as (1) the training of healthcare providers, (2) the establishment of facilities for healthcare delivery, (3) the development of public policies that relate to health both directly and broadly, (4) governmental regulation of providers

and materials, (5) competitive market forces, (6) informational content and distribution, (7) mechanisms of financing, and (8) conceptual models of health, illness, and healing. However, healthcare can also include components that do not require practitioners, involve increasing levels of specialization, or operate within mainstream regional or national systems. *Healthcare*, when conceived as “maintenance or restoration of a state of health” or described in terms of experience can — in many respects including prevention — be implemented by one’s self, family, friends, and community.

I use the term *Western* in this work to describe influences and systems, such as Western herbalism, that derive from Europe and European America, and I apply the term *U.S. mainstream*, or simply *mainstream*, in reference to the prevailing, highly visible, and readily available ideas, attitudes, and influences that are dominant in the United States. The word *dominant* alone can be used similarly. In combination, the term *Western mainstream healthcare* refers to the predominant healthcare delivery system in the United States (and other Western countries) and its underlying biomedical model of health and healing. This model focuses on the individual, and it emphasizes repairing diseased or injured physical processes through physiology, biochemistry, and disease pathology.

The meaning of *Indigenous* must also be carefully considered because much of the learning, teaching, and fieldwork that inform this dissertation are rooted in my experience among Indigenous people and my exposure to Indigenous traditions, understood to the extent that I, a non-Indigenous American woman of Finnish and Italian descent, am able.

First, some researchers, such as anthropologist Eric Smith and forester Mark Wishnie, avoid defining the term *Indigenous* altogether as when, in their work “Conservation and Subsistence in Small-Scale Societies,” they point to a lack of consensus about its meaning (2000). Instead they use the term *small-scale society*, which they define, following cultural anthropologist John Bodley, as a society that “maintains political autonomy at the level of one or a few local communities and, hence, numbers a few hundred to a few thousand inhabitants” (1996:493).

Others, such as Georgetown University law professor Edith Brown Weiss (1990), define Indigenous or Tribal people, as “those who share customs and local knowledge of specific geographic territory and are relatively independent of, or have little contact with,

the dominant national society of the country in which they live” (264). This definition is also limited because it focuses on the degree and kind of relationships held with the dominant group. Ethnobotanist Nancy J. Turner (1997:276) contributes a more encompassing view in the following definition:

Indigenous peoples are cultural groups residing in a particular locality for a long period of time, usually many generations, and generally depending on the resources of that area for their sustenance. They typically have a distinct language, culture, and religion and, moreover, have a custodial concept of land and resources. Their social relations often involve collective management of resources and group decision making. Indigenous peoples cannot be assumed to be a single entity – in contrast to industrial or postindustrial society – and not all individuals or segments within an indigenous society share identical worldviews or follow the same philosophies. Each culture, each group, is different. Each has its own traditions, its own environment, its own institutions and strategies for sustenance, and its own history.

Further, according to the United Nations, “Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them” (United Nations 2004:2). Additionally, Webster's Dictionary explains that the word *Indigenous* derives from the Latin roots *indu*, meaning within (related to *in* and *de*, meaning down), and *gignere* meaning to beget; or “to beget from within.” This definition points to three frequent associations with the term *Indigenous*: (1) having derived from a particular place, (2) having always been in a particular place, and (3) being the first to be in a particular place (Maybury-Lewis 1997).

These definitions are limited, however. As explained by medical anthropologist Rachel Chapman, they tend to erase “the importance of the contested nature of the term as well as the historical and contemporary dynamics of power and inequality that the debate over meaning and naming reflects” (2014, personal communication). More nuanced ideas suggest that the concept of *Indigeneity* is a dynamic, historically emergent sense of identification. As cultural anthropologist Orin Starn (2011:192) states, “Indigeneity is a matter of becoming, not a fixed state of being, a historically contingent and sometimes very powerful form of cultural identification and political organizing.”

For my part, I use the term Indigenous throughout this work to refer to groups of people who use it to refer to themselves. These may be American Indians who link their ancestry from as far back as they have memory or knowledge to where they (more or less) are today. If migration was involved, it was long ago, perhaps shrouded in *myth time*. The people's full complex of lifeways has built up in creative relationship with the environmental conditions of their current home. While some Indigenous scholars argue that the term *Indigenous* is overly general — as when Linda Tuhiwai Smith states, “The term ‘indigenous’ is problematic in that it appears to collectivize many distinct populations whose experiences under imperialism have been vastly different” (Tuhiwai Smith 2008:6) — others, such as Shawn Wilson (2008:34), choose to use the term as an adjective to describe many of the things that First Peoples, First Nations, Native Americans, American Indians, and Aborigines hold in common.

Harm Reduction in Healthcare

Healthcare should, as defined above, provide care for — that is, remedy or prevent — harm to health on the multiple levels by which health is affected, including individual, collective, and environmental levels. If and when mainstream healthcare fails to prevent or remedy harm — which can include directly causing harm — I propose that the underlying reasons for the failure should themselves be sought, examined, and remedied or prevented. While the motivation to examine and prevent harm in healthcare is widely shared, proposed reasons and remedies often are not (Clancy 2011; Bodenheimer 2005). Beginning with an orientation to many of the types of harms that occur in Western mainstream healthcare in the United States — including harms related to the use of pharmaceutical drugs — this dissertation contributes to the broader discussion of healthcare improvement by proposing that Community-Based Herbalism can contribute to reducing and preventing harm in healthcare in several ways associated with the relationality it generates.

Emergent Discoveries at The Evergreen State College

Using autoethnographic narrative and ethnographic methodology, I describe teaching experiences at The Evergreen State College that reveal emergent recognition of the value, transformative potential, and methods associated with cultivating Community-Based Herbalism within an academic framework of working with plants as medicine, ethnobotanical/medicinal gardens, Northwest Coast Indigenous land and knowledge, and Chinese Five-Element philosophy. In the context of this academic fieldwork, data are introduced regarding who chooses to study community herbalism, and four students are followed upon completion of their studies at Evergreen in order to illustrate the relational nature of Community-Based Herbalism and its potential effects.

Ethnobiology: An Academic Framework for Understanding Relationship

To understand the nature and importance of *relationship*, I examine the interdisciplinary relationality of ethnobiology and use ethnobiology as the primary academic framework of the work. Attention is directed to the types of relationships emphasized in different historical phases of ethnobiology. Building upon the work of ethnobiologist Eugene Hunn, I consider three historical eras in which Hunn's phases of ethnobiology are embedded and identify three relational paradigms operating within these eras, defining them as Specificity, Systemic, and Structural Paradigms. Looking at the functional presence of these paradigms in the context of the history of ethnobiology helps to reveal how they also function in healthcare to both direct and limit approaches to care, often generating harm.

Relational Engagement Explored: Attachment Theory and Ecotone

This dissertation also explores relationality within other academic, social, and cultural contexts in order to help explain its usefulness in understanding how harm reduction in healthcare can be fostered by Community-Based Herbalism. *Relational engagement* is introduced as the aspect of relationship at the root of harm reduction. To better

understand the nature and importance of relational engagement, the concept of attachment is also introduced. *Attachment* is the primary and determinative form of relationship between infant and parent or caregiver. Attachment theory is also applied to relational engagement between humans and nature or earth. The theoretical element that links attachment theory — via relational engagement — to harm reduction in healthcare is associated with needs, specifically, access to resources and solutions that meet needs. In other words, reliable access to that which meets needs is the foundation for both secure attachment and prevention of harm. Attachment creates bonds of care, respect, responsibility, and commitment. Relational engagement can do so as well, even across different paradigms. Conversely, broken attachment and relational disengagement can generate unmet needs, conflict, violence, and ill health.

Analysis of the three paradigms that have been identified as Specificity, Systemic, and Structural, shows how, in the absence of relational engagement, these paradigms can create barriers to mutual respect and effective collaboration that can generate harm. The concept of *paradigm barriers* is explored through a case study involving environmental stewardship within a Pacific Northwest Indigenous community. In contrast to paradigm barriers, the concept of *ecotone* (Forman and Godron 1986) — which refers to how two adjacent habitats influence and modify one another — is borrowed from landscape ecology and used to model the potential of relational engagement across paradigms. This capacity for fostering cross-paradigm engagement is illustrated through ethnobotany, a subdiscipline of ethnobiology, conceived as an *ethnobotanical ecotone*. I propose that the idea of an ethnobotanical ecotone can provide insight into how a Relational Paradigm can be generated and, once generated, how it can foster engagement, respect, and effective collaboration across paradigmatic differences.

Community-Based Herbalism: Cases, Analysis, and Pathways

Finally, the dissertation considers student-generated ethnographic data that reveal factors that help explain why people do and do not engage with plants as medicine. These data, along with selected student experiences and various examples of existing Community-Based Herbalism, are analyzed in order to better illustrate the proposed complex of

effects I propose that Community-Based Herbalism can generate – especially its capacity to model a Relational Paradigm and to reduce healthcare harms. From here, the dissertation concludes with a series of proposed pathways for encouraging broader acceptance and implementation of Community-Based Herbalism.

While my research questions focus on contributions Community-Based Herbalism can make to healthcare in the United States and how these can potentially help ameliorate iatrogenesis on multiple levels, I acknowledge the breadth of the considerations involved. Throughout the work I endeavor to strike a balance between (1) introducing various types of data, experiences, and perspectives, and (2) effectively integrating them into a cohesive proposition of how Community-Based Herbalism might help reach across and address the many issues mainstream healthcare is facing today. It is my hope that this dissertation will foster continued serious consideration of a broader role for Community-Based Herbalism in healthcare.

Overview of Chapters

Chapter 2, “Setting the Stage: Issues in Healthcare,” introduces numerous reasons why efforts to reduce harm in healthcare are needed. It gives an overview of the state of mainstream healthcare in the United States over the last two decades, examining *iatrogenesis* – harm that results from or is associated with healthcare – in the contexts of medical mistakes, social issues, cultural competency, structural violence, and the human and environmental impacts of pharmaceuticals. These healthcare harms are synthesized into three levels identified as specific (biomedical), systemic (socioeconomic), and structural (social and environmental) — which align with the three paradigms mentioned above: Specificity, Systemic, and Structural. The chapter also mentions various existing attempts to reduce harm in these areas.

Given that the work of the dissertation focuses on plant-based medicine, *Chapter 3, “Setting the Stage: Issues in Herbalism,”* examines the herbal industry as a potential means of reducing pharmaceutical harm, and reveals some of its limitations. Chapter 3 goes on to clarify distinctions between industrialized herbalism and Community-Based

Herbalism, noting that what distinguishes Community-Based Herbalism is both the scale and type of relationships it fosters with self, community, plants, and place as well as an expansion of the concept of medicine. These relationships, in turn, form the basis of harm prevention in healthcare.

Chapter 4, “Situating the Primary Fieldwork,” turns to situating my discovery of Community-Based Herbalism and my recognition of its relevance to harm reduction in healthcare. Culturally, my work is situated in the territory of the Coast Salish Indigenous people in what is now Washington State. Geographically, it is situated among Pacific Northwest ecosystems that are defined by geological, ecological, and cultural influences, both past and present. In this region, I have taught environmental and medical anthropology at The Evergreen State College since 1988 with an emphasis on ethnobotany. Much of this time, my teaching has been grounded in two ethnobotanical and medicinal garden projects, one at Evergreen’s “House of Welcome” Longhouse, and the other on the nearby Skokomish Indian Reservation. Using an autoethnographic lens, this chapter describes the establishment of these gardens, and contextualizes being a non-Indigenous representative of a Western academic institution who is exploring relational engagement in an Indigenous community. The chapter lays the foundation for an introduction to both the teaching that has taken place related to these gardens and the learning that has occurred through the students’ relationships with them. These have helped inform the ideas contained in this dissertation.

Continuing to use autoethnographic narrative and ethnographic methodology, **Chapter 5, “Discovering and Fostering Community-Based Herbalism While Teaching at The Evergreen State College,”** describes how I came to cultivate Community-Based Herbalism at The Evergreen State College. The chapter first looks at a pivotal program entitled Tend and Tell: Developing and Interpreting an Ethnobotanical Garden, which I taught in the 2009-10 school year. In this program, as in others, I witnessed transformative experiences on the part of my students through their work with plants as medicine, ethnobotanical/ medicinal gardens, Northwest Coast Indigenous communities, and Chinese Five-Element philosophy. Following Tend and Tell, seasonal courses in

medicinal botany provided opportunities to refine curricula associated with Community-Based Herbalism. Additionally, student “getting acquainted” activities shed light on the characteristics of individuals who choose to learn about plant-based medicine in a college setting such as Evergreen. While these courses took place within a college’s academic framework of discipline-oriented learning, they subsequently revealed elements that could apply to fostering Community-Based Herbalism outside of academia.

Since ethnobiology provides an academic framework for my teaching and for many of the understandings relevant to this work, **Chapter 6, “Using Ethnobiology to Explore Relationality,”** uses the history, inherent interdisciplinarity, and relational dynamics of ethnobiology as a lens to explore relationality. The historical phases of academic ethnobiology reveal changing perspectives that align with the proposed paradigms — Specificity, Systemic, and Structural — as do the levels of iatrogenesis discussed in Chapter 2. In closing, this chapter proposes the possibility of an emergent relational phase of ethnobiology, which serves to introduce what I am calling a *Relational Paradigm*. (I further examine the concept of a Relational Paradigm in Chapter 8, and then, in Chapter 9, show how a Relational Paradigm can be developed through and modeled by Community-Based Herbalism.)

Chapter 7, “Further Explorations of Relationship,” continues to explore the concept of relationality, focusing on what it is and why it matters, both in general and with regard to reducing harm in healthcare. It explores ways in which various academic disciplines have considered relationality. Attention turns to a primary model of relationality: the attachment between infant and primary caregiver. Attachment theory holds that successful early attachment not only enables patterns to develop that make future relationships possible but also is critical in the development of a person’s potential as a human being. The chapter extends the concepts and implications of attachment theory into the realm of human attachment to nature, and it considers the effects of broken relationship, which can manifest as paradigm conflicts. To explore the idea of paradigm conflicts, a case study is presented that involves attempted negotiations between the U.S. Forest Service and a Pacific Northwest Tribe over the cultural impacts of specific

environmental strategies. This helps to illuminate paradigm conflicts found within mainstream healthcare, some of which are considered.

Chapter 8, “Toward a Relational Paradigm: Contributions of the Ethnobotanical Ecotone,” discusses potential links between relationship and harm prevention. Drawing from landscape ecology, the concept of *ecotone* is introduced and then applied to ethnobiology/ethnobotany to describe its inherent interdisciplinarity and explore some of its challenges. Because of its capacity for integration and generating relationship, the ethnobotanical ecotone is then considered in terms of specific ways it can help create a *Relational Paradigm*. Four approaches to achieving relational integration are proposed.

As a means of understanding more concretely the effects of Community-Based Herbalism on individuals and communities, **Chapter 9, “Herbalism in Community: Cases and Analysis,”** features four students who, after completing their coursework at The Evergreen State College, followed personal and professional paths directly related to Community-Based Herbalism. The chapter also describes four cases of existing Community-Based Herbalism: (1) a Northwest Indian herbal education program, (2) a free herbal clinic in Washington State, (3) an annual herbal education conference, and (4) a kitchen-medicine-education project in a Tribal community in India. The chapter goes on to analyze the potential contribution of Community-Based Herbalism to harm reduction in healthcare by (1) integrating the Specificity, Systemic, and Structural Paradigms, (2) modeling a Relational Paradigm, and (3) reducing health-related harms through engaged relationship.

Chapter 10, “Reducing Harm in Healthcare Through Community-Based Herbalism: Barriers and Pathways,” introduces a body of student-generated ethnographic data that contributes to understanding who studies Community-Based Herbalism and why, along with who *uses* plant-based medicine and way. These data reveal factors that act as barriers to Community-Based Herbalism as well as factors that could encourage wider acceptance and implementation of Community-Based Herbalism. The chapter concludes with nine pathways for generating such acceptance and implementation.

Chapter 11, “Conclusion,” provides a summarizing review of the ideas developed through the previous chapters, and reconsiders the potential contribution of Community-Based Herbalism to harm reduction in healthcare. Further, it provides recommendations for future activities and research, and restates the central argument and purpose of the dissertation.

In addition, *“Appendix 1. Chapter 10 Tables”* provides data that support the studies discussed in Chapter 10, *“Appendix 2. Types of Gardens”* describes various types of gardens where individuals might be receptive to incorporating and sharing medicinal plants in the context Community-Based Herbalism, and *“Appendix 3. Resources for Cultivating Community-Based Herbalism,”* offers a range of examples and resources for cultivating Community-Based Herbalism.

Autoethnography: What and Why?

The structure of the dissertation emphasizes autoethnography, an approach to research and narrative that draws upon the researcher’s own experience as explored within relevant social and cultural contexts (Ellis et al. 2011; Ellingson and Ellis 2008). The reflexive autoethnographic aspect of this work is based largely on educationally oriented fieldwork that I have undertaken since 1994 while teaching four quarters per year at The Evergreen State College in the Pacific Northwest of the United States. This fieldwork has included student involvement in the establishment of two ethnobotanical garden projects, one on the Evergreen campus and one in a local Indigenous community. The autoethnographic dimension of the dissertation also incorporates professional consultation as an ethnobotanist with a Pacific Northwest Tribe as well as experiences establishing and maintaining my own medicinal gardens. Additionally, it includes fieldwork related to educational and kitchen-medicine gardens in eastern India as well as personal experiences adopting and raising two children from India, one of whom has struggled with attachment-related challenges.

The reason for applying autoethnographic methodology rests on the fact that the

understandings upon which this work is based have evolved over twenty years of related experience. It also is based on the idea that the inherent value of Community-Based Herbalism resides in the lived and situated experience it engenders, especially the experience of engaged relationship.

Although there are several definitions, autoethnography as methodology allows a researcher to examine her experiences in connection with broader social and cultural issues and understandings, creating a relational dynamic in which emergent experience engages theory and enabling each to deepen and inform the other. It is not a new form of research and writing, although its meaning has broadened since it was defined in the 1970s as “insider ethnography,” that is, as ethnographic participation-observation carried out by a member of the community in which the work is taking place (Hayano 1979). More recently, in *Forum: Qualitative Social Research (FQS)*, Carolyn Ellis, Tony Adams, and Arthur Bochner (2011), leading proponents of autoethnography, introduce their overview of the topic in this way:

Autoethnography is an approach to research and writing that seeks to describe and systematically analyze personal experience in order to understand cultural experience. This approach challenges canonical ways of doing research and representing others and treats research as a political, socially-just and socially-conscious act. A researcher uses tenets of autobiography and ethnography to do and write autoethnography. Thus, as a method, autoethnography is both process and product (2011:online).

The authors go on to discuss several forms of autoethnography, including reflexive ethnographies, layered accounts, and personal narratives. For example, reflexive ethnographies might consist of ethnographic memoirs in which “the ethnographer’s backstage research endeavors become the focus of investigation.” In layered accounts, authors might focus on their own experience along with analysis of data and literature, holding the concrete, narrative accounts to be as important as the abstract analyses. With regard to personal narratives, and perhaps most to the point, the authors (Ellis et al. 2011:46) state:

Personal narratives are stories about authors who view themselves as the phenomenon and write evocative narratives specifically focused on their academic, research, and personal lives (e.g., Berry, 2007; Goodall, 2006; Poulos,

2008; Tillmann, 2009). These often are the most controversial forms of autoethnography for traditional social scientists, especially if they are not accompanied by more traditional analysis and/or connections to scholarly literature. Personal narratives propose to understand a self or some aspect of a life as it intersects with a cultural context, connect to other participants as co-researchers, and invite readers to enter the author's world and to use what they learn there to reflect on, understand, and cope with their own lives.

Elsewhere, autoethnographic researchers are characterized as being either (1) “evocative autoethnographers [who] focus on narrative presentations that open up conversations and evoke emotional responses” or (2) “analytic autoethnographers [who] focus on developing theoretical explanations of broader social phenomena” (Ellingson and Ellis 2008:45). However, autoethnography can integrate the emphases of both. Still, autoethnography is the object of considerable criticism. For example, a central criticism of autoethnography is the way in which it is seen to fall *in the space between* science and art:

As part ethnography and part autobiography, autoethnographers are often criticized as if we were seeking to achieve the same goals as more canonical work in traditional ethnography or in the performance arts. Critics want to hold autoethnography accountable to criteria normally applied to traditional ethnographies or to autobiographical standards of writing. Thus, autoethnography is criticized for either being too artful and not scientific, or too scientific and not sufficiently artful ... These criticisms erroneously position art and science at odds with each other, a condition that autoethnography seeks to correct. Autoethnography, as method, attempts to disrupt the binary of science and art. Autoethnographers believe research can be rigorous, theoretical, and analytical *and* emotional, therapeutic, and inclusive of personal and social phenomena ... Autoethnographers view research and writing as socially-just acts; rather than a preoccupation with accuracy, the goal is to produce analytical, accessible texts that change us and the world we live in for the better (Holman Jones 2005:764).

Interestingly, even in the structure of this dissertation, I have positioned myself in the ecotone, in the sometimes invisible “space between” where, I suggest, relationship lives. In maintaining a strong autoethnographic component, I have sought forms and culled content that I found to be authentic to me and believed would be meaningful to others. I believe that is the essence of an engaged relationship.

Chapter 2. Setting the Stage: Issues in Healthcare

Best and Worst in Mainstream Healthcare

My father lived with me for the last six years of his life as he declined into Alzheimer's disease. During this time, I had the opportunity to experience some of the best and worst of the mainstream healthcare system in the United States. On the positive side, my father belonged to a major health management organization (HMO) where I was able to research available doctors and select one who became a genuine ally in my efforts to coordinate my father's healthcare. This doctor participated with me as a respectful partner, taking the time necessary to problem-solve together during appointments as well as by phone and e-mail.

Finally, however, I became overwhelmed by the demands of managing infections, depression, digestive and swallowing issues, skin care, eye care, Alzheimer's medications, senior daycare, transportation issues, dressing and toileting, and supervising the various at-home caregivers needed to help provide the 24-hour attention he came to need while I also worked and raised two children. I moved him to a dementia facility, a decision I regret more deeply than any other I have ever made. Despite the fact that I provided the facility with a detailed overview of his case and instructions about his every need, he was not cared for in the most basic ways. Most importantly, he did not receive the attention needed to ensure he drank fluids, or the medication he needed to soften his bowels. Soon he became dehydrated, his bowels became impacted, and he stopped eating. All of this occurred even though I was visiting the facility almost every day and continually teaching the ever-changing staff to carry out his care properly. I was the only family member to visit the facility so regularly and to witness the conditions in which the staff struggled to carry out their duties.

After only a few weeks, I realized in horror that my father was dying due to neglect. I managed to transfer him to a local emergency room where the attending physician declared that his condition was the natural result of end-stage Alzheimer's disease and that he had about three days to live. However, the truth was that the day before my father

had left my home only weeks earlier, he was still walking up the stairs independently, eating meals with his grandchildren, and taking a dial-a-lift bus to a senior daycare facility. He was thriving *despite* having Alzheimer's disease. Anticipating that the facility would conceal its neglectful practices behind a diagnosis of natural Alzheimer's progression, I had brought to the emergency room detailed documentation of what had transpired at the facility. As a result, I succeeded in securing hospital admission for my father and, with it, the opportunity to determine if his condition could improve through rapid rehydration and re-establishment of proper bowel function, both of which were accomplished within three days. My father returned home with me, where he lived for four more months, although he was never again able to stand on his own feet nor did he regain his strength and spirit. He had become one of the many victims of iatrogenesis.

When Healthcare is Harmful

One of the mottos of Western healthcare — “first, do no harm” — draws, according to some, from the Hippocratic oath, which states, “I will keep [the sick] from harm and injustice.” Others attribute the quote to cleanliness advocate Florence Nightingale (1858) who stated, “It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm.” Yet, in many instances, mainstream healthcare in the United States not only fails to provide protection from harm and inequity — also referred to as nonmaleficence (Monagle 2005; Clare et al. 2009) — but indeed contributes to and even causes it. The term for this is *iatrogenesis*.

The term *iatrogenesis* derives from the Greek words *iatros*, meaning physician, and *gainein*, meaning to produce. Originally, iatrogenesis indicated any effect, positive or negative, that was caused by the care of a physician or healthcare provider. Now it is used specifically in reference to negative or ill effects — harm — that may result from healthcare in general. Documentation of iatrogenesis has been growing over the last two decades.

I propose that the causes and outcomes of iatrogenesis can be grouped into three categories or levels from narrowest to broadest: (1) specific practices within mainstream healthcare such as medical mistakes; (2) systemic factors such as expenditures, outcomes,

and access to mainstream healthcare at the societal level; and (3) the historical and structural conditions in which mainstream healthcare developed and operates, and which it frequently perpetuates, along with underlying environmental conditions. These are related to but not the same as the three-level typology of clinical, social, and cultural iatrogenesis as introduced by Austrian philosopher and social critic Ivan Illich (1982). In order to better understand the potential contributions of Community-Based Herbalism to harm reduction in healthcare at all these levels, I broadly survey them now. In the following chapter, I examine pharmaceutical iatrogenesis in greater depth, and begin the discussion of herbalism.

Iatrogenesis in Specific Practices: Medical Mistakes

Most often, the term *iatrogenesis* is used to refer to specific biomedical consequences for individuals (Null et al. 2011; Palmieri et al. 2007). I am referring to this level as *specific iatrogenesis*. Data on mistakes made by physicians with their patients have been growing since Lucian Leape, physician and Harvard professor of public health, published “Error in Medicine” in the *Journal of American Medicine (JAMA)* in 1994. In his article, Leape asserted that the rate at which hospital patients were experiencing iatrogenesis, such as adverse drug effects and resulting fatalities as well as preventable heart attacks, might be as high as 36 percent. In 2000, a report titled *To Err is Human: Building a Safer Health System* was published by The Institute of Medicine. It stated that 98,000 people were dying annually as a result of medical mistakes. At that time, this was more than the annual death rate due to auto accidents, breast cancer, and AIDS combined (Institute of Medicine 2000).

The causes of such medical mistakes include insufficient patient contact, faulty observations, misdiagnoses, incorrect treatments, unnecessary invasive procedures, equipment failures, adverse reactions to prescriptions, and nosocomial (hospital-induced) infection (Grisanti 2013; James 2013; World Health Organization 2005). A more recent cause of medical error has been called *technological iatrogenesis* or *e-iatrogenesis*, and refers to unintended negative consequences of computerized provider order entries (CPOE) (Palmieri et al. 2007; Weiner et al. 2007; Campbell et al. 2006).

By 2011, healthcare economist John Goodman and his colleagues at the National Center for Policy Analysis asserted that harm caused by medical interventions — iatrogenesis — could be resulting in as many as 187,000 deaths in hospitals each year, and 6.1 million injuries (Goodman et al. 2011). This is more than double the number of deaths alleged just over a decade earlier, making nosocomial iatrogenesis alone the third leading cause of death in the United States, after heart disease and cancer (Fromke and Heineman 2012).

The real incidence of medical error may be greater still (Null et al. 2011; World Health Organization 2005), due at least in part to a system in which there is neither requirement nor responsibility for a physician to report her or his errors, nor an overseeing body to report *to*, making it is sufficiently easy to attribute negative events to natural outcomes of the presenting condition (as noted above with regard to my father). According to psychiatrist and social critic Thomas Szasz (2001) in *Pharmacracy: Medicine and Politics in America*, physicians are motivated to not recognize and/or to conceal their errors and failures for several reasons, one of the largest of which is the risk of enormous malpractice lawsuits. Further, healthcare providers are trained to practice within a culture that often expects superhuman behavior and does not readily make room for uncertainty, humility, or apology. Interestingly, while most physicians say they have witnessed mistakes on the part of other physicians, they generally do not admit to making their own (Martin 2013). I suggest it follows that approaches to healthcare that reduce the need to access mainstream healthcare, including preventative and lifestyle measures, help to prevent exposure to the risk of iatrogenesis at the level of biomedical specifics. Later chapters consider how Community-Based Herbalism might play a role in such a reduction of specific biomedical iatrogenesis.

Systemic Iatrogenesis

Another way to view iatrogenesis is in terms of broader social effects of the mainstream healthcare system in the United States, including healthcare expenditures, health outcomes, and access to healthcare. In 1982, Illich proposed a social level of iatrogenesis. I suggest that negative effects in these areas can best be labeled as *systemic iatrogenesis*.

While social/systemic issues in healthcare are discussed widely (see below), I find explicit reference to system-*induced* iatrogenesis to be rare and to typically focus on areas I consider better associated with *specific* iatrogenesis. This is illustrated in physician and educator Tomas Silber's *American Academy of Pediatrics Bioethics Resident Curriculum*, in which he states, "Institutional or system failures, such as insufficient enforcement of standards for hand washing resulting in inappropriately high rates of health care-associated infections, may also result in iatrogenic events that harm patients" (Silber 2011).

Mainstream Healthcare Expenditures, Outcomes, and Access

The concept of *systemic iatrogenesis*, as I am defining it, includes healthcare expenditures, outcomes, and access at the societal level with emphasis on mainstream healthcare. While these areas are experienced on an individual basis, they are frequently analyzed and addressed at the group level and, I argue, are best described as interacting elements that constitute systems. I now survey some of the abundant literature on these topics in order to be better able to understand Community-Based Herbalism in the context of systemic iatrogenesis.

As is now commonly recognized, the United States spends more money per capita on healthcare than any other industrialized country in the world. On this basis, one might assume that U.S. healthcare outcomes at a social level would also be among the best in the world. However, the World Health Organization's "World Health Report 2000" (more recent reports follow below) ranked the healthcare systems of 191 countries, placing the United States behind 36 other countries due to a combination of high per capita expenditures and a ranking of fifteenth in overall performance indicators, including overall level and distribution of health (within population groups) such as life expectancy, and fair financial contribution by healthcare recipients. France ranked first overall and fourth in terms of per capita expenditures. At 37th in overall rankings, the United States immediately followed Dominica and Costa Rica, which ranked seventieth and fiftieth respectively in overall expenditures in comparison with the United States, which spent the most per capita (World Health Organization 2000).

U.S healthcare *expenditures* continued to rise in the decade following the "World

Health Report 2000.” In 2004, U.S. healthcare expenditures totaled \$1.9 trillion — more than food, housing, and transportation combined and, by 2012, had risen to \$2.6 trillion (Epperly 2012; Taylor and Blackstone 2012; World Health Organization 2000). In terms of per capita health-related spending, U.S. levels reached nearly \$8,000 by 2009. The next highest (adjusted for cost of living) were Norway, Canada, and the United Kingdom at just over \$5,000, \$4,000, and \$3,000 respectively. For the United States, this represented almost eighteen percent of the Gross Domestic Product (GDP), up from five percent in 1960 — a nearly fourfold increase in roughly fifty years. Consumer healthcare costs rose at double the rate of inflation during this period as well. If the costs of common food items had risen at an equivalent rate, a gallon of milk would cost \$48 and eggs would sell at \$134 per dozen (Epperly 2012; Fromke and Heineman 2012).

Did healthcare *outcomes* improve as a result of these expenditure increases? A report released in early 2013 by the National Research Council and Institute of Medicine, “U.S. Health in International Perspective: Shorter Lives, Poorer Health,” was released as the first comprehensive consideration of diseases, injuries, and behaviors over a lifetime. This time, the United States was compared among sixteen other well-to-do democracies including Australia, Canada, Japan, and many western European countries. Alarming, the results indicated that U.S. citizens are, on average, now dying younger and experiencing higher rates of disease and injury than their counterparts in any of the other nations. The report even found that, across the total population, health disadvantages exist at all ages from infancy to 75 years old (after which the United States compares favorably), and that even U.S. citizens who have higher incomes and health insurance, are college educated, and engage in behaviors considered to be healthy are, in general, sicker than citizens of other affluent nations (National Academies 2013).

According to a 2010 Commonwealth Fund survey of seven developed countries including the United States, issues of *access* to healthcare may play a role in these negative U.S. health outcomes. For example, one-third (33%) of U.S. adults did not see a doctor or purchase prescriptions when they were sick because of the costs involved, compared with only five percent in the Netherlands and six percent in the United Kingdom (World Health Organization 2010). Additionally, over one-third (35%) of U.S. adults had at least \$1,000 in out-of-pocket healthcare costs; one-fifth (20%) of adults had

serious problems paying their healthcare bills or were unable to pay them at all; and nearly half (46%) of individuals in the United States who *had* health insurance but had below-average incomes went without needed healthcare due to these high out-of-pocket costs. According to the study, the United States stood alone among the countries for its “persistent and wide disparities by income ... even for those with insurance coverage” (Schoen et al. 2010:2). Additionally, the U.S. insurance system was the most complex to navigate, with nearly one-third (31%) of people spending a great deal of time researching, finding, and/or having difficulties with insurance providers.

Further, U.S. government healthcare expenditures cover only the elderly and the poor, while other countries, although spending less, have universal coverage. The United States is the only industrialized democracy that does not provide coverage to all citizens, resulting in 50 million uninsured Americans or, according to medical anthropologist Gay Becker (2007), one-sixth of the population, about whom she argues that the U.S. healthcare system deliberately encourages *containment* of the uninsured, which both marginalizes them and discourages them from using healthcare services. While a 2002 study by the U.S. Institute of Medicine estimated that 18,000 people *died* in 2000 because they could not access health care (Dorn 2008), a report by the same institute titled “America’s Uninsured Crisis: Consequences for Health and Health Care” indicated that, in 2009, 45.7 million people were still uninsured (Institute of Medicine 2009). Further, Elliott Fisher (2012), of the Dartmouth Institute for Health Policy, asserts in the 2012 documentary *U.S. Healthcare: The Good News* that the \$2.6 trillion that the United States spends on healthcare is sufficient to achieve universal coverage and thereby improve access to care. Tom Epperly, physician, educator and author of *Fractured: America’s Broken Health Care System and What We Must Do to Heal It*, summarizes the situation by saying, “We have settled for ‘have’ and ‘have-not’ health care systems, where the ‘have-nots’ live sick and die young” (2012:2).

Barriers to mainstream healthcare access in the United States can be considered a form of systemic iatrogenesis in that the very healthcare system that is purportedly intended to prevent and treat illness is inaccessible to many people, due to systemic factors such as costs and insurance complexity, among others. Inaccessible healthcare can, in turn, be viewed as generating harm due to its inability to provide treatment and

thus prevent greater harm. Likewise, disparities between high healthcare expenditures and low health outcomes can be construed as systemic iatrogenesis since available private sector and government funds must be distributed wisely to meet all categories of need. When a high proportion of funds are used to obtain poor quality products and services — equivalent, for example, to a new but substandard roof that leaks — the needs that those products and services promise to meet (such as health protections and advantages) go partially or wholly unmet. Other needs, even those that contribute to health such as quality food and housing, may also go unmet because the funds have already been used, resulting in what I suggest can be considered systemic harm. As with reducing the risk of exposure to medical mistakes described above, I suggest it follows that approaches to healthcare that reduce the need to utilize mainstream healthcare, including preventative and lifestyle measures, can also reduce costs and difficulties related to mainstream healthcare as well as improve health outcomes. Later chapters will consider how Community-Based Herbalism might play a role in reducing structural iatrogenesis.

Structural Iatrogenesis

Finally, deficits and harms associated with U.S. mainstream healthcare can also be examined from the perspective of structural violence and, I propose, described as *structural iatrogenesis*. Johan Galtung (1969), sociologist and founder of the Peace Research Institute in Oslo, introduced the term *structural violence* in his article, “Violence, Peace, and Peace Research.” The concept of structural violence describes a form of violence in which social structures harm people, even gradually kill them, by impairing their ability to meet their basic needs. As ethnoecologist Devon Peña (2011:207) explains, “Institutionalized elitism, ethnocentrism, classism, racism, sexism, adultism, nationalism, heterosexism, and ageism are just some examples of structural violence. Life spans are reduced when people are socially dominated, politically oppressed, or economically exploited. Structural violence and direct violence are highly interdependent.”

The mainstream healthcare system has been critiqued by Paul Farmer, author of *Pathologies of Power: Health, Human Rights, and the New War on the Poor*, as a

primary agent of structural violence particularly with regard to subaltern or marginalized groups. Farmer (2004) explains:

Structural violence is one way of describing social arrangements that put individuals and populations in harm's way... The arrangements are structural because they are embedded in the political and economic organization of our social world; they are violent because they cause injury to people... Neither culture nor pure individual will is at fault; rather, historically given (and often economically driven) processes and forces conspire to constrain individual agency. Structural violence is visited upon all those whose social status denies them access to the fruits of scientific and social progress (Farmer in Burtle 2013:online).

The lens of structural violence can be used to consider health and healthcare issues that are associated with diversity, disparity, and cultural competency in general, and with African American, Latino, and Indigenous communities — among others — in particular. While Illich (1982) proposed a cultural level of iatrogenesis, which would most closely align with these aspects of healthcare-related harm, I propose that structural violence in mainstream healthcare underpins issues of diversity and disparity more broadly than does culture alone. I therefore propose the term *structural iatrogenesis*, and suggest that it also incorporates the underlying, structural nature of the earth and environmental dynamics, which will be discussed later. I will now discuss in some length several topics related to structural violence in association with healthcare. I hope to show that when harm generated outside of mainstream healthcare is not addressed *by* mainstream healthcare, it can be argued that mainstream healthcare is, at best, not fulfilling its mission to reduce and prevent health-related harm and, at worst, complicit in generating such harm. I also seek to set the stage for later consideration of how Community-Based Herbalism might play a role in reducing and preventing structural iatrogenesis.

Diversity, Disparity, and Cultural Competency in Healthcare

The U.S. population is growing and diverse. According to the 2010 Census, 308.7 million people live in the United States. That is an increase of almost one-tenth (9.7%) from 281.4 million in 2000. For example, “Healthy People 2020,” a Federal Government Website managed by the U.S. Department of Health and Human Services, indicated that in 2008, approximately 33 percent, or more than 100 million persons, identified

themselves as belonging to a racial or ethnic minority population (2013).

Some individuals and groups reap fewer benefits from mainstream healthcare than do others, which contributes to health disparities or “differences in health outcomes between groups that reflect social inequalities” (U.S. Centers for Disease Control and Prevention 2011: on-line). These and other types of disparities are associated not only with socioeconomic status (SES), race or ethnicity, geographic location, sex, sexual identity or orientation, age, disability, and civil status but also with the historical and structural inequities that contribute to the *development of* health problems among various groups in the first place as well as to mainstream healthcare’s *differing responses to* various groups and the problems they present. Many of the factors affecting both development of and responses to health outcomes constitute forms of health-related structural violence, especially, but not exclusively, with regard to subaltern groups (Farmer 2004).

Given demographic projections suggesting that people of color will comprise over half (53%) of the U.S. population by 2050 (Betancourt 2003) — up from one-third (33%) in 2008 — the importance of cultural sensitivity or “cultural competency” within the healthcare system and among healthcare providers has been recognized by some, though contested by others (Gregg and Saha 2006). The characteristics of a culturally competent healthcare system have been described extensively (Office of Minority Health 2013b; Anderson et al. 2003). For example, Joseph Betancourt, researcher and associate professor of medicine at Harvard University, describes a culturally competent healthcare system as one that “acknowledges and incorporates — at all levels — the importance of culture, assessment of cross-cultural relations, vigilance toward the dynamics that result from cultural differences, expansion of cultural knowledge, and adaptation of services to meet culturally unique needs” (2003:294). The characteristics of cultural competency are especially important when it is recognized that, even *with* access to healthcare services, people of color often experience disparities in the quality of care received. The 2008 Institute of Medicine report, *Unequal Treatment: Confronting Racial/Ethnic Disparities in Health Care*, discusses more than 175 studies that clearly document disparities in the diagnosis and treatment of health conditions among different racial and ethnic groups.

Often, differing belief systems contribute to varying degrees and ways of utilizing

mainstream healthcare services. Although mainstream healthcare may present itself as objective and culturally neutral, it, too, expresses underlying epistemological and cultural elements. These include values, beliefs, standards, language, expectations of behavior, technologies, and ways of communicating that influence the decisions and actions of the group over time, providing reference points, continuity, and mutual understanding (Lupton 2012). When individuals and groups do not find their beliefs reflected in the mainstream healthcare system, or at least recognized and respected by healthcare providers, they may not seek care, understand the nature of the care that is being offered, and/or be able to make truly informed decisions about treatment follow through and potential benefits (Anderson et al. 2003). While efforts have been made to increase the diversity, patient-centeredness, and cultural competency of healthcare providers and services (Brach and Fraser 2000; Betancourt et al. 2002; Saha et al. 2008), structural violence persists in healthcare (Chen 2009). Examples of such problems related to African Americans, Latinos, and Indigenous populations in the United States follow. These examples of structural iatrogenesis highlight, in my view, the necessity for healthcare to responsibly and responsively address structural conditions that have been perceived by many to fall outside the purview of health but that have significant health outcomes (Ford and Airhihenbuwa 2010). These conditions include racism, disruption of social and family-based networks of support, and disruption of place-based food traditions. This will set the stage for later consideration of the potential of Community-Based Herbalism to reduce structural iatrogenesis.

Examples of Structural Iatrogenesis

African Americans and the Socioeconomic Orthodoxy

In 2011, individuals who identified as African American numbered over 39 million and accounted for nearly thirteen percent of the U.S. population. The U.S. Census Bureau projects that by 2060, African Americans will comprise over eighteen percent of the population and the absolute number will have doubled. According to the U.S. Center for Disease Control and Prevention (CDC), significant health disparities exist between African Americans and other groups in terms of life expectancy, mortality rates among both adults and infants, and other measures of health status (2011). For example, in

2009, the average life expectancy among U.S. citizens overall was 78.5 years while, for African Americans, it was 74.5 years — four years less.

The orthodox view of health disparities among African Americans — as well as other groups — holds that a lower socioeconomic status (SES) correlates with a higher rate of disparity. SES consists of three factors: years in school (social status), annual income (economic status), and type of employment (work status). SES is believed to affect health at least partially by virtue of its impact on one's ability to access mainstream healthcare. (Frierson et al. 2013). However, attempts to explain differences in health outcomes among African Americans and other groups in terms of SES alone obfuscate the historical and structural violence that underlies the variants in education, income, and work status that comprise SES. More encompassing theories integrate a range of factors into social determinants of health (SDH), including a range of experiences and conditions throughout one's lifetime, along with their causes (Frierson et al. 2013). The causes might include environmental racism, inadequate access to quality fetal nutrition, childhood stress factors, and years of dealing with racism in all its forms.

Epidemiologist Sherman James (1994) coined the term *John Henryism* to refer to the accumulating negative health effects of expending high levels of effort over long periods of time in order to cope with intractably stressful conditions. These health effects are more technically described as *allostatic load*, a concept that involves measuring the levels of various hormones such as cortisol and other chemicals that are produced in response to stress (McEwan 1993). According to V.M. Mays and other researchers at the University of California Los Angeles (UCLA), documentation of the relationship between discrimination and harmful health effects has become more nuanced as “emerging methodologies in both measurement of contextual factors and functional neuroscience” allow for a more complete understanding that “locates the cause of race-based health disparities in the external effects of the contextual social space on the internal world of brain functioning and physiologic response” (Mays et al. 2007:201).

Arline Geronimus, professor of Health Behavior and Health Education at the Harvard School of Public Health, introduced the term *weathering*, which refers to the ageing patterns associated with allostatic load (Geronimus 2006:826-833). Some theories of structural violence in healthcare also consider ways that experiences and conditions,

along with their causes, can affect a person's willingness and ability to seek and trust mainstream healthcare delivery (Dean and Fenton 2010; Grant Makers in Health 2010; Niederdeppe et al. 2008).

Some theories about structural violence related to health and healthcare further propose that experiences in the lives of an individual's parents or even grandparents can have *epigenetic* effects (Kuzawa and Sweet 2008), chemically switching on and off genes in future generations. According to this theory, slavery with its "fundamental injustice, cruelty, brutality, and inhumanity" as described in the U.S. Senate's 2009 formal apology (Senate Concurrent Resolution 26, 2009:online) and manifestations of what writer and scholar Harriet Washington (2008) calls "medical apartheid," even when not experienced directly, could impact one's offspring and contribute not only to negative psychological and social effects through miasma and communicated memory but also to negative physical health effects passed through the genes (Randall 2008).

Latino Health Paradoxes

Another perspective on the structural determinants of socioeconomic status emerges through what has been referred to as Latino health paradoxes in which Latino health outcomes contradict the orthodox predictors of socioeconomic status (SES) altogether. The U.S. Census Bureau reported in 2011 that the largest ethnic group — at almost seventeen percent of the U.S. population or approximately 52 million people — is Latino. Projections indicate that, by 2050, Latinos will constitute almost one-third (30%) of the population and number nearly 133 million — making them the fastest growing ethnic group in the country. With regard to socioeconomic status and other disparities, in comparison with whites, Latinos have much lower levels of income and education, greater frequency of living in environmentally hazardous communities, and higher rates of preventable hospitalization. Despite these and other disparities, a report by the National Center for Health Statistics released in 2010 showed that U.S. Latinos have a life expectancy of 81.3 years — greater than for whites as a group (78.7 years) and the U.S. population as a whole (78.8 years). Compared to African Americans, Latinos tend to have similar rates of poverty, higher percentages of inadequate and unhealthy housing, and lower percentages of education, yet they live nearly eight years longer than African

Americans (74.7) (Miniño and Murphy 2012). Further, in 2010, 30.7 percent of Latinos lacked health insurance (DeNavas-Walt et al. 2011).

Several theories attempt to explain Latinos' longer life span. For example, infant mortality rates have been lower among Latina women than among American women as a whole, and some argue that behavioral choices involving a lower incidence of smoking, drinking alcohol, using drugs, and having sexually transmitted diseases may contribute (Oxford Journals 2009). However, overarching questions include *why* these positive behavioral choices exist in the first place and *if* they are adequate to explain Latino health paradoxes. The bigger picture of both Latino demographics and Latino health is complex. Latinos include individuals with roots in several countries, foreign-born immigrants, and multiple generations of individuals born in the United States. While no studies have thoroughly evaluated all of the demographic differences in relationship to Latino health outcomes, some trends have emerged. On one hand, according to a Pew Research Center analysis of U.S. Census Bureau data released in early 2013, socioeconomic status has substantially improved among U.S.-born, second-generation Latinos over foreign-born immigrants in all key indicators. On the other hand, the highest incidence of positive health outcomes occurs among foreign-born Latino immigrants (also known as first-generation Latinos) with the lowest socioeconomic status. A continuum of at least some worsening of health outcomes occurs among U.S.-born second- and third-generation Latinos in contrast to improving socioeconomic status (Pew Research Center 2013). This represents an inverse relationship between acculturation into the U.S. mainstream and positive health and social outcomes.

In addition to questions about what causes positive health outcomes among first-generation Latinos (which also sometimes correlates with foreign nativity among other groups), additional questions emerge concerning why many of these positive health outcomes decrease among second- and third-generation, U.S.-born Latinos. Some suggest that "healthy immigrant selection" (Acevedo-Garcia and Bates 2008:107) is responsible, whereby those Latinos who choose to immigrate to the United States, and succeed in doing so, are healthier than those who do not, and that those immigrants who lose their health tend to return to their country of origin (called the "salmon effect"), thereby reducing the prevalence of Latino immigrants with poor health (Abraido-Lanza et al.

1999). Others, such as Hayes-Bautista, propose that “cultural and/or social protective factors such as social support, familism, religion, and norms related to diet and substance use” (Hayes-Bautista 2002:106) are responsible.

In the absence of consensus on a specific single cause for Latino health paradoxes, it may be reasonable to suggest a combination of contributing factors. First is the concept of protective factors in the form of family- and community-based networks and support. Second is the practice of healthy behaviors in terms of diet and exercise irrespective of levels of educational attainment. With regard to the first factor, researcher Paula Andalo states that “the sense of family is what saves Latinos. Solid family ties are essential for preserving health” (Andalo 2004 in Bostean 2010). Bostean then says, “Among Latinos, familism, or traditional family orientation, buffers against the negative health effects of Americanization [and that] family may also provide social support, an important stress buffer.” With regard to the second factor, a 2005 article in the *American Journal of Public Health* states that “better lifestyle habits of [Latino] immigrants result in improved health outcomes” (Gonzalez Burchard et al. 2005).

Looking Behind Disparities in Indigenous Health

Individuals who identified in the 2010 U.S. Census as American Indians and Alaska Natives (AI/ANs), either alone or in combination with another race, numbered 5.2 million or 1.7 percent of the total population, up from 4.1 million in 2000 (U.S. Census Bureau 2012). Numerous severe health disparities impact Indigenous communities in the United States. For example, between 2002 and 2003, Indigenous people as a whole were reported to have a rate of death from unintentional injuries that was 1.5 times higher than all other groups combined, and a rate of tuberculosis 850 percent higher than for any other group (Indian Health Service 2003). In 2010, nearly thirty percent of American Indians and Alaska Natives lacked health insurance (U.S. Centers for Disease Control 2013). Further, average life expectancy varies widely from state to state, ranging from about 68 years in South Dakota to 80 years in California, with an average of just under 77 years. This compares with a consistent average life expectancy among U.S. whites of 79-80 years (Kaiser Family Foundation 2014).

Typically, disparities in Indigenous health have been associated with

socioeconomic status (Adler and Newman 2002; Annand et al. 2001) since Indigenous populations have the lowest educational and per-capita income levels in the United States. Specifically, over one-third (35%) of the Indigenous population has not completed high school in comparison with one-quarter (25%) of the general population, and nearly one-third (32%) lives below the federal poverty level in contrast with less than one-eighth (13%) of the general population. Historically, the primary healthcare delivery system among Indigenous communities, the Indian Health Service (IHS), a division of the U.S. Department of Health and Human Services developed in 1955, has been severely underfunded and often inaccessible. Additionally, many disparities in Indigenous health are considered by Western academics and healthcare professionals to occur in the realm of preventable conditions — conditions that allegedly the people themselves could prevent (Warne 2006; Bramley et al. 2005).

It is true that no Indigenous health paradoxes exist that contradict the expectations of socioeconomic status as do Latino health paradoxes. Instead, as is the case among African Americans, Indigenous health disparities and their associated socioeconomic factors are interwoven (Becker and Newsom 2003; Smedly et al. 2003; Williams and Rucker 2000; Williams 1999). However, among both African-American and Indigenous communities (as well as in other instances), it is inadequate to consider *correlation* between low socioeconomic status and health disparities as *complete causation*. In other words, it is inadequate to conclude that the inquiry into causation of health disparities is sufficiently answered by socioeconomic factors (Gracey and King 2009; King et al. 2009).

Indigenous health prior to the European invasion of the Americas roughly 500 years ago was neither idyllic nor homogeneous. Iron deficient anemia, infectious diseases, and osteoporosis had expanded alongside rapid growth in maize agriculture (Martin and Goodman 2002). Still, nothing approximated the staggering rates of morbidity and mortality that resulted from the epidemics introduced by Europeans and European Americans — namely smallpox, influenza, measles, and malaria — resulting in population declines of 90-95 percent (Denevan 1992; Dobyns 1966). Imagined in terms of a classroom of twenty children, only one or two would remain. In some cases, much of this decimation actually preceded European-American arrival as a result of items that

were contaminated with disease pathogens and sent out in advance. This sometimes led European Americans to believe that the original populations of the Americas were much smaller than they are now considered to have been, with estimates of more than 100 million not being uncommon (Jacobs 1974).

While one in seven individuals in the United States develops diabetes, rates vary greatly among ethnic groups, with whites having the lowest incidence (7%) and Indigenous people having the highest (37% among Southwest Tribes). At fifty percent, the Pima of Arizona have the highest prevalence of diabetes *in the world*. The presence of undiagnosed diabetes among Indigenous people in the United States may actually add another fifteen percent (Black 2002). A newer version of the theory of Indigenous responsibility for health disparities is based on the idea that an existing epidemic of diabetes among Indigenous populations is genetically rooted. The theory of the *thrifty genotype*, introduced in 1962 by James Neel, the late professor of human genetics and internal medicine at the University of Michigan, proposes that a genetic propensity among hunter-gatherers to store blood sugar in fat cells during times of nutritional abundance made it possible for populations to survive ensuing times of famine by living off the stored energy. However, in the presence of modern high-fat, high-sugar, and high-calorie food consistency, the thrifty genotype theory proposes that on-going blood sugar storage results in epidemic proportions of obesity and other conditions that set the stage for Type 2 diabetes. This theory has reached the level of nearly unchallenged orthodoxy that essentially blames and disempowers Indigenous people (Kozak 1997) despite minimal evidence (Nabhan 2008:375; Martin 2004:2). Further, argues Harvard University cultural medicine professor David S. Jones (2006), by creating a sense of inevitability, this genetically based theory effectively reduces a sense of need for healthcare to provide interventions.

Alternative theories also have been introduced, such as the *thrifty phenotype* (Hales and Barker 1992). This theory suggests that diabetes results from maternal malnutrition/fetal protein undernutrition, which “stunts fetal growth, induces glucose intolerance, and results in decreased insulin secretory capacity in the offspring” (Benyshek et al. 2001:36), and thus leads to heightened glucose levels in later years. Studies have gone on to show mechanisms by which these uni-generational effects

become multigenerational (Wren 2005). Since fetal undernutrition can be considered a corollary of low socioeconomic status, it can yet again place blame on Indigenous mothers for the low quality of their gestational diet. However, a deeper look reveals that underlying structural and historical factors have presented barriers to a quality diet among many of the Indigenous communities with high rates of diabetes. For example, among the Pima of the Gila River Indian Community (GRIC) in Arizona (those documented to have the highest prevalence of diabetes in the world), diversion of the Gila River destroyed the traditional agro-ecosystems that provided a high-fiber traditional diet. This forced reliance upon government-supplied, low-fiber commodity foods with a high glycemic index such as white flour, lard, and sugar, resulting in decreased levels of nutrition, increased levels of obesity, and an astronomical rise in the prevalence of diabetes. Further, the inability to engage in traditional agricultural practices raising such crops as corn and tepary beans as well as in traditional harvest of wild foods such as mesquite, saguaro, and prickly pear cactus produced a much more sedentary and less community-oriented way of life that no longer attached people to place and situated their health within local agro-cultural-ecological systems that were health protective (Peña 1999; Brown, J.).

The concept of weathering or allostatic load introduced above with regard to African Americans can also be applied to Indigenous people in the United States, for whom racist attitudes and institutionalized racism in the form of practices, policies, and laws have had a profound effect for over five centuries (Gracey and King 2009; King et al. 2009; Jones 2006). In addition to changes in diet as described above, these attitudes and policies have taken many forms, including legal prohibition of traditional Indigenous spiritual practices from conquest to 1934; practices that still needed legal reinforcement by means of the American Indian Religious Freedom Act (AIRFA) as recently as 1978 (Talbot 2006); forced relocation from traditional homes, villages, and often even territories; and forced placement of children in residential schools where cultural expression was typically punished with physical violence (King 2008). The effects of colonization and coping with racism have been incorporated into some models of Indigenous healthcare. Karina Walters of the Indigenous Wellness Research Institute at the University of Washington and clinical psychologist Jane Simoni describe one such model as follows:

An “indigenist” model of Native women’s health [offers] a stress-coping paradigm that situates Native women’s health within the larger context of their status as a colonized people. The model is grounded in empirical evidence that traumas such as the “soul wound” of historical and contemporary discrimination among Native women influence health and mental health outcomes. The preliminary model also incorporates cultural resilience, including as moderators identity, enculturation, spiritual coping, and traditional healing practices (Walters and Simoni 2002:520-524).

From this perspective, it can and has been argued that the disruption of traditional lifeways due to European-American influences is more deeply causative of poor Indigenous health outcomes than is socioeconomic status alone. Examples of health outcomes related to racial discrimination further support the assertion that structural determinants including racial discrimination — even outside of mainstream healthcare delivery — have negative health consequences, and healthcare that operates exclusively or even primarily within a biomedical model or that focuses on socioeconomic status as an isolated health determinant continues to perpetuate the root causes of Indigenous health disparities (Ford and Airhihensuwa 2010; U.S. Commission on Civil Rights 2004).

In Summary

There are several ways in which structural violence outside the mainstream healthcare system can generate harm within it. For example, mainstream healthcare is complicit with structural violence to the extent it occludes structural violence from its framework of disease etiology. In other words, by restricting concepts of disease causation to biomedical (specific) and socioeconomic (systemic) factors, mainstream healthcare perpetuates the influence of structural factors — particularly structural and institutionalized racism and violence — by leaving them unaddressed or *untreated*. In this discussion, I continue to set the stage for later consideration of how Community-Based Herbalism might play a role in reducing and preventing structural iatrogenesis.

Structural Iatrogenesis Includes the Environment

Harm related to mainstream healthcare is not limited to the humans it intends to serve. Mainstream healthcare also occurs within an environmental context, both responding to and generating environmental harm. Recognition has been growing for some time that a

healthy environment is necessary for maintaining healthy individuals and healthy societies (Corvalan et al. 1999; Chen 1996). Increasingly, specific environmental factors are being linked to specific health conditions, such as autism, asthma, cancer, and certain birth defects (Public Health and Environment PHE 2013; Kjellstrom et al. 2007). Albeit more slowly, there is also growing recognition (Jameton and Pierce 2001) that mainstream healthcare practices are contributing to environmental decline both “upstream” and “downstream.” In other words, as in many industries, “upstream” environmental stressors result from manufacturing due to the kind and/or quantity of required resources including, in the case of healthcare, energy, water, and transportation as well as substances such as mercury, petroleum, rubber, latex, and polyvinyl chloride. “Downstream” by-products of healthcare services are in many cases more unique to the industry, and consist largely of waste including biohazards, infectious materials of human origin (i.e., blood and tissue), and pharmaceuticals that are often found in waterways, including drinking water.

I identify environmental health harms (both harms resulting *in* environmental degradation and harms resulting *from* environmental degradation) as forms of structural iatrogenesis because global and local environments provide the most fundamental structural frameworks in which life exists. I therefore propose that reduction of structural harm in healthcare must also involve recognition and prevention of environmental harms both outside of the healthcare system as well as resulting from it. Here again, I seek to set the stage for later consideration of how Community-Based Herbalism might play a role in reducing and preventing structural iatrogenesis of an environmental nature. This also relates to issues of sustainability.

In Conclusion: Three Levels of Iatrogenesis

In conclusion, I propose that the causes and outcomes of iatrogenesis can be grouped into three categories or levels, here listed from narrowest to broadest: (1) specific practices within mainstream healthcare such as biomedical mistakes (specific iatrogenesis); (2) systemic factors such as expenditures, outcomes, and access at the societal level (systemic iatrogenesis); and (3) the historical conditions and structural violence in which

mainstream healthcare developed and operates, and which it frequently perpetuates; along with harms *to* the earth's fundamental environmental framework and harms resulting *from* disruption of it (structural iatrogenesis). Each level contains health determinants and health outcomes that operate within their own level but also influence other levels. I propose that this multi-level view of iatrogenesis offers tools useful for helping prevent healthcare harm because it offers the possibility of a broad, inclusive view of various interwoven types of health determinants and health outcomes (World Health Organization 1999a). I further propose that such a typology of iatrogenesis will prove useful in understanding both the barriers to reducing harm in healthcare and the elements needed to achieve harm reduction, particularly relational engagement across these levels. I hope to show that Community-Based Herbalism has the capacity to foster the necessary relational engagement. In Chapter 3, I begin discussion of medicine, drugs, and herbs with particular interest in pharmaceutical iatrogenesis and issues in herbalism.

Chapter 3. Setting the Stage: Pharmaceuticals and Herbalism

Pharmaceutical Iatrogenesis

At the center of U.S. mainstream healthcare is the use of pharmaceutical drugs. This has resulted in an enormous industry; consumption of pharmaceuticals in the United States in 2009 equaled \$300 billion, representing about forty percent of the global market, and nearly twice the amount spent in 2003 (Berkrot 2010). By 2011, this figure had grown to \$319.91 billion, an additional increase of nearly \$20 billion in only two years (Lindsley 2012). Another indicator of the enormity of the industry is the fact that, in 2011, over four billion prescriptions were written by U.S. doctors, which averaged approximately thirteen prescriptions for every adult and child (Rapport 2012). Prescriptions were written at nearly three-quarters (74.4%) of all doctor's visits (U.S. Centers for Disease Control 2009). Between 2005 and 2008, nearly half of all U.S. adults (47%) had used at least one prescription in the previous month, over one-fifth (21.4%) had used three or more, and over one-tenth (10.5%) had used five or more prescriptions (Health, United States 2011). Simultaneous use of multiple pharmaceuticals — known as *polypharmacy* — is even greater among seniors, nearly one-third of whom (29.4%) in many instances use six or more prescriptions at one time (Bushardt et al. 2008).

The implications of polypharmacy are complex. According to *The New England Journal of Medicine*, over half (51%) of pharmaceuticals have side effects that, despite rigorous protocols, are not recognized prior to their approval by the U.S. Food and Drug Administration. Multiply the intended and unintended effects of a single pharmaceutical times perhaps five different pharmaceuticals and the potential for agonistic and antagonistic interactions grows enormously. The World Health Organization has also weighed in on this issue through programs and guidelines aimed to provide *pharmacovigilance*, defined as “the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related

problem” (World Health Organization 2013a).

Additionally, people are paying more for their pharmaceuticals in the United States than in most other countries since the United States is the only industrialized country that does not implement pharmaceutical price regulations. This is because drug companies have argued that price regulations would limit their ability to innovate. In 2008, Pfizer Company even asserted that price controls would shorten lives (Kirschner 2012).

Sometimes referred to as medicines or medications, pharmaceutical drugs typically consist of a single, pharmacologically active chemical substance — or sometimes a formulation of combined active substances — that has a physiological effect when ingested or administered. The first synthetic drug was formulated in 1869, with much of early drug development emerging from the textile and dye industries as simple chemicals derived from coal distillation (Jones 2011). As new drug structures were discovered, it became possible to develop variations on and analogs to these structures, a process that accelerated throughout the twentieth century with the advent of powerful techniques such as molecular modeling and which led to broad development of such classes of drugs as antibiotics (Pina et al. 2009:3). Although most of the pharmaceutical drugs in use today are synthetic, many began as natural products (Topliss et al. 2002). In 2000, approximately 120 pharmaceutical drugs consisted of chemical substances that were modifications or synthetic duplicates of substances contained in plants. These pharmaceuticals contain a single constituent that was either derived or copied from a plant, isolated, and standardized to contain a specific milligram content (Taylor 2000). More recent advances in drug discovery have focused on the engineering of biological systems to create organisms with desirable biosynthetic capacities which may or may not be similar to those found in plants (Neumann and Neumann-Staubitz 2010).

Ten major companies manufacture over one-third of the world’s pharmaceutical drugs, some of which have annual sales over \$10 billion and profit margins of thirty percent (30%). Six of these are U.S.-based companies (World Health Organization 2013b). Estimates of the costs involved in research and development of a new drug in 2007 were \$1.3 billion, and the time involved could be as much as ten to fifteen years (although more recent “fast tracking” has sped up the process considerably while also

increasing the number of recalls) (Parasidis 2011; Dimasi and Grabowski 2007).

Pharmaceutical companies spend even more money on marketing than on research and development. In 2007, twice as much money was spent in the United States on marketing than on research and development — as much as one-third of total sales revenues (York University 2008). By 2013, marketing expenditures had reportedly risen to nineteen times as much as research and development (Eichler 2013). In dollars, estimates for total expenditures on U.S. marketing of pharmaceuticals in 2005 ranged from nearly \$30 billion to \$57 billion. Of this, more than half (56%) involved free samples, one-quarter (25%) supported detailing or “educating” physicians, and one-eighth (12.5%) provided advertising that directly targeted consumers (Scientifica Pharmakon 2010; Barfett et al. 2004). In 2006 and 2007, \$5 billion went to direct-to-consumer advertisements alone (Ventola 2011), a practice that is legal only in the United States and New Zealand (American Academy of Physician Assistants 2009).

As early as 1998, pharmaceutical companies were ramping up their marketing efforts, which involved, among other strategies, increasing their sales staff to the point that many companies had one sales representative for every eleven physicians. The “reps” were making office visits, offering a variety of “perks,” and providing the physicians with free product samples. Indeed, studies show that free samples in particular do have an impact on the prescriptions physicians choose to write, fostering selection of the brands and medicines for which they have the samples, even when far less expensive over-the-counter products are available (Ma et al. 2003).

The intense business pressure to maintain sales, and its associated marketing strategies, has led to concerns about ethics, propriety, diagnostic hyperinflation (Frances 2012) and conflicts of interest, especially when pharmaceutical companies are at once researchers, developers, producers, marketers, and distributors of healthcare products as well as educators about their value and use. As early as 1988, the World Health Organization recognized this issue and established “Ethical Criteria for Medicinal Drug Promotion.” Two decades later, in 2009, the Pharmaceutical Research and Manufacturers of America published its voluntary “Code of Interactions with Healthcare Professionals,” reflecting that these and other issues still existed (Grande 2010). Also indicated was the fact that pharmaceutical companies typically choose to invest in lucrative medicines for

the wealthiest countries rather than responding to the healthcare needs of those in developing countries who are unable to pay (Angell 2005).

Taken together, pharmaceutical industry practices raise the question of whether the patient is actually receiving the best and most economical prescription for his or her needs, or whether the physician has been unduly influenced, or perhaps even misled, by the “wooing” of pharmaceutical companies. This has led to millions of instances of illness (Light 2010) along with such a high incidence of side effects that prescribed pharmaceutical drugs have been labeled the fourth-leading cause of death in the United States (Buhner 2002:132). I propose that these and other factors that are explored below constitute what can be considered healthcare harm generated by pharmaceutical drugs, or *pharmaceutical iatrogenesis*.

Pharmaceuticals in Water: Danger to Aquatic Life and Humans

Issues about pharmaceutical drugs do not end with questions about industry business practices or even direct human harm caused by their prescribed use. Other concerns relate to the effects of pharmaceutical use and disposal in waterways (Buchan and Gustaitis 2008), which can be conceived as an aspect of *environmental justice*. Studies corroborate such concerns. For example, Chris Metcalfe at Trent University in Ontario showed that estrone, a type of estrogen, and a synthetic hormone used in synthetic birth control pills, when introduced at levels typical of wastewater streams, caused a type of Japanese fish to exhibit both male and female characteristics. At higher levels, the male fish all fully transformed into females (Wright-Walters et al. 2009; Science News 2000). However, synthetic hormones account for only one type of prescription drug that enters the waterways in the United States either through disposal of unused medicines into toilets and garbage or through excretion in urine. Other pharmaceuticals entering the water likely include those on the Institute of Healthcare Informatics’ 2011 list of the ten most prescribed drugs. These include Hydrocodone with acetaminophen for pain (131.2 million prescriptions), Azithromycin, an antibiotic (52.6 million), and Amoxicillin, an antibiotic (52.3 million). Stated in terms of the ten prescription drugs for which Americans spent the most money in 2010, drugs found in waterways would include:

- Lipitor, a cholesterol-lowering statin drug (\$7.2 billion)
- Nexium, an antacid drug (\$6.3 billion)
- Plavix, a blood thinner (\$6.1 billion)
- Advair Diskus, an asthma inhaler (\$4.7 billion)
- Seroquel, an antipsychotic drug (\$4.4 billion)
- Singular, a drug for asthma (\$4.1 billion)
- Crestor, a cholesterol-lowering statin drug (\$3.8 billion)
- Abilify, an antipsychotic drug (\$3.6 billion)
- Actos, a diabetic drug (\$3.5 billion)
- Epogen, an injectable anemia drug (\$3.3 billion) (DeNoon 2011)

In acknowledgement of the concerns related to pharmaceuticals entering waterways through improper disposal, Alameda County, California, which includes Berkeley and Oakland, passed a law in July 2012 that required drug manufacturers to help fund a project for unused and/or unwanted pharmaceuticals to be collected and returned to the company for safe disposal. However, by December of that year, a group of pharmaceutical and biotechnical trade groups had sued Alameda County to block the law, claiming that disposal of unused pharmaceuticals in household trash is safe, convenient, and effective, and that such requirements would be onerous and burdensome (Woodall 2012). Nevertheless, concerns over the effects on humans of pharmaceuticals in drinking water have been mounting, partly due to technological advances that have enabled detection at even trace levels. For example, in 2009, an Associated Press investigation of existing U.S. studies and reports indicated that 46 million Americans were consuming water that was known to contain at least trace amounts of pharmaceuticals (Gorman 2010:150).

As a result of these rising concerns, the World Health Organization's Drinking-water Quality Committee added this issue to its work plan in 2005. In 2009, a working group was formed to review and summarize existing scientific data on the topic. Unlike with specific chemical and microbial constituents, no regular and required programs existed to test the occurrence of pharmaceuticals in drinking water, or any water for that matter. While the World Health Organization working group concluded that the *known* levels of pharmaceuticals were unlikely to cause appreciable harm to humans, it also acknowledged that insufficient data existed upon which to draw firm conclusions.

Specifically, the group noted significant gaps in knowledge, along with an associated need for continued research, in order to better assess “risks associated with long-term, low-level exposures to pharmaceuticals and possible combined effects of chemical mixtures, including pharmaceuticals” (World Health Organization 2011:26-27).

Antibiotic-Resistant Bacteria

Antibiotics are a unique class of drugs worthy of consideration. When antibiotics made their way into the U.S. healthcare system in the 1950s and 1960s, health providers and consumers alike were optimistic that they would bring an end to infectious disease (Davies 2006). It was clear by the turn of the century, however, that such a reality had not materialized, nor was it imminent. In fact, it was estimated that in 1997, three million Americans entered hospitals because of hard-to-treat, antibiotic-resistant bacterial infections; two million more became infected while in the hospital for other reasons; and an estimated 100,000 died as a result. Instead of being eradicated, infectious disease was estimated that year to have become the fourth leading cause of disease and death in the United States (Buhner 2002:119).

What happened? Evolutionary biologists had assumed that the rate of bacterial mutation would resemble what was understood to be true of other species, allowing them to adapt and develop increased resistance and increased virulence only very slowly. This turned out to be inaccurate. Instead, using staph infection (*Staphylococcus aureas*) as an example, within one year of introducing antibiotics into commercial use, fourteen percent of the bacteria were determined to be resistant; within five years, nearly sixty percent; and within fifty years (by 1995), 95 percent (Buhner 2002). This rapid development of bacterial resistance appears to have resulted from heavy, often unnecessary, use of antibiotics to treat all kinds of infection, even those that are typically self-limiting or viral. As a result, bacteria that (1) infect wounds and blood during surgery, (2) cause lung infections sometimes leading to pneumonia, (3) enter the urinary system, (4) cause serious ear infections, and (5) cause other serious infections — including tuberculosis gonorrhea, malaria, and cholera — have also developed resistance at ever-increasing rates. As ethnobotanist Stephen Buhner (2002:192) states in *The Lost Language of Plants*, “Bacteria are, in fact, learning resistance to new antibiotics in only a few years instead of

the decades it took previously.” Such rampant use has left fewer pharmaceutical options for effectively treating truly virulent and potentially epidemic infections. It has also resulted in antibiotics entering waterways and soils and affecting unintended organisms, from beneficial bacteria and microbes to marine species and plants (Singer and Moldanado 2006; Costanzo et al. 2005).

In Summary

In summary, pharmaceutical iatrogenesis is complex and far-reaching, with specific, systemic, and structural impacts. On the structural level, pharmaceuticals are entering waterways, negatively affecting aquatic organisms and raising questions about the healthfulness of drinking water. They are increasing antibiotic resistance among bacteria and raising concerns over the possibility of virulent, difficult to treat epidemics. On the systemic level, pharmaceutical industry practices have generated concerns about (1) the ways in which physicians are educated about pharmaceutical products, (2) the costs involved in research and development as well as marketing, and (3) the appropriateness, expense, and safety of the pharmaceuticals offered to patients and consumers. Finally, all of these factors have biomedical effects on the specific level in which individuals may become ill from ingesting a combination of prescribed pharmaceuticals or, potentially, from consuming pharmaceuticals in their water supply. They may also find antibiotics ineffective in treating a bacterial disease they have already contracted.

The Herbal Industry: A Partial Solution to Pharmaceutical Iatrogenesis

It has been argued that one approach to reducing the prevalence of and harm associated with pharmaceutical drugs in the United States is the use of herbal medicine (Benson 2013; Weil 2010; Clare et al. 2009; Gladstar 2008; Phillips and Phillips 2005). The remainder of this chapter considers the potential of herbalism to address pharmaceutical iatrogenesis by distinguishing herbal medicines from pharmaceutical drugs and exploring a number of topics in Western herbalism including: (1) examples of herbal therapeutics and benefits; (2) historical patterns in Western herbalism that persist today; (3) classification and regulation of the herbal industry in the United States; (4) challenges

and harms associated with the herbal industry; and, finally, (5) community-based herbalism, and how it differs from the herbal industry.

Distinguishing Herbal Medicines from Pharmaceutical Drugs

A medicinal herb can be defined as a plant, some morphological part of which exhibits beneficial biological activity on the body. Historically and throughout the world, most healthcare has relied upon herbal medicine as a central therapeutic modality. Often cited is the World Health Organization's 1993 assertion that "as many as 80% of the world's people depend on traditional medicine for their primary health care needs [the greater part of which] involves the use of plant extracts or their active principles" (World Health Organization 1993:4). This is not the case in the United States, however, where roughly only twenty percent of the population appears to use herbal medicine (Bent 2008).

The distinction between an herbal medicine and a pharmaceutical drug is not as simple as it might seem. While, in contrast with single-chemical pharmaceutical drugs, herbal medicines typically contain the myriad chemicals present in the plant itself. However, sometimes, herbal products consist of an isolated constituent that has been extracted from the plant and standardized to a specific dosage. For example, CuraPro (an herbal product manufactured by Euromedicine) is extracted from turmeric (*Cucurma longa*) to yield at least 500 mg of curcuminoids per capsule; and Hyperimed (manufactured by Integrative Therapeutics, Inc.) is extracted from St. John's wort (*Hypericum perforatum*) and standardized to contain 0.3% hypericins per pill.

One might also distinguish herbal medicines from pharmaceutical drugs on the basis of their natural product origins since today the majority of pharmaceutical drugs are synthesized or semi-synthesized in the laboratory as variations on or analogs to naturally occurring plant substances (Topliss et al. 2002). Also, newer means of producing drugs involve methods such as *combinatorial genetics* that allow researchers to "custom-make" products that are not found in nature at all (National Institute of General Medical Sciences 2011). However, some pharmaceuticals still rely upon extraction of a substance from a plant. For example, production of the potent cardio-active drug digoxin requires roughly 1,000 kilograms of dried foxglove (*Digitalis purpurea*) to produce one kilogram of pure digoxin (Hogue 2005). In 1993, botanist James Duke asserted that about ten

percent of prominent pharmaceutical drugs contained phytochemicals extracted directly from plants (Duke 1993).

Therefore, the distinction between herbal medicines and pharmaceutical drugs does not rest solely upon (1) *plant-based sourcing* or (2) the *range of constituents utilized* (discussed above); it also relates to (3) *potency*, and (4) *intended therapeutic activity*.

While *potency* is a complex subject (Walker et al. 2006), single-chemical pharmaceutical drugs usually have substantial potency (though this varies among specific drugs) and require careful attention to dosing (Allen et al. 2011). While this can also be true of some herbal medicines, most are less potent than pharmaceuticals and are sometimes even eaten as food, allowing for a broad range of safe dosing (Gladstar 2008; Phillips and Phillips 2005).

Likewise, the *intended therapeutic activity* of a pharmaceutical drug typically targets a specific condition, often a symptom, with the intention of achieving a specific outcome in a specific amount of time, such as relieving pain in a matter of minutes or destroying pathogens over a period of days or weeks. This may also be true of herbal medicines, although herbal medicines are often used to activate, support, and augment natural physiological processes. For example, an herbal *adaptogen* could help increase one's capacity to handle stress; an herbal *alterative* could help improve general physiological functioning; and an herbal *amphoretic* could help balance targeted hormonal activity (Winston 2007; Green 2000).

I propose that it can be useful to think of pharmaceutical drugs and herbal medicines on two types of continuum. The first relates to *plant-based sourcing* and *range of constituents utilized*. It places single-constituent, laboratory-synthesized pharmaceutical drugs alone at one end (End A) and plant-derived, multi-constituent herbal medicines alone at the other (End B), with pharmaceutical drugs that isolate and standardize constituents directly from plants *and* herbal medicines that isolate and standardize a selected plant constituent *both* situated near each other in the middle (Center).

The second continuum focuses on the related concepts of *potency* and *intended therapeutic activity*. On this continuum, pharmaceutical drugs, many of which are of substantial potency and require low or careful dosing, are situated at one end (End A)

with those herbal medicines that are low potency, high dosage, gentle, and food-like at the other (End B). However, since different herbal medicines can have higher potencies and more careful dosage requirements, some are situated at varying points along the continuum's gradient. As herbal medicines become higher in potency and lower in dosage, I describe them as increasingly *drug-like*. Using the tool of a continuum helps to avoid an oversimplified binary distinction between herbal medicine and pharmaceutical drugs.

Popularity and Potential of Herbalism

In the twelve months prior to a 2007 National Health Interview Survey conducted by the National Center for Complementary and Alternative Medicine, nearly one-fifth of adults (17.7%) in the United States reported having used natural products other than vitamins and minerals, and spending \$14.8 billion dollars on these products (Nahin et al. 2009). More specifically, among those who had used botanical therapies that year:

- nearly one-fifth (19.8%) had used Echinacea (*Echinacea* spp.), an immunomodulator
- 14 percent had used ginseng (presumably *Panax ginseng*), a stimulant and alterative
- 13 percent had used pills that contained a combination of herbs
- 11 percent had used ginkgo (*Ginkgo biloba*), a cerebro-vasodilator
- 11 percent had used garlic supplements (*Allium sativum*), a species with many actions including lipid regulation (NCCAM 2012).

An evidence-based approach to the use of traditional plant-based medicines would be consistent with recommendations by the World Health Organization “aimed at enabling TM/CAM (Traditional Medicine/Complementary and Alternative Medicine) to play a far greater role in reducing mortality and morbidity” (World Health Organization 2002:5). In the United States, most plant-based medicine is accessed on store shelves in the form of pills, teas, tinctures, and other products manufactured at large and medium scale by the herbal industry. Far more plant-based medicine is accessed in this way than through small scale, home- or community-based avenues including direct experience growing, harvesting, and preparing medicinal applications.

Thinking in terms of *medicinal action* — or the type of therapeutic activity

exhibited by a pharmaceutical drug or herbal medicine (also known as *therapeutic class*) — can provide a framework for considering botanical alternatives to pharmaceuticals. For example, the medicinal actions for which drugs were most frequently prescribed in 2011 were:

- anti-cancer activity (oncology support)
- antitussive, antispasmodic, and anti-catarrhal activity (respiratory relief)
- antilipidemic activity (lipid regulation)
- antidiabetic activity
- antipsychotic activity
- immunomodulating activity (autoimmune disease support)
- antidepressant activity
- HIV antiviral activity
- anti-ulcerant activity
- narcotic analgesic activity (Lindsley 2012)

By examining the histories of traditional use along with contemporary scientific studies, numerous botanicals can be identified that have with medicinal actions proximate to those of synthetic prescription pharmaceuticals in more dominant use (Balick and Cox 1994). Following is a list of examples, again based on medicinal action or therapeutic class.

- **Anticancer activity (oncology support)** has been found in Madagascar periwinkle (*Catharanthus roseus*) (Gajalakshmi et al. 2013; Mehta et al 2013), Pacific yew (*Taxus brevifolia*) (Witherup 1990; Wani et al. 1971), mistletoe (*Viscum album*) (Zaidi 2013; Rudolf Steiner Health Center 2010), and red alder (*Alnus rubra*) (Sati et al. 2011).
- **Antitussive, antispasmodic, and anti-catarrhal activity (respiratory relief)** abound among botanicals, including those that provide asthma relief, such as lobelia (*Lobelia inflata*) (University of Maryland Medical Center 2014), coleus (*Coleus forskohlii*) (NYU Langone Medical Center 2013a), and licorice (*Glycyrrhiza glabra*) (Al-Jawad et al. 2012), all of which are associated with significant cautions.
- **Antilipidemic activity (lipid regulation)** can be found in garlic (*Allium sativum*) (Saravanan and Prakash 2004) and guggul (*Commiphora wightii*), which is now endangered in its native range in India due to over harvest for global medical consumption (Ramawat et al. 2008; Urizar and Moore 2003).

- **Antidiabetic activity** occurs in blueberry (*Vaccinium* spp.) (Grace et al. 2009), gymnema (*Gymnema sylvestre*) (Kanetkar et al. 2007) from India, and Mediterranean saltbush (*Atriplex halimus*) (Soumyanath 2007).
- **Antipsychotic activity** has been found in *Rauwolfia serpentina* (Bhatara 1997), Nigerian *Picralima nitida* (Costa-Campos et al. 2004), and the traditional Korean *Polygala tenuifolia* (Linck et al. 2011).
- **Immomodulating activity (autoimmune disease support)** comes from adaptogens such as borage (*Borago officinalis*) (Harbige et al. 2000), sarsaparilla (*Smilax officinalis*), and eleuthero (*Eleutherococcus senticosus*) (MacDonald, R. 2013).
- **Antidepressant activity** has been identified in St. John's wort (*Hypericum perforatum*) (Wurglics and Schubert-Zsilavecz 2006), Siberian rhodiola (*Rhodiola rosea*) (Weil 2013), and ashwaganda (*Withania somnifera*) (Bhattacharya et al. 2000).
- **HIV antiviral activity** can be found in European boxwood (*Buxus sempervirens*) (NYU Langone Medical Center 2013b), bitter melon (*Momordica charantia*) (Puri et al. 2009), and turmeric (*Cucurma longa*) (Araujo and Leon 2001).
- **Anti-ulcerant activity** is found in licorice (Asha et al. 2013) and cat's claw (*Uncaria* spp.) (Sandoval et al. 2002).
- **Narcotic analgesic activity** (used here to denote a combination of sedative and analgesic properties, not a scheduled drug) is found in bleeding heart (*Dicentra formosa*) and California poppy (*Eschscholzia californica*) (Moore 1992); Jamaican dogwood (*Piscidia erythrina*) (Syrian Clinic 2000); and wild lettuce (*Lactuca virosa*) (Wesolowska et al. 2006).

Additionally, many plant species contain hormone-like substances, including phytoestrogens, such as soy (*Glycine max*) (Albert et al. 2002), black cohosh (*Actaea racemosa*) (Viereck and Wuttke 2005), and wild yam (*Dioscorea* spp.), (Cheng et al. 2007). As naturally occurring estrogenic complexes, they are less likely to negatively affect aquatic organisms than are synthetic hormones (Wijekoon et al. 2013; Buhner 2002).

Lastly, in his book, *Herbal Antibiotics: Natural Alternatives for Treating Drug*

Bacteria, herbalist Stephen Buhner (1999) not only tackles the broader issues associated with antibiotic overuse and drug-resistant bacteria, he details several plant species that exhibit antibiotic — that is, antimicrobial, antibacterial, antifungal, and/or antiviral — activity. These include common thyme (*Thymus vulgaris*) (Marino et al. 1999), garlic (*Allium sativum*) (Abascal and Yarnell 2002), echinacea (*Echinacea* spp.) (Hudson et al. 2012), ecologically-sensitive goldenseal (*Hydrastis canadensis*) (Villinski et al. 2004), and South Asian turmeric (*Cucurma longa*) (Waghmare et al. 2011), among others. Importantly, again due to inherent chemical complexity, these and other botanical antimicrobials do not appear to cause drug resistance in bacterial pathogens. Further, a substance found in avocado (*Persea lingue*) appears to help reduce drug resistance when administered alongside pharmaceutical antibiotics (Holler 2012).

Many of the species listed here are low dosage, high potency, and drug-like as described earlier. However, despite highly publicized and sometimes contested safety issues regarding a few species — such as kava (*Piper methysticum*) (Teschke et al. 2011) — the prevalence of dangerous side effects from plant-based medicine is far lower than that of pharmaceuticals (Girard and Vohra 2011). Moreover, the range of constituents and actions contained in a single plant often makes it possible to achieve desired therapeutic effects through the administration of one plant at a time, known as using a *simple*, in place of the multiple pharmaceuticals that might have the same effect. For example, many diuretics are known to leach potassium from the body (Sheps 2011). Dandelion leaves (*Taraxacum officinale*) act as a diuretic as well as contain significant levels of potassium, making it possible to safely effect diuresis through the use of one plant rather than two pharmaceuticals (Clare et al. 2009). Even when a person uses multiple plant species without deliberate attention to blending, plant-based medicines are less likely than pharmaceuticals to interact negatively, partly because of their inherently more complex and fluid chemistry, and partly because many of them are gentler in their actions than pharmaceuticals (Castleman 2002:41). Nevertheless, as noted above, some herbs are much more potent and drug-like than others and these call for caution, especially when combined with pharmaceuticals (Miller 1998).

Additionally, plant-based medicines are highly accessible. As over-the-counter products, they do not require a prescription. While not as inexpensive as some generic

pharmaceuticals, they rarely cost as much as the most expensive name brand, prescription drugs. But they do require knowledge, and most medical doctors (MDs) have received very little training in botanical medicine (Girard and Vohra 2011). In contrast, naturopathic doctors (NDs) do receive extensive training in botanical medicine (Association of Accredited Naturopathic Medical Colleges 2013).

Although plant species may exhibit actions similar to those of the most commonly prescribed drugs without many of the attendant harms, herbs are still not widely used in mainstream healthcare. The reasons for this are complex.

Historical Hegemony in Healing

Since the beginning of the Common Era, Western healthcare — which, until only recently, was dominated by botanical medicines — has repeatedly moved through cyclical power struggles in which one philosophy or system would prevail until another system came into institutionalized dominance (Etkin 2008; Griggs 1997). This has been true since at least the time of Galen (AD 131-200), who served as the physician to Emperor Marcus Aurelius, wrote and taught extensively, and left a legacy, if only historically, that remains to this day. Living in both Alexandria and Rome, Galen had access to the medical philosophies of Greece, Rome, and Egypt as well as India and China. Building on the prevailing Greek system of four *humors* — a system that emphasized balance/imbalance of hot, cold, moist, and dry *energies* in categories known as choleric, melancholic, sanguine, and phlegmatic — Galen codified the known medicinal plants into an authoritative system that hindered introduction of new ideas, whether based on principle or evidence, for centuries (Temkin 1975).

To illustrate the hegemonic endurance of orthodoxies such as Galen's, and to demonstrate the difficulties that have often faced challengers of mainstream healthcare orthodoxies, it can be useful to consider Swiss-German Paracelsus, born Philippus Theophrastus Bombastus von Hohenheim just before the turn of the sixteenth century. With diverse exposure to medicine, chemistry, alchemy, metallurgy, and the hazards of the mining profession, Paracelsus developed strong views about the inadequacies of Galenic medical practices as well as the profit-driven motives of the apothecaries. As a result of his unconventional views, unusually broad exposure, and bold creative nature,

Paracelsus developed a medical practice that was as different from the norm as it was effective (at least at times). He particularly advocated the use of gentle nutritive plant medicines over the prevailing *heroic* methods of bloodletting and purging that were used for almost every ill. He also developed an interest in the use of small amounts of minerals, foreshadowing the concept of homeopathy. Due to his therapeutic successes, Paracelsus garnered a position as municipal physician and medical lecturer in which he gave lively lectures in the local language (rather than Latin), lambasting the Galenic tradition as well as the apothecaries. While students greatly enjoyed Paracelsus' lectures, his faculty and physician colleagues did not. Soon he was forced to leave the position. In his remaining years, he traveled, treated poor patients, carried out "alchemical" experiments, and wrote a body of literature that was often oversimplified and sometimes misunderstood by those who followed (Griggs 1997; Debus 1993; Morris 1990).

Because of his interest in mineral-based medicines and his belief in the idea of an active principle in plant medicines, Paracelsus is remembered largely as "the founder of chemical pharmacology, the patron saint of the drug companies" (Griggs 1997:49). However, his ideas were rooted in local folk medicine. For example, he did not subscribe to a *humoral* approach to healing or to generalized use of heroic evacuations. He advocated evidence-based matching of plant or mineral medicines to specific diseases and symptoms, and was very attentive to dosage and efficacy. Nevertheless, in many ways, Paracelsus in the sixteenth century became the "poster child" alternative to Galen's centuries-old hegemony as well as the harbinger of a new hegemony that would ultimately involve removing active constituents from the plants altogether in the form of drug medicines:

Like the modern critic of drug therapy, Paracelsus inevitably found himself up against the vested interests of big business. Just as cancer today has been called an 'industry' since it keeps so many thousands employed in the pharmaceutical companies, so in the early sixteenth century there were plenty of merchants and quacks making what could literally be called a killing out of the prevalent plague of syphilis.... (Griggs 1997:44)

Despite Paracelsus' aversion to extreme and heroic treatment measures, they persisted in Europe and became common in the United States well into the twentieth century. The story of George Washington's demise in 1799 after repeated sessions of

bloodletting — a still common practice at the time, along with purgatives, mercury-laden calomel, and leeches – and the ultimate *deliberate* loss of about one-third of his blood, reveals the excessive and dangerous nature of many of the prevailing healthcare practices (Morens 1999). As anthropologist and biologist Nina Etkin (2008:82-83) states in *Edible Medicines: An Ethnopharmacology of Food*:

Informally, humoral theory still underpinned the structure of nineteenth-century European and U.S. medicine. Illness continued to be viewed systemically rather than discretely. In fact, regular physicians were suspicious of empiricism and regarded claims of specific therapy as quackery... [until] the vision of a complex integrated body, in which blood communicates among tissues and organs, closed the intellectual door on humors.

A new doctrine of disease specificity based on *germ theory* in the late nineteenth century shifted the paradigm of illness from one of imbalance within a holistic system (albeit with no real understanding of how that system actually worked) to illness as the result of a specific external agent. Supremacy of the germ theory ushered in the age of antibiotics in the early twentieth-century. With this, and with the discovery and isolation or laboratory synthesis of other pharmaceutical drug agents, mainstream medicine began its turn away from botanicals (Estes 1996:139). For example, the official United States Pharmacopeia published in 1916 listed approximately 300 medicinal plant species. By 1925, that list was down to about 200; by 1950, about 50; and, in 1975, only about 25. This reduction in officially recognized botanical medicines took place over a period of time when technology promised to remedy all shortcomings of life, including illness. Plants appeared to no longer be needed; the laboratory would suffice. As described by University of Massachusetts Amherst professor of agronomy and plant genetics Lyle Craker (2007:249):

The American concept of medicine had evolved from a collection of plant materials with a mixture of constituents to a medication containing only one chemical formula (Craker and Gardner 2005). The collection of laws and regulations, originally developed to protect the public from worthless health products, unsanitary manufacturing practices, and unscrupulous sales people, limited access to phytomedicines and medical practitioners that used phytomedicines.

The Medicinal Garden at the University of Washington illustrates this trajectory of changing healthcare values. Established in 1911, the one-and-a-half acre garden was originally under the purview of the Pharmacy Department. In 1940, the garden was thriving with eight acres and ten gardeners. However, as interest in botanical medicine declined, so too did the Pharmacy Department's interest in maintaining the garden. Severing its ties entirely in 1980, the Pharmacy Department turned the garden over to the Botany Department, where it languished without a maintenance staff. In 1984, a volunteer organization, The Friends of the Medicinal Herb Garden, was established to “preserve, maintain, and improve this *historical garden* [emphasis added] for all to visit” (Pettis 1997). While the now two-and-a-half-acre garden continues to be cared for by volunteers, it has never resumed its vital role as a source of medicine or a support to the Pharmacy Department.

Several themes regarding the absence of plant medicines from Western mainstream healthcare emerge from these historical considerations. Whatever the prevailing hegemony might be — Galenic, humoral, heroic, alchemical or pharmaceutical — a tendency exists in mainstream healthcare to limit the possibility of alternative views and systems. In the case of pharmaceutical drugs vis-à-vis plant-based medicines, increased specificity coupled with the propensity for hegemony of prevailing orthodoxies has helped to render non-specificity or holism problematic. This has been manifested in the complications associated with the legal classification of herbs in the United States.

Classification: Herbs as Dietary Supplements

One reason that herbs remain a subordinate part of mainstream healthcare in the United States is that herbs are defined, classified, and regulated differently from drugs. The word drug derives from the French word, *drogue*, meaning a plant. However, a drug, according to the Federal Food, Drug and Cosmetic Act, 2006 Edition, is defined as any article, other than a device, that is “intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease” as well as any article, other than food, that is “intended to affect the structure or function of the body” (U.S. Food and Drug Administration 2011: on-line). The Act requires that drug manufacturers provide evidence of their products' efficacy and safety. On average, this involves 8.5 years of laboratory testing and clinical trials (aspects

of research and development), along with expenses that, if the company's product development failure rate is considered, range from \$4 billion to \$11 billion per drug (much more than the \$1 billion that the companies have commonly claimed) (Herper 2012). The company may then apply for approval from the U.S. Food and Drug Administration. Ultimately, the drug may or may not be approved for sale in the United States. Indeed, only about 0.1 percent of drugs that enter the research and development pipeline eventually enter the market (Clark 2013).

In contrast with pharmaceutical drugs, herbal medicines are legally classified as dietary supplements. As has been noted, they are considered *complementary or alternative* to the currently dominant use of pharmaceutical drugs. However, because of their increasing popularity among U.S. healthcare consumers, the FDA has found itself in the position of determining its own role, if any, in regulating the products that are part of this growing trend. This has not proven to be easy or clear. In 1994, Congress passed the Dietary Supplement Health and Education Act (DSHEA), which classified herbs as dietary supplements rather than drugs. As a result, herbal products cannot claim to prevent or treat a disease but can only make claims of "nutritional support." In other words, an herbal product cannot state that it helps prevent or treat colds and flu, but it can state that it "supports the immune system" or is for "respiratory enhancement." A series of updates through 2002 further clarified what is allowable in literature that might be associated with an herbal product. Specifically, the literature must (1) not be false or misleading, (2) not promote a particular manufacturer or brand, (3) offer a balanced perspective of relevant scientific information, and (4) be physically separate from the product(s) (Barrett 2007).

Some who disagree with the U.S. Food and Drug Administration's policies, however, argue that the burden of proving the safety and efficacy of herbal products is removed from the manufacturer, where it resides with pharmaceutical drugs, and is unfairly and unreasonably placed upon the FDA itself as well as on the general public. In other words, an herbal company can bring an herbal product to the marketplace and, only if complaints are registered due to a resulting ill effect, can or will the FDA research the product, its claims, and its effects, and potentially intervene in its sale. However, given FDA rules, herbal manufacturers are more limited than pharmaceutical companies in their

ability to educate the public about their products.

As it has been noted, common practice among pharmaceutical companies involves company representatives acting as educators in the process of marketing their products in ways that are often perceived as manipulative and even unethical. Further, despite FDA procedures and oversight of premarket drug approval, the need to improve post-approval monitoring has intensified (U.S. Food and Drug Administration 2012). In fact, the public has repeatedly found itself in the role of monitoring pharmaceutical drug safety, often through lawsuits. Examples of this pertain to specific statin/cholesterol drugs, diabetes drugs, antidepressants, acne medications, blood thinners, pain medication, gastrointestinal drugs, and dialysis treatment, among others (Mercola 2013; Drug Watch 2013).

Contamination and Adulteration in Herbal Products

Given the fact that herbal products are not classified as either food or drugs, the herbal industry occupies a gray area. While many companies act responsibly, such as Wise Woman Herbs, Herb Pharm, and Herbalist and Alchemist, Inc. — all of which are members of the American Herbal Products Association (AHPH), which published the *Botanical Safety Handbook: The definitive safety guide for manufacturers, healthcare providers, regulatory agencies, researchers and consumers of herbal products* — occasionally others do not. This has led to problems such as the presence of contaminants and adulterants in some herbal products (World Health Organization 2007a; World Health Organization 2004a).

One recent review of 26 studies revealed that many herbal products imported from India and China contained such contaminants as dust, pollen, insects, rodents, parasites, microbes, fungi, mold, toxins, pesticides, toxic heavy metals and/or prescription drugs (Posadzki et al. 2013). While fewer incidents of contamination and adulteration have been found in North American products, accidental or deliberate contamination and/or fraudulent representation have remained a documented issue since the early nineteenth century. More recent examples of such cases have included the misrepresentation of so-called wild red American ginseng; adulteration of *Echinacea purpurea* with Missouri snake root (*Parthenium integrifolium*), skullcap (*Scutellaria*

lateriflora) with American germander (*Teucrium* spp.), and bilberry (*Vaccinium myrtillis*) with a variety of species (Posadzki et al. 2013; Foster 2012; Foster and Blumenthal 2012; Foster 2011; Clare et al. 2009). These and other examples of adulteration and contamination have prompted three nonprofit organizations — the American Botanical Council (ABC), the American Herbal Pharmacopoeia (AHP), and the University of Mississippi’s National Center for Natural Products Research (NCNPR) — to collectively initiate the Botanical Adulterants Program, which is aimed at educating members of the herbal and dietary supplement industry about ingredient and product adulteration. The program focuses on both accidental contamination and intentional adulteration (American Botanical Council 2011).

Sometimes product adulteration has led to erroneous conclusions about the safety of an herb that have, in turn, led to legal actions. Kava (*Piper methysticum*) offers a case in point. Kava has a centuries’ long, culturally rooted, history of safe use as a calming nervine and anxiolytic among South Pacific Islanders. After Kava entered the global market, however, incidents of liver toxicity began to occur. As a result, several countries banned kava products, negatively impacting traditional economies that had long relied on kava exports. So significant were these impacts that the World Health Organization undertook an investigation that led to the following observations and recommendations:

Before the recognition of hepatotoxicity, European countries traditionally adhered to the use of peeled kava rhizomes, which were well tolerated and failed to cause toxicity. Rhizomes are clearly defined as the part below the stems and above the roots. This excludes stems, leaves, and aerial adventitious roots with hepatotoxic properties. Adherence to traditional processing methods (e.g., water-based solvents) and traditional plant parts (e.g., peeled rhizome) was not always maintained... To advance current research and the potential re-introduction of kava to restricted countries, *going back to the traditional usage...is recommended* [emphasis added]. (Teschke et al. 2011:6-7).

In 2007, the World Health Organization also compiled a document called, “WHO Guidelines for Good Manufacturing Practices (GMP) for Herbal Medicines.” In the same year, the U.S. Food and Drug Administration (FDA) finalized its own Current Good Manufacturing Practices (cGMP) for dietary supplements, which came into effect in 2010 and applied to such dietary ingredients as vitamins, minerals, and botanicals. The goal of

the law was to further ensure a safe and consistent set of manufacturing, packaging, storing, and labeling procedures that would help implement the DSHEA of 1994. These included cleanliness standards, prevention of adulteration, requirements for detailed written procedural documentation, implementation of lot numbers for batches of raw materials, and quality control standards. Through this, the new laws sought to ensure that product contents, purity, and potency were as claimed. Through this, also, the FDA increased its own role in inspection of manufacturing facilities and monitoring of labeling. While some exemptions are possible, the rules apply to all manufacturers and distributors of botanicals in the United States (U.S. Food and Drug Administration 2010). According to then Commissioner of Food and Drugs, Andrew C. Von Eschenbach, “This rule helps to ensure the quality of dietary supplements so that consumers can be confident that the products they purchase contain what is on the label” (U.S. Food and Drug Administration 2007: on-line).

Measuring Herbal Efficacy: Food or Drug?

Plants are complex living organisms. Arguments abound about which types and sources of information provide sufficient evidence of efficacy for plant-based medicines (Clare et al. 2009; Bent 2008; Mosihuzzaman and Choudhary 2008; Firenzuoli and Gori 2007; Tan et al. 2007; World Health Organization 2002). Pharmaceutical drugs consist of single chemicals that are quantifiable to the level of molecular structure and are reproducible. Standards of evaluation for plant-based medicines are drawn from drug models wherein evidence must typically consist of laboratory assays and/or clinical trials of varying sizes and structures (Schulz et al. 2001). While traditional use within Western herbalism or within other long-standing cultural contexts is sometimes considered, its merits are frequently viewed as limited. No formal process of evaluating these combinations of evidence exists in the United States, unlike other countries such as Germany (American Botanical Council 1999a, 1999b), where the Commission E, established in 1978, developed a protocol for the review and approval of herbal products with longstanding and well-documented traditional use and, by 1995, had evaluated 360 medicinal plant species (American Botanical Council 1999b).

Others argue that, since many medicinal plants are gentle, food-like, and often

even used as food, working with living plants can expand the concept of medicine to embrace food itself, along with the nourishment it provides. This is consistent with the classification of herbal medicines as dietary supplements, suggesting that plant-based medicines can enhance one's dietary — or nutritional — intake, and that the very concept of medicine in the context of living plants may have more in common with food than with drugs. As stated in the report from the U.S. Senate Committee accompanying Senate Bill 784 that passed as the Dietary Supplement Health and Education Act of 1994 or DSHEA:

Unlike many drugs, the role of herbal dietary supplements is to enhance the diet by adding safe and natural plants and their constituents to support and protect bodily functions and processes. Containing combinations of numerous naturally-occurring plant chemicals, herbs generally act in a wider, more general, less specific way than most single-ingredient pharmaceutical drugs. Their actions are more 'gentle' than conventional medicines and work usually in more long-term ways (U.S. Senate 1994:online).

This commonality with food may also extend beyond gentle and food-like plants to those that are more powerful and low dose because of the complex and variable constituents they contain as living plants. I propose that the concept of dietary supplement need not focus exclusively on manufactured *nutriceuticals* with isolated and standardized constituents. Nutrient-rich food plants, culinary herbs, and plants with therapeutic agency, especially in the form of extractions, can generally be considered dietary enhancement or supplementation. Further still, elements such as tending, harvesting, making medicinal applications, and sharing them have also been argued to contain medicinal agency in the form of exercise, engagement with nature, engagement in the healing process, and human interaction (Phillips and Phillips 2005). In these instances, a number of therapeutic agents may be at work, only one of which is the effect of the primary bioactive constituents. While it is useful to remember that efficacy can be surmised subjectively, evaluated holistically, and measured with control and specificity, methods emphasizing specificity are dominant with regard to pharmaceutical drug medicines and, as a result, have been applied to herbal medicine, despite the fact that herbs are classified as dietary supplements.

Ecological Harms of the Herbal Industry

The global market for medicinal plants has placed enormous pressures on habitats and plant populations. Unsustainable overharvest of such species as trillium (*Trillium ovatum*), goldenseal (*Hydrastis canadensis*), bloodroot (*Sanguinaria canadensis*), sundew (*Drosera* spp.), black cohosh (*Actaea racemosa*), eyebright (*Euphrasia* spp.), lady's slipper (*Cypripedium* spp.), and lomatium (*Lomatium dissectum*) has placed them on the "at-risk" list of United Plant Savers (UpS), an organization dedicated to (1) increasing the abundance of medicinal plants that are threatened due to popularity and (2) reduction of habitat and range (United Plant Savers 2012).

Even recommendations to replace wild harvest with large-scale cultivation of impacted species have ecological consequences. Among them are potential reductions in genetic diversity through selection of desired traits for agricultural intensification, and the effects of pressures to take more "wild" lands out of undeveloped status and place them into agricultural service, thus limiting habitat opportunities for and fulfillment of ecological functions of non-targeted species (Tiwari and Tandon 2004).

Cultural Harms of the Herbal Industry

Another major area of concern is appropriation of traditional Indigenous knowledge from all over the world into mainstream medical systems in the process of identifying and ultimately manufacturing, selling, and profiting from herbal products. Over the last few decades, increasing disapproval has been expressed by Indigenous people who have witnessed their knowledge, often centuries old, drawn into the global marketplace with little or no compensation returning to the communities of origin (Nazarea 1999). Even when compensation is attempted, difficult negotiations can result that yield complicated and contentious arrangements between traditional communities and external stakeholders, such as in the case of Hoodia (*Hoodia* spp.) involving the San of South Africa (Young and Brunk 2012). Sometimes disruptions *within* communities can result when one family or individual shares community knowledge with outsiders, and then decisions must be made within the community about appropriate forms of compensation and appropriate recipients. Sometimes, also, traditional knowledge has been obtained and patented after only slight modification or narrowed dissection, as in the cases of basmati rice (Subbiah

2004) and neem (*Azadirachta indica*) (Tuebner and Fisher-Lescano 2008), which could have limited access to and use of traditional plants and processes. In the cases of basmati and neem, appeals successfully revoked (most of) the patents but broader issues associated with exploitation of traditional knowledge remain, some of which underscore the conceptual conflicts between plant-based medicine and pharmaceuticals previously discussed.

Overgeneralizations about Herbal Medicine

An additional concern associated with the ambiguous role of botanicals in U.S. healthcare is overgeneralization about safety. As mentioned previously, few if any medical doctors are thoroughly trained in the actions, applications, and cautions associated with herbal medicines, as are naturopathic doctors (Wetzel et al. 2003; American Botanical Council 1999b). As a result, MDs are seldom able to advise patients accurately and fully about the potential benefits and risks of using specific herbs (Graham and Blaiss 2000). This may foster reluctance on the part of patients to disclose to their doctor any herbs they have self-selected to use, which can in turn lead to potential herb-drug interactions if the patient is also using pharmaceuticals (Seeker 2011). Related to this are two opposite extremes in public perception. One is that botanicals, being “nutritional supplements” and *natural*, are all inherently safe. The other is that botanicals, often dismissed by allopathic physicians, are inherently *unsafe*. In both cases, with either generic confidence or generic skepticism, confusion about the use of botanical medicines prevails among both U.S. healthcare providers and U.S. healthcare consumers (Renée 2010; Schulz et al. 2001; Duke 1993).

In Summary: Limitations of the Herbal Industry

The previous section has described ways in which the herbal industry can provide a partial solution to harms associated with pharmaceutical use — *pharmaceutical iatrogenesis* — in the United States. When appropriate, replacement of pharmaceuticals with herbal products can potentially prevent *structural* harm by reducing the potential of pharmaceutical toxicity in waterways and slowing the development of antibiotic resistance among bacteria. On the *systemic* level, use of herbal products can potentially circumvent ethical concerns about the way in which physicians are educated about and

pressured to prescribe pharmaceutical products, along with financial issues about the enormous costs involved in research, development, and marketing that are ultimately passed on to consumers. On the *specific* level, use of herbal products can potentially reduce biomedical concerns about the appropriateness and safety of the pharmaceuticals prescribed to patients and offered to consumers.

However, as has been shown, the herbal industry is limited in the potential solutions it offers to pharmaceutical iatrogenesis. The reasons for this include: (1) powerful pharmaceutical resistance and hegemony; (2) classificatory confusion over whether herbs are more drug-like or food-like; (3) limited and sometimes unsuitable criteria for evaluation of safety and efficacy of herbal products using a pharmaceutical drug model; (4) inadequate educational programs and resources resulting in overgeneralizations about the safety and efficacy of herbal products; (5) occasional product adulteration; (6) ecological harms of large scale herbal production and harvest; and (7) cultural harms related to appropriation and biopiracy of traditional herbal knowledge and plants. I propose that these limitations do not pertain as much to the plants or the plant-based medicines *themselves* as to the social, economic, and political contexts — such as hegemony, classification, evaluation, education, adulteration, appropriation, and marketing — of their creation and use. I further propose that Community-Based Herbalism, the central focus of this dissertation, has the potential to address the limitations of the herbal industry, and thereby contribute to a reduction of pharmaceutical iatrogenesis in particular and to a reduction of harm in healthcare in general. Community-Based Herbalism will now be defined.

Community-Based Herbalism Described

What specifically *is* Community-Based Herbalism and how does it differ from the industrial herbalism that is so evident in the marketplace? First, *herbalism*, as I am using the term, involves (1) the study and/or practice of using the medicinal attributes of plants, and (2) the practices that are associated with it such as accessing, processing, preparing, and disseminating the herbs as well as potentially disseminating knowledge about them. So far, this chapter has primarily considered herbalism in the context of the herbal

industry. In Community-Based Herbalism, the locus of activity emphasizes community over commerce. While community can be defined variously, some of its salient attributes include an interacting group or population of individuals — potentially both human and other-than-human — who live near and/or frequently interact with one another. When the practice of herbalism is based in community, several features can emerge:

- Sourcing of plants is predominantly local. Rather than on the purchase of non-local manufactured products, emphasis is placed on multiple means of accessing local, gentle, widely available, living plants, sometimes even in the form of invasive weedy species. Various types of knowledge are required for this, such as knowing how to identify plants (botanical knowledge), knowing where and when plants grow (ecological knowledge), and knowing how to grow and harvest plants (horticultural knowledge).
- Individuals increasingly recognize the importance of acquiring basic understandings about how their bodies function. They also realize that they are capable of a level of basic understanding that enables them to recognize, treat, and prevent common, self-limiting conditions and minor injuries with plant-based medicines that they, or their friends or neighbors, have prepared. Perspectives on health and how it can be achieved potentially expand.
- Concepts of medicine broaden as plants-as-food and plants-as-medicine are seen to occupy a conceptual continuum (I call it a “potency spectrum”), from (1) edible to (2) high-dose/benign/gently therapeutic to (3) low-dose/drug-like/very potent. This enables a practical model for achieving safety, even as knowledge is developing.
- The effectiveness of medicinal plants can be recognized to occur in multiple ways and on multiple levels, from the energetic to the chemical. This diversifies concepts of efficacy and welcomes cultural narrative.
- The scale of human interaction is smaller than with industrial herbalism, and the frequency is typically greater. More often than with purchased pharmaceuticals or manufactured herbal products, people talk to each other about what to grow, when and how to harvest it, how to prepare it, and when and how to use it. Frequently, people garden and harvest and make medicines together. Knowledge and skills are shared among families and friends as well as across ages and generations.
- Engagement with living plants in living ecosystems generates experience-based

inputs about environmental impacts in terms of both creating herbal products and the type of waste generated from preparing and using the products. For example, complex, whole, plant-based antibiotics that are excreted after human ingestion can be readily and safely re-absorbed back into the ecosystem and, thereby, maintain the health and safety of waterways. Also, the overall carbon footprint resulting from the preparation, use, and disposal of medicines can be reduced. Healthy behaviors and lifestyles are fostered through gardening and harvesting, which also contribute to disease prevention. Healthcare costs are reduced, while access to culturally inclusive healthcare is increased.

- Everyone is supported in the practical possibility of the activities of growing, harvesting, making, and using simple plant-based medicines if they so choose. In the absence of that choice, those who engage in herbal activities are supported by those who do not or cannot through various means such as trading for or purchasing the plant-based medicines they make.
- Cultural and family traditions can shape the selection of plant species and the mode of preparation and use.
- Individual, social, and environmental health are understood to be fundamentally intertwined. This view of health and illness is based on the experience of being in relationship with plants, with place, with self, and with one another.
- Likewise, different dimensions of health and healthcare are integrated through the possibilities of using specific plants that can (1) support *specific* health conditions, (2) reduce *systemic* social and economic barriers to healthcare access through their ready availability, and (3) intensify community interaction, awareness, and empowerment with regard to confronting *structural* violence.

Finally, the concept of *relationship* is central to Community-Based Herbalism. Certain types of relationships characterize Community-Based Herbalism by virtue of its rootedness in place and community. These relationships differ substantially from the relationships inherent in the purchase and use of both pharmaceutical drugs and commercially prepared herbal products. The concept of relationship is explored in Chapters 6 through 8.

Chapter 4. Situating the Primary Fieldwork

Cultural, Ecological, and Educational Contexts

A bundle of dried, peeled devil's club (*Oplopanax horridus*) hangs outside the door to the Smokehouse. Inside, painted traditional wolf designs dress the walls above tiered wooden benches. Two wood burning stoves, one at each end of the long dirt floor, make it comfortably warm inside, even cozy. Bundles of western redcedar (*Thuja plicata*) and salal (*Gaultheria shallon*) tied with colorful raffia, dress the posts. Rain pounds the metal roof. Everything comes into focus as one's eyes adjust to the darkness.

I have had the privilege as a non-Indigenous woman to attend numerous events in this traditional Smokehouse on the Skokomish Indian Reservation, located on Hood Canal in northwestern Washington State. These events have included winter gatherings of the *seowin* Society — a traditional religious society — along with weddings, naming ceremonies, memorials, special class sessions for my students, and the First Food Ceremonies that take place each autumn. Here a special plate is presented to each person seated at the long table of honor. Each plate contains a small serving of foods that represent the shellfish, the finned fish, the birds, the four-legged animals, the root plants, and the berries. The food is accompanied by a small cup of water. Together, everyone sings a prayer of thanks and then partakes in, first, the water, then each type of food, one at a time. This simple ceremony generates a powerful recognition of and gratitude for the sustenance nature provides.

About a half hour to the south is The Evergreen State College, located in Olympia, the capitol city, on the southern terminus of Puget Sound, now known as part of the Salish Sea. The college is situated on a remarkable 1,000-acre campus that is predominantly forested. Evergreen offers a unique academic structure of interdisciplinary programs that are halftime (eight credits) to fulltime (sixteen credits) and typically team-taught by two or more faculty members from different disciplines. Courses for 2-6 credits are offered as well. I began team-teaching here in 1988 with botanist Al Wiedemann and, for many years, we offered an interdisciplinary summer course called Plants in Human

Life. Then, in 1994, I began teaching four quarters per year as an adjunct faculty member, and have taught halftime to fulltime since. Most of the fieldwork, autoethnographic reflexivity, and ethnographic research that inform this dissertation are drawn from these approximately twenty years of teaching.

Significantly, Evergreen was the first college in the United States to build a Longhouse on its campus. Given a Lushootseed name that translates to “House of Welcome,” the Evergreen Longhouse was the vision of Mary Ellen Hillaire, a Lummi educator who “initiated Evergreen’s Native programs in 1972 in order to make Evergreen a hospitable place in higher education for cultural literacy” (The Evergreen State College 2013a). However, the vision for the Longhouse was met with resistance fueled largely by racism (Upstream Products 2005). It did not become a reality until 1994 when another Indigenous woman, this time a Master’s student, Colleen Ray (Jollie), took up the mission, and succeeded in rallying enough support twenty years after the idea was first introduced. As a faculty member on campus, I was present and witnessed the construction of the Longhouse, its dedication, and the hopes it represented for strengthening Indigenous values, history, and cultural expression within a Western educational institution. Now under the direction of Tina Kuckkahn-Miller, “the Longhouse provides the opportunity to build a bridge of understanding between the regions' tribes and visitors of all cultures...and...to promote indigenous arts and culture” (The Evergreen State College 2013b). While the Evergreen Longhouse is not a fully traditional building as is the Smokehouse on the Skokomish Reservation, it houses reservation-based academic programming and is utilized by local Indigenous communities for Tribal functions, along with providing classroom space for the college.

The forest of the Evergreen campus, which surrounds the Longhouse on three sides, gives a flavor of the predominantly coniferous forests that typify Western Washington in which shade-tolerant western hemlock (*Tsuga heterophylla*) has been described as the climax species. Western redcedar (*Thuja plicata*) occupies equally shady but more moist sites, and faster growing, shade intolerant Douglas-fir (*Pseudotsuga menziesii*) occurs on drier sites. Hardwoods such as pioneering red alder (*Alnus rubra*) and bigleaf maple (*Acer macrophyllum*) are less common overall, although they are locally abundant on various sites. This contrasts with the forests of the Eastern United

States where deciduous hardwoods are dominant and conifers more infrequent (Temperate Deciduous Forest Biome 1974).

Western Washington's natural history is best understood from a geological and topographical standpoint. Bounded on the west by the Pacific Ocean, the region receives moist air from offshore, maintaining a relatively mild climate during both winter and summer. Additionally, the Cascade Mountain Range (including Mt. Rainier rising to just over 14,000 feet) runs north and south roughly 90-125 miles from the coast, and lifts the ocean flows that then cool and drop their maritime moisture. As a result, parts of Western Washington receive 140 to 167 inches (12 to 14 feet) of rainfall yearly, classifying these areas as temperate rainforest (National Park Service 2013).

Western Washington is not homogeneous. The Olympic Mountains, consisting of uplifted, submarine basalt flows, create rain shadows to their east (including the greater Seattle area). The depressions now filled by the southern Salish Sea (Puget Sound) and Hood Canal remain testimony to the most recent glaciation that occupied the region and reached its maximum extent about 15,000 years ago. As they melted, the glaciers carved out the Black River, which fed the once mighty Chehalis River. The Chehalis, in turn, carved deep into the smaller coastal mountains. The final Vashon Stade of the Fraser glaciation also left a patchwork of other landscape features, some of which look superficially like the prairies of the Mid-Western United States. However, they tell an important story about the land stewardship of the Indigenous people of the region.

Anthropological doctrine long held that the Indigenous people of the Pacific Northwest were hunter-gatherers, able to develop and maintain their cultural sophistication as a result of the natural abundance of northwest flora and fauna (Matson 1995; Ames 1994; Kruckeberg 1991). As plant ecologist Arthur Kruckeberg (1991:402) asserted in *Natural History of Puget Sound Country*, people here benefited from and avoided depleting the floristic plenty as a result of geographical good fortune coupled with low populations and primitive technology:

The sentimental view that coastal Indians were kind to the land, I would reject. In its place I would advance the view that they had no need to disturb in any substantial way their surroundings on land. In this view, their failure to overexploit the forest ecosystem was effortless and without intent. With no need to till the land, there was no motivation to evolve any ethic of land

conservation –only a ‘détente’ existed, between the Indians and the impenetrable vastness of forest at their backs.

In 2000, however, Douglas Deur, then a doctoral candidate at Louisiana State University, removed some of anthropology’s blinders in his dissertation, *A Domesticated Landscape: Native American Plant Cultivation on the Northwest Coast of North America*. This document impressively and persuasively complicated the social and ecological portrait of Northwest Coast Indigenous people by demonstrating, through evidence that had been available for over a century, that both agricultural *and* gathering practices had long been present. These practices existed on a continuum ranging from simple gathering to “tilling” by digging, fertilization and pest control through fire technology, stone-bounded European-style gardens containing starch-rich geophytes such as springbank clover (*Trifolium wormskoldii*) and silverweed/cinquefoil (*Argentina/Potentilla anserina*), and even, over time, possible speciation through the disruptive selection resulting from transplant isolation, which has been proposed as a possible origin of great camas (*Camassia leichtlinii*) (Culley et al. 2013; Tomimatsu et al. 2009).

Common camas (*Camassia quamash*), presumably the species from which great camas was “developed,” occurred in such local abundance that early explorers described camas-rich forest openings as oases. Naturalist David Douglas, for example, wrote:

Crossing the Coast range...we soon struck prairies on the Upper Chehalis river. Here...a very distinct group of flowers, still blooming in abundance, made it seem as if we had in the distance of a few miles reached an entirely new country... We rested a day at ‘Boisfort prairie,’...one of the most beautiful of the little prairies we meet, like oases, in this wilderness of forest. ...From February to July they look like gardens, such is the brilliancy and variety of the flowers with which they are adorned. The weary traveller, toiling through the forests, is sure to find in them game, or, at least, some life to relieve the gloomy silence of the woods (Harrod 1999:12-15).

Historically a member of the Lily family or Liliaceae (now placed in Agavaceae), camas has been especially important to Indigenous people because when processed properly, it is a rich source of glucose. When raw, the bulb contains inulin. When cooked at high enough temperatures over long enough periods in pit ovens, the inulin transforms to glucose. In a place and time devoid of cereal grains, the dietary need for energy-rich, locally available starches and carbohydrates was high. Camas was one of

the few sources of starch and by far the most regionally abundant. It has long been harvested in quantity and traded widely (Arnett, n.d.; Stevens and Darris 1999; Turner 1995). So strong was the belief of European-American explorers, naturalists, and settlers that floristic abundance in the Pacific Northwest was “natural,” it precluded the possibility that Indigenous stewardship practices not only avoided depletion of camas and associated species but also *enhanced* their abundance. This belief was fueled by other European American perceptions of Indigenous people, as discussed in Chapter 2.

Specifically, Deur made the case that, prior to European-American invasion, plant cultivation (as that term is now commonly defined), was an integral part of Indigenous environmental stewardship in the Pacific Northwest (2000:14). He cited extensive ethnographic, historical, archaeological, biogeographical, and contemporary physical evidence of a *cultivation complex* that incorporated several strategies and features. This evidence included various systems of ownership, social sanctions against depletion, and the presence of garden plots that were clearly outlined, usually with stone or wood. Deur argued that the plots that were managed with a range of techniques intended to promote the plants’ productivity, including (1) *tilling* or churning and sometimes mounding the soil; (2) *weeding* out competitive species; (3) intentionally or unintentionally *transplanting* plants from other locations; (4) *replanting* of plants to ensure future productivity; (5) *pruning* to stimulate new growth; (6) *reseeding* during harvest; and (7) *using fire* as an environmental management tool that provided both *fertilization* and *pest management* (Deur 2000:47-67; Johnson 1999; Krech 1999; Lewis and Ferguson 1999; White 1999).

The South Puget prairies, home to most of the local area’s common camas, have come to be emblematic of a dynamic between climate change and Indigenous observation, wisdom, and stewardship practice. As the Vashon Stade retreated after reaching its maximum about 15,000 years ago, it left behind an abundance of glacial till in the vicinity of its southernmost terminus about thirty miles south of Olympia. When the glacier began to melt and retreat, it deposited bits of this till here and there, creating a patchwork of well-drained soils that effectively mimicked the drier conditions of Eastern Washington. Various warm weather species established themselves in the “prairies” during the hypsothermal (a warmer climatic period roughly 5,000 years ago), which were

often immediately adjacent to forested areas with completely different soil and floristic compositions. Here these species were able to remain even after the climate began to cool. Camas, in particular, dominated many of the prairie habitats. As current climate conditions were reached, conifers that could tolerate drier conditions, particularly Douglas-fir, were able to also establish themselves in the well-drained areas. Since this encroached upon camas and other species, Indigenous groups all along the Northwest Coast implemented techniques to protect the prairie habitats, especially fire technology. They knew (and many still know) the best time to burn, and they knew (and know) how to control the fires. After European-American arrival and subsequent prohibition of controlled burns, the prairie habitats declined significantly (Boyd 1999; Kruckeberg 1991).

The new American settlers, often through government action, also forcibly curtailed other traditional Indigenous practices in the Pacific Northwest. Prohibitions included religious practices, the raising of children in traditional ways (including language, clothing, song, dance, arts, and story, which was controlled by forced placement in boarding schools) as well as access to “usual and accustomed” areas for subsistence hunting, fishing, gathering and horticultural practices (Wray 2002; Marr, n.d.; Harmon 1998). Some of this was accomplished by forced relocation of entire villages onto designated “reservations,” which typically were already occupied by other unrelated, sometimes unfriendly, village groups (Wright 2006; Wray 2002). Forced relocation has resulted in 29 federally recognized Indian Reservations in Washington State. In the area surrounding The Evergreen State College, these include the Confederated Tribes of the Chehalis Reservation to the south (a non-treaty Reservation), the Skokomish Tribal Nation to the northwest (created by the Point No Point Treaty in 1855), and the nearby Nisqually and Squaxin Island Reservations (both created by the Medicine Creek Treaty of 1854) (Northwest Indian Fisheries Commission 2013). In contrast, the names of many of the village groups who were relocated onto these reservations — such as the Sahewamish on Eld Inlet (Croes 2013) and the Steh-chass by Tumwater Falls (Rasmussen 2013) — have been largely forgotten.

Other more recent government actions that have affected the Indigenous people of Washington State include the so-called Boldt Decision in 1974, which effectively upheld

half of the fish harvest as a treaty right (Knutson 1987); a ruling in 1999, which affirmed the treaty right to access shellfish including on private property (Northwest Indian Fisheries Commission 2013; Anderson 1999); a 2009 out-of-court settlement between the Skokomish Tribe and Tacoma City Light to end a decades-old dispute over a hydroelectric project on the Skokomish River that had impacted fisheries and worsened seasonal flooding (Hagey 2009); and a 2013 lawsuit also brought by the Skokomish Tribe to reclaim access to traditional grounds for “hunting and gathering roots and berries” as guaranteed in the original Point No Point Treaty. The eventual outcome of this lawsuit will set important precedent for all Tribes’ access to, among other things, traditional plants (Dunagan 2013).

The Evergreen campus sits near what were once six village sites of the Sahewamish, speakers of a dialect of Southern Lushootseed, or Twelshootseed, which is part of the Coast Salish or Salishan language group. Other languages of the immediate region are Twana, to the northwest, and Upper Chehalis, to the south.

Among the Indigenous people of Western Washington — as well as other groups to both the north and south — the roles of cedar and salmon have been paramount (Hilbert 2013; Matson 1995; Ames 1994; Stewart 1984, 1977). Seven species of anadromous salmon (*Oncorhynchus* spp.) including trout and steelhead begin and end their life cycle in Western Washington freshwater streams. They make their way out to sea where they may spend two years or more, then return to the same redd in which they were born to spawn and die. Witnessing the fortitude and determination of these salmon journeying back up the rivers and streams to reproduce before dying is a powerful inspiration.

Also, throughout the region, multiple species of “cedar” are found, although they are actually in the Cypress family (Cupressaceae). These include incense cedar (*Calocedrus decurrens*) and Port Orford cedar (*Chamaecyparis lawsoniana*) to the south, and Alaska yellow cedar (*Callitropsis/Chamaecyparis nootkatensis*) to the north and at higher elevations in the middle range. Most common, however, is western redcedar (*Thuja plicata*). Utilized extensively and deeply revered, this massive tree has been considered both the “mother” and backbone of traditional culture. It has provided straight-splitting, rot-resistant wood for houses and bentwood boxes used for both storage

and cooking (ceramics were not traditionally present in this area), roots for tightly woven baskets used even for carrying water, trunks for welcome figures and for dugout canoes that provided the principal means of transportation, and bark that could be woven into storage baskets, hats, and clothing, and even shredded into diapers or twisted into incredibly strong rope (Turner 2010; Stewart 1984). Additionally, the withes have been used medicinally for their antibacterial, antifungal, and immune-stimulating actions, although the thujone content calls for caution, and the oil has been tested as an antimicrobial decontaminant for airborne pathogens in buildings (Plants for a Future Database; Hudson et al. 2011).

A Tale of Two Gardens: Evergreen Longhouse and Skokomish Nation

Starting the Longhouse Ethnobotanical Garden



The Idea

The architectural plan for the Longhouse building at The Evergreen State College, designed by Native American architect Johnpaul Jones, originally included design plans for exterior landscaping. However, Evergreen's funding fell short, and plans to install any landscaping whatsoever were dropped.

Around the time the Longhouse was being constructed, while examining and teaching the nature, history, and complexities of ethnobotany, I was also “linking theory with practice” — one of Evergreen’s five pedagogical foci. For example, my students and I were helping to install an ethnobotanical garden at the Washington State Capital Museum. At the event celebrating completion of that garden, Colleen Ray and I spontaneously experienced the same inspiration. “Wouldn’t it be perfect to have an ethnobotanical garden at the Longhouse?” we both wondered aloud. In that moment, the idea gripped me. It felt as if manifesting this garden was part of my destiny.

At the time, in 1994, the site surrounding the new Longhouse was mostly bare soil. A few sword ferns (*Polystichum munitum*) had been salvaged from the area before the bulldozers came in, and then replanted just in front of the entrance. A few big-leaf maples (*Acer macrophyllum*), located at a safe distance, were spared. Otherwise, the first landscape that flanked this new beautiful cedar home consisted primarily of mud.



The Beginning

The original Longhouse landscape design that was dropped due to lack of funds consisted of numerous specimens of a relatively small number of native species that included 43

cascara (*Frangula/Rhamnus purshiana*), 37 tall Oregon grape (*Mahonia aquifolium*), and 26 red-osier dogwood (*Cornus sericea*). Building upon the Jones and Jones design concept, I proposed to substantially expand the number of species to include many of those with traditional cultural significance to the Indigenous peoples of the region. I met with a landscape architect from Jones and Jones as well as with various individuals on campus. Naively, I thought my offer to obtain plants and install a type of Longhouse landscape based on cultural integrity and educational vision, would be embraced enthusiastically by both academic deans and facilities' personnel. After all, it would save the college tens of thousands of dollars as well as provide a learning resource for the campus. It was not, however. The legacy of resistance to the Longhouse and what it stood for seemed to continue. Finally, however, after more than a year of strategizing and negotiating, permission was granted.

Implementation began in the spring of 1995. We had enthusiasm, energy, and a plan. We did not have money, or, at least, not much of it. An Evergreen colleague had established a relationship with the Sierra Club that opened the door to a very small grant. So, for economic, ecological, and educational reasons, we began to obtain plants through "salvaging" from locations where the vegetation would soon be lost due to development. Initially, this involved training and guidance from the Thurston County Plant Salvage Project, a branch of the Washington State Cooperative Extension Agency. In the beginning, nearly all of the plants (about 95%) were obtained through salvaging.

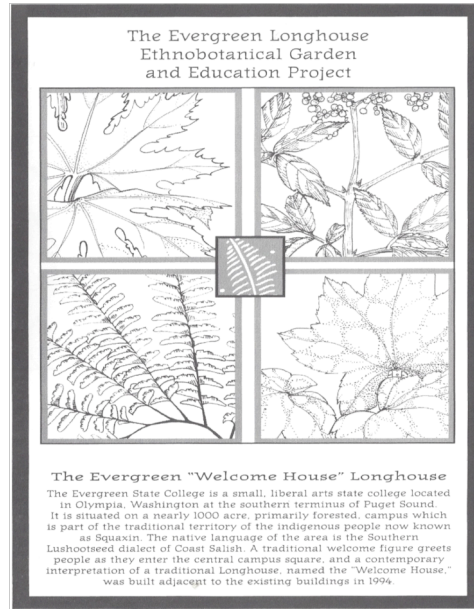
The Garden Itself

Immediately, quarterly salvaging and planting activities became a regular aspect of my teaching. They provided rich opportunities for my students to develop plant identification skills including winter twig identification, observe and study plant ecology, and practice native plant horticultural techniques. After plant salvaging sessions, I remember vividly how the mostly bare spaces in the garden would look with pots and bags of plants set out that I had carefully and thoughtfully placed. I loved the intimacy this activity enabled me to feel with both the individual plants and the space. Gradually, I began to see the diversity of micro-topography surrounding the Longhouse. For example, in one location was a lightly shaded slope that rolled gently into a seasonal creek; in

another location, a steep, nearly vertical rise. Soon I began to realize that this diverse garden space offered the potential for illustrating various micro-habitats — and their traditional cultural relationships — that occur in Washington State.

As the Garden Grew

As the garden grew, it became evident that it needed more energy and time than I could put into it personally, or than students could put into it through supplemental academic activities, to move the garden along at a faster pace. It also became clear that, if attention was not paid to the garden in the summer (such as weeding and watering), the progress made during the academic year would be seriously compromised. As a result, I requested funding for work-study gardening assistants; to varying extents, it was provided. These gardeners often put their heart and soul into the garden, sometimes staying in their role for two or more years. Sheri Lubin, for example, researched the potential for development of ethnobotanical gardens through plant salvaging in other regions of the United States. From this she created a poster presentation that was accepted at the 1998 Society of Ethnobiology Conference at the University of Nevada in Reno. Many other projects and activities took place in those early years as well. Under the direction of local software developer John Henriksen, we developed a relational database of plant information. We also created formal plant monographs, plant illustrations, materials for garden tours with elementary students, the beginning of a web page, and a brochure:



These projects found support in an unexpected grant received as the result of a paper I presented at another Society of Ethnobiology Conference that described how I was incorporating ethnobotanical gardens into my teaching at Evergreen.

The Garden's Mission

I felt strongly that the garden around the Longhouse had tremendous potential to serve diverse communities. In thinking carefully about this, the garden seemed to have five primary purposes, which I described as follows:

- 1) To preserve, honor, and better understand native plants of the Pacific Northwest.
- 2) To acknowledge and better appreciate the relationship between the Indigenous people and the native plants of the Pacific Northwest.

While a garden of this kind would not have been traditional in this region, nor would many of the plants present in the garden have occurred at a traditional Longhouse site, the location of the garden draws attention to how deeply and fully Indigenous people have understood their plant relatives and with what great care they have interacted with them. This purpose supports the type of learning that situates understanding of traditional plant use within larger cultural contexts.

- 3) To restore and enhance the landscape at the Longhouse.

- 4) To provide opportunities for learning related to Pacific Northwest native plants and people-plant relationships.

This purpose seeks to address the needs and interests of individuals and groups, primarily but not exclusively, within the Evergreen academic community. The plants themselves, along with their name signs, enable identification and language learning. The ethnobotanical library and database also provide students with a repository for botanical and cultural research, garden process documentation, and educational/informational materials. These, in turn, provide resources for other students to carry out their own research.

- 5) To provide opportunities for interdisciplinary, inter-community, and inter-cultural collaboration.

It was particularly important to me that this garden would respond to the needs and interests of local Tribal communities.

Then Came Skokomish: Gifts of the First People Garden

The name Skokomish is based on the Twana word *sqWuqWu'b3sH* meaning “People of the River.” At approximately seven square miles (almost 5,000 acres), the Skokomish Indian Reservation consists of only a small fraction of ancestral Skokomish lands on the Olympia Peninsula. Largely wooded and marshy, the Reservation occupies the Skokomish River delta that feeds into Hood Canal and its surrounding uplands. Lowlands, from sea level to forty feet, comprise sixty percent of the Reservation land. Steep side slopes that make access to the uplands difficult comprise about twelve percent. The Skokomish Tribe has approximately 800 enrolled members and a resident Indian population of 1200-1300. The unemployment rate remains at a constant high level and the median income is well below Federal Poverty guidelines (Wray 2002; Skokomish Indian Tribe 1991).

My friend, Willie Smyth, had served as Director of Folk Arts for the Washington State Arts Commission since 1991. He had introduced me to several Indigenous basket weavers and cultural leaders. Most importantly, he had introduced me to the man who would become my mentor and teacher for over ten years until he passed away in 2005. What an extraordinary privilege it was to be accepted by, and learn from, Gerald Bruce Miller — known as *subiyay* in the Twana language — Skokomish spiritual leader, healer,

and hereditary chief.

One day in 1994, I went to visit *subiyay* and told him how my students craved local, traditional plant knowledge but, at least in terms of literature, could only find it in such limited books as Erna Gunther's 1945 *Ethnobotany of Western Washington*. I felt that acquiring such knowledge from black-and-white pages between the covers of any book, especially one written by a non-Indigenous woman like myself, was inadequate at best. I explained that I wanted my students to experience something more alive and vital than this. I wanted them to gain a sense of the lives, generations, and wisdom *behind* that knowledge as well as the green, brown, messy experience *within* it.

"What," I asked *subiyay*, "could my students do to understand *reciprocity*? What could they do to give back to real people in real ways that are neither romantic nor sentimental but rather meaningful and truly useful?"

"Start a medicinal plant trail in the woods behind where our new health clinic is to be built," he answered, pointing, "over there beside my house."

To work on the medicinal trail project, *subiyay* sent me to someone who was part of the Skokomish community, someone who was close to him — his nephew Gregg Pavel, whose mother, Annie, was one of *subiyay*'s fourteen siblings. Gregg was working on his Master's degree at the time and thinking about a doctorate. He was also serving as the Tribe's Cultural Resources Specialist and was in charge of the extensive Tribal archives. Soon after making contact with Gregg and expressing my interest in working on the medicinal trail, he asked me a pointed question, "How long do you plan to stick around?"

"I don't plan to go anywhere," I responded.

As soon as we began work on the project — discussing plants, specific pathway locations, clearing techniques, and materials for edging — I appreciated Gregg's soft-spoken friendliness. Despite our cultural differences, we shared interests in important cultural and ecological issues, and even talked about doing some of our doctoral work together.

Gregg and I also made good progress on the medicinal trail project. The site was overgrown with Himalayan blackberry (*Rubus discolor*), scouring rush (*Equisetum hyemale*), and snowberry (*Symphoricarpos albus*). My students and I cleared what would

become the main trail, and weeded what would become the “forest habitat gardens.”

Then the rains came. It was not, of course, the first time the rains came with great intensity. The Skokomish River floods nearly every year, and the floods had become worse largely due to diversion of the natural flow of the north fork by Tacoma City Light. In the winter of 1996, the waters rose so high it was called a “100-year flood.” The water picked up the rocks that lined the trails, scattered debris, and killed many of the new young plantings. Discouraged but undaunted, we cleared the debris, replaced the rocks, and brought in new plants. The following year, a *second* “100-year flood” arrived. This time, mud and debris clung six feet up the tree trunks, and the new, larger edging rocks also disappeared. Even then, we did not give up on the medicinal forest trail. Again, we cleared and cared for the area, this time pounding stakes into the ground to edge the trail.

That spring, however, a real tragedy took place. It did not have to do with floods or rocks or even plants. Gregg Pavel unexpectedly passed away, at the age of 39. Everyone was devastated. Now, after all that had happened, I needed to take a break from the trail project. So, for a few years, I turned my attention back to Evergreen. I was grateful to have something less painful to think about.

Gifts of the Plant People: Roots in the Longhouse Garden

It was 2000. Four years had passed since work stopped on the medicinal plant trail at Skokomish. While the Skokomish River continued to flood annually, it had not returned to the “100 year” stage. In the meantime, my students and I had developed — as best we could during evenings and weekends — the Longhouse Ethnobotanical Garden. At one point, a group of students expressed the desire to build a ceremonial garden that would honor Indigenous spiritual traditions. My response was hesitant. These particular students were entirely non-Indigenous, and I tried to explain how difficult, and potentially inappropriate, it would be for them to attempt to interpret and represent traditions that were not their own. Besides, most of the images and stories that conveyed these traditions were proprietary; that is, they belonged to specific individuals or families and, as such, were not available to other individuals or families, Indigenous or non-Indigenous, to appropriate and use.

I further explained that I would need to bring any ideas to the Longhouse staff as

well as to *subiyay* for approval. I did not expect that any of the ideas presented would be approved; however, one stood out from the rest. Adam Rawson, a student of landscape design and permaculture, had created a detailed garden design that consisted of four raised beds radiating out in a circle and incorporating benches that faced the center. The design reminded *subiyay* of the dogwood motif in Twana basketweaving. He liked it, and so did the Longhouse staff. With approvals in place, Adam and his brother agreed to build it. Unfortunately, the materials — wood, liner, soil, and plants — required a budget, something we did not have.

I approached Alan Parker, then Evergreen faculty member and Director of the Northwest Indian Applied Research Institution (NIARI), for funds. Although he was interested, his funding protocols required that projects be reservation based. So I went back to *subiyay* and asked if he might consider building this medicinal garden on the property beside his house. He agreed.

sayuyay – Medicine of the Plant People

subiyay named the medicinal garden *sayuyay*, which means "Medicine of the Plant People" in Twana, the Coast Salish language of the Skokomish or *sqWuqWu'b3sH* also known as the "People of the River."

subiyay's red house was located just across from the old white farm house in which he and his fourteen siblings had been raised. It was also near the Smokehouse in which the *seowin* Society held its winter ceremonies and other functions, with the Shaker Church on the other side. After many floods, *subiyay's* house had been elevated and a long ramp that led from the gravel road to the large front porch, which usually contained piles of plant materials, had been installed. The new medicinal garden was to be constructed just to the right of *subiyay's* house. It was an open area with ample sunlight, but within it was an enormous cedar log that was intended to become a canoe. As the months passed, I visited frequently and helped clear the space while hoping the log would find a new home. One day, after about a year, I arrived to find the patch of land empty. Although both Adam and his brother were busy, working students with family responsibilities, they eagerly got started right away. It took another year to procure, measure, and cut the untreated wood; assemble the structure of the raised beds; obtain and install the pond liner; and receive the soil and fill the beds.

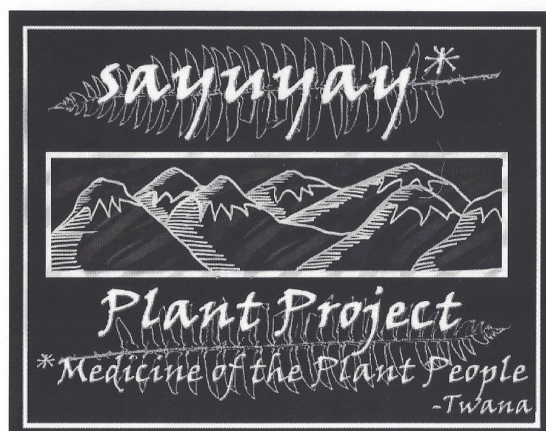
I invited Elise Krohn, a student of mine who will be further discussed in Chapter 9, to work with *subiyay* and me in planning the medicinal plantings. Elise was working as an herbalist at a local herb shop. She had trained with an Indigenous healer in Oregon before moving to Olympia, and she seemed to have the sensitivity necessary for this type of reservation-based project. *subiyay*, Elise, and I would meet to discuss the plants we might include and how we might organize them. We came up with a planting concept I liked very much: body systems. Each of the four beds would contain plants associated with one or more body system, such as the respiratory, urinary, digestive, and nervous systems.

At that time, and I was team-teaching a halftime program called Plants and Healing. I enlisted the cooperation of my teaching partner Peter Pessiki and our fifty students. One spring day we all traveled to the garden and each student provided and planted one of the desired medicinal plants. It was a meaningful and exciting launch to a project that we had been trying to establish for over two years.

The Booklets

An additional aspect of the *sayuyay* Medicinal Plant Garden involved creating a series of four booklets, one for each of the four body-system oriented beds in the garden and the plants they contained. These consisted of the North Bed, with plants supportive of the nervous system; the West Bed, with plants for the digestive and endocrine systems; the South Bed, with cardiovascular, urinary, reproductive, and immune System plants; and the East Bed, with plants for the respiratory and musculoskeletal systems as well as first aid. Each booklet began with the same cover and introductory pages, illustrated here by Booklet 4:

Medicinal Plant Demonstration Garden



Booklet 4: West Bed

- Digestive/Endocrine Systems

*sayuyay**
Plant Project
*“Medicine of the Plant People”
-Twana

Booklet 4: West Bed Digestive System

Note: The information contained in this booklet is offered for educational purposes only. It is not meant to be used for diagnostic or treatment purposes and should not be used in lieu of consulting a qualified health care provider. The *sayuyay** Plant Project and anyone associated with it (including students and other affiliates of The Evergreen State College or the Skokomish Indian Nation) assume no liability for the reader’s experimentation with the educational information offered here.

Booklet 4
SELF-GUIDED TOUR

**MEDICINAL PLANT
DEMONSTRATION GARDEN
West Bed**

Skokomish Indian Reservation
No. 170 Tribal Road
Shelton, Washington

a part of the

***sayuyay* Plant Project**

Project Director - *subiyay* G. Bruce Miller
Project Coordinator - Marja Eloheimo
Project Herbalist - Elise Krohn

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First Edition (DRAFT)

***sayuyay* Plant Project**

Introduction to the *sayuyay* Plant Project. The *sayuyay* Plant Project exists as a collaboration between members of the Skokomish Indian community in Shelton, Washington and faculty, students, and alumni of The Evergreen State College in Olympia, Washington as well as other interested supporters.

Intention. The intention of the Project is to create and nurture a circle of local access to and use of medicinal, edible, and other useful plants on the Skokomish Reservation that will result in local sociocultural, health, environmental, and economic benefit.

Working Goals. The Working Goals of the Project are to:

1. Revitalize the Twana tradition of locally accessing and using plants for medicine, food, technology, art, and ceremony.
2. Improve local access to culturally significant plants through appropriate restoration, management, and cultivation.
3. Increase opportunities for community members to involve themselves with medicinal and edible plants through educational activities and materials as well as through growing, gathering, processing, using and/or marketing such plants and/or plant products.
4. Expand plant-related resources and opportunities that offer health, sociocultural, and economic benefits to the Skokomish community.
5. Create opportunities for research into sustainable harvest, business development feasibility, restoration, propagation, cultivation, and improved access to medicinal and edible plants.
6. Create documentation and educational resources to foster similar projects in other tribal communities.
7. Address logistic, academic, liability, and cultural issues that arise through collaboration between academic institutions and Indigenous communities.

Medicinal Plant Garden & Booklet Series

Introduction to the *sayuyay* Medicinal Plant Demonstration Garden and Booklet Series. One important aspect of the *sayuyay* Plant Project is the Medicinal Plant Demonstration Garden. This series of booklets provides a guided tour of the Demonstration Garden.

Arrangement. The garden consists of four raised beds in which the plants are organized by body system. The booklet series consists of four corresponding booklets, also organized by body system. Plants that require shade or wetland habitats are located in the nearby medicinal trail or wetland area, however, they are also indicated by sign in the appropriate body system bed.

Plant Selection & Placement. Plants were placed in a particular body system on the basis of an important action or use. Yet many medicinal plants have multiple actions, and they often support more than one body system. Decisions regarding which plants to include in the garden, and where they should be placed, were made jointly by *subiyay* G. Bruce Miller, Skokomish spiritual leader, healer and hereditary chief; Elise Krohn, clinical Western herbalist; and Marja Eloheimo, ethnobotanist.

Native, Introduced & Cultivated Plants. Under *subiyay*'s direction, the garden contains three categories of plants. These are (1) plants that are native to the Pacific Northwest and part of the Twana tradition, (2) plants that have been introduced to the region and now grow wild, and (3) plants from Western herbal traditions that must be cultivated here. *subiyay* explains that Twana traditions have never been static. He teaches that it is more "traditional" to embrace and incorporate beneficial introductions than to cling only to what has been useful in the past.

Digestive System

Introduction to the Digestive System. Oh, the wondrous world of food! From Grandma's kitchen to McDonald's, there are so many choices. But many of the foods available today have negative effects on the digestive system. Everything that sustains us physically must travel through the digestive system – which is about 36 feet long! Beginning with the mouth and ending with the rectum, it encompasses numerous organs including the stomach, spleen, pancreas, large and small intestines, and colon. If the body can't properly absorb and assimilate what is ingested, we can become ill. Traditional peoples throughout the world eat wonderful foods that they gather and grow. These foods are rich in minerals and vitamins and often have a strong bitter taste. Strong bitter tasting foods are largely missing from the "Standard American Diet" (SAD). However, bitterness is actually medicinal and helps us digest our food. Bitter is better! The bitter taste especially helps the liver and gall bladder with fat metabolism. The bitterness of some plants is only one way in which plants can support the digestive system, as we will see. [Student written.]



***chuyu'xWilas* (Plant Example 1)**

Tall-bush Oregon Grape (14b)

Mahonia aquifolium

Barberry Family (Berberidaceae)

Native to the Pacific Northwest

Description. Tall-bush Oregon grape is an evergreen shrub that measures 2-6 feet tall. The compound holly-like leaves are prickly when mature and often turn red or purplish in winter. The flowers are bright yellow clusters that bloom in March or April. The flowers ripen into small bluish berries that are edible but very tart. The inner bark of the stems and rhizomes (underground stems) is bright yellow. This is the part of the plant that has principally been used for medicine, although the leaves have been used as well.

Use. We have placed Oregon grape in the digestive system because it has been used as a bitter tonic, liver stimulant and anti-microbial for the intestinal tract with indications ranging from simple indigestion, to tooth or gum problems, to skin irritation. The bitter qualities are especially good for supporting the liver. The berries have most commonly been eaten with a sweeter berry such as salal. Combined, these make tasty jam. Additionally, the bark and berries have been prepared as a yellow and purple dye, respectively. The former is important for dyeing basketweaving materials.

subiyay tells us that, among the Twana, bark of the roots/rhizomes is scraped, boiled and drunk as a general blood tonic. The same has been used to restore appetite to seriously ill people, and it has been helpful in liver ailments. [Student written.]



tlulu'qWay (Plant Example 2)

Stinging Nettle

Urtica dioica

Stinging Nettle Family (Urticaceae)

Some say stinging nettle is native to the Pacific Northwest, others that it has been introduced.

Description. Stinging nettle looks like a mint but is armed with stinging hairs. It grows tall and upright with leaves that are oval-to-lance-shaped. The inconspicuous light-green flowers are borne in drooping clusters. Stinging nettle likes moist areas and meadows. Planted next to vegetables and herbs, stinging nettle can stimulate the growth of these plants.

Use. Stinging nettle so many diverse uses it could be placed in almost any body system. We placed stinging nettle in the digestive system primarily because it is so nutritious as both a food and a medicine. For example, a tea of the fresh leaves is very high in mineral content (chlorophyll, iron, sodium, potassium, phosphorus, calcium, and silica) as well as albuminoids, and vitamins A, C and D. The root contains high amounts of sterols that can promote white blood cell production, counteracting inflammation and infections in the intestines and elsewhere.

subiyay tells us that, among the Twana, the freshly gathered stalks have been used to whip rheumatic areas to counteract the pain. An infusion of the roots has been used on the hair much like Grecian Formula and to prevent split ends. Also, the pulverized dried plant has been sniffed to stop nosebleeds.

Caution! Due to poor metabolism of inorganic material, stinging nettle can collect concentrations of heavy metals from fertilizers. Use caution in selecting sites for harvest. [Student written.]

For More Information, See Bibliography:

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chabasch3d tis chalaub3sh – Gifts of the First People

Preparation of these types of educational materials gave the students the opportunity to learn a great deal. In fact, we all experienced many kinds of learning throughout the time the project unfolded at Skokomish. It was clear that, if I were to honor the commitment I had made to Gregg Pavel before he passed — namely, the commitment to “stay put” — I would need to continue working on this garden project for more than one academic year. It also was clear that bringing fifty students into a Tribal community presented challenges. In order to have a class of only 25, however, I would need to teach alone and forego having a teaching partner.

Evergreen promotes team teaching instead of solo teaching in order to create interdisciplinary programs that build upon and integrate the strengths and disciplines of two or more faculty members. Additionally, faculty members are encouraged to vary the programs they teach. Term and adjunct faculty who seek continuing positions (Evergreen's equivalent to tenure) are evaluated on the basis of the number of different programs they have taught and the number of different faculty with whom they developed and delivered these programs. That said, almost every aspect of this arrangement ran counter to Evergreen's philosophy and its expectations of faculty.

Fortunately, my academic dean at the time, Russ Fox, understood the ethical imperative of continuing to collaborate with my Skokomish partners in a way that was culturally appropriate and beneficial to *them*. Benefit to the Skokomish community would need to occur over the long-term, over the period of time it would take to care for and replenish the garden, to harvest from and utilize it, and to engage members of the community in doing the same. With full recognition that I was not supporting any hopes for attaining a continuing position at Evergreen, I chose to continue with the Skokomish garden project in a way that felt ethical and right.

With the four raised beds now complete, ideas for expanding the project seemed to grow as quickly as the plants themselves. I wanted a center bed, so the students and I worked as a collaborative design team discussing possibilities. Some students wanted to plant a western redcedar in the center. However, looking to the future, it was easy to see that a mature western redcedar would eventually shade out the entire garden. Then one student proposed a solution using *hypertufa* — a rock-like substance made from aggregating materials such as sawdust and mud with cement — that would then be molded into what resembled the base of a western redcedar. *subiyay* offered us a small bucket of a special and rare natural pigment he had been saving for many years. He offered it to us. As a group, we mixed the cement and straw, molded the tree-like structure, spread the pigment over it with our hands, and filled this new bed with soil. Soon moss began to grow in the crevices of what truly looked like the base of a massive trunk. It was wonderful.

Other things were not so wonderful. There were, for example, the students who would knock on *subiyay's* door despite my having made it clear that they must not do so.

subiyay was usually patient with such insensitivities. Some of the other Tribal members were not; in fact, there were those in the community who did not want outsiders like us working on the Reservation at all. They viewed our presence as insensitive and intrusive. Still, I continued to return and bring my students because of the consistent supportiveness, warm welcome, and inspiring wisdom of *subiyay*, whom I trusted as a traditional cultural leader and hereditary chief.

Despite the challenges, we were soon tilling new soil and creating four additional beds just outside of the four raised medicinal beds. We referred to them as “peripheral beds.” Varying in contents, these beds included culinary herbs; traditional Indigenous foods such as soapberry (*Shepherdia canadensis*) and wild nodding onion (*Allium cernuum*); sweetgrass (*Hierochloë odorata*) for braided incense; and a variety of berries in what came to be called the “Baby Berry Bed” because it featured red raspberry (*Rubus idaeus*), a valuable uterine support during pregnancy.

South of the central gardens, stood the wooded area that contained the original medicinal plant trail. It also contained an enormous black cottonwood (*Populus trichocarpa*) that *subiyay* had planted when he was a boy. This small patch of forest created an abrupt, wall-like edge to the open area surrounding the *sayuyay* Medicinal Garden. How, I wondered, might we transition more gradually between the raised beds of the formal garden and the forest, utilize *all* of these areas, and create an *ecotone*. From this emerged the idea of habitat areas similar to those being created at the Longhouse Ethnobotanical Garden. I lay out an overall design and, bit by bit, students developed within it wetlands, a mounded glacial prairie, a small patch of pipsissewa (*Chimaphila umbellata*), a natural dye garden, an edible flower garden, moist and dry transition areas, and traditional native food gardens. *subiyay* gave this broader garden project the Twana name, *cHabasHcH3d ti cH3la'ub3sh*, “Gifts of the First People.” Of the students’ creative involvement and hard work, he said:

Each student who has come through this class has offered personal insight and directions of their own interest. We have tried to incorporate all these thoughts and views of the students who have participated in [these classes], so that part of them may be reflected in this garden that we call *sayuyay*.

Just as the plants are a reflection of the earth in the form of an organism, so are the students. There are those who are interested in documentaries. There are

those who are interested in marshland. There are those who are interested in cosmetic purposes. There are those who are interested because of women's health issues. There are others who are interested because of their concerns about the revitalization of pre-Columbian style plants. Each of these contributions of the students over these past eight years reminded me of an organism. Some of them being the brains. Some of them being the heart. Some of them being the circulatory. Some being the olfactory. Some being the tactile. Some being the emotional state. All the views of the students throughout these years are reflected in this garden by what they designed and contributed (*subiyay* Bruce Miller in Small 2003).

These statements were made by *subiyay* in an interview with student, Ezra Small, who taught himself how to do filmmaking and created a documentary about the "Gifts of the First People" Project. In it, students tell the stories of their work, learning, and genuine investment. One student, for example, obtained western redcedar poles from Tribal members and created a welcome kiosk. Another student carefully cleared all the large cobbles from an area and tilled a heart-shaped garden that became known as "Sonja's Heart Bed," named for Sonja Gee, who devotedly cared for *subiyay* and wanted edible and fragrant flowers.

Collaboration with the Elders' Community Garden

In addition to the "Gifts" Garden, my students and I worked on another important Reservation-based project. Located next to the Tribe's Natural Resource building, "Uncle Joe" Andrews had established the Elders' Community Food Garden. Sadly, while Ezra Small was working on his film, Uncle Joe passed away. We dedicated the film to him.

At the Elders' Community Garden, students helped build a large greenhouse in which edible and medicinal plants were started. They tilled and established a bed dedicated to growing medicinal species in quantities sufficient for making medicine. They helped Skokomish resident "Garden John" Sigman, who had dedicated himself to the food garden for years, and expanded its focus. Part of the "Gifts of the First People" Garden Project involved collaboration with the Elders' Community Garden on educational workshops and community events. For example, we offered workshops on making medicinal vinegars and salves from wild and cultivated medicinal plants. We also helped prepare meals for Senior lunches. These included traditional, wild, and/or North

American indigenous foods such as venison and bean stew; duck, wild rice, and wild mushroom casserole; quinoa pilaf (*Chenopodium quinoa*); stinging nettle soup (*Urtica dioica*); pickleweed potato salad (*Salicornia virginica*); herb and flower salad; and corn bread.

Mixed Reactions

It was at an elders' lunch that I was reminded that not everyone liked our presence on the Reservation. One elderly woman strode up to me and angrily asked, "Who do you think you are to come onto our land and make our food and give it to us like this?" I apologized and said that we came humbly, in gratitude and offering. Just as she huffed off, her sister came up and thanked me profusely for our efforts. While many people welcomed us, others did not. I understood that it could not be otherwise, given the history and continued presence of European-American colonization. Still, I knew that *subiyay* welcomed. Time and again, that gave me the courage to continue.

Lessons from subiyay

The lessons I learned from *subiyay* began before I actually started to work with him. One afternoon several years earlier, *subiyay* gave a presentation on wild and traditional foods at the Washington State Capitol Museum, complete with delicious samples for the audience to taste. After the main presentation, he began to speak more broadly. He said that many non-Indigenous people were drawn to and even appropriated Indigenous cultural traditions because they lacked a connection to place and a deep sense of their own heritage. He went on to say that non-Indigenous people need not try to claim Indigenous traditions because *all people* have traditions and heritage, and can find them if they look hard enough. This was profoundly meaningful to me. In 1982, over a decade before meeting *subiyay*, I had learned to speak Finnish, pursued fundraising, and spent several months in Finland exploring what it meant to be a Finnish-American woman. I had wanted to dig deeply and find those very traditions *subiyay* was now talking about. His words were strongly affirming.

Later, I learned more about *subiyay*. He had sacrificed many of his own personal desires in order to fulfill his duties and responsibilities as a spiritual leader. These

responsibilities included Indian doctoring throughout the Pacific Northwest; keeping and sharing genealogies, songs, stories, weaving traditions, and plant knowledge of all kinds; and being a hereditary chief. I deeply admired *subiyay*'s commitments and his wisdom. Sometimes, I felt myself drift into an almost dreamlike state when he spoke. Other times he surprised me, and he very often made me laugh. One day, *subiyay* joined my class on an excursion to locate and transplant pipsissewa to the garden. After finding the plant, but before transplanting it, my students were carrying out an ecological analysis that involved estimating the percentage of cover of all the plant species present within a square meter quadrat. After watching them look and draw for a while, *subiyay* suddenly blurted, "Why don't you get your fingers out of your b*tts and *do* something!?" We were all momentarily shocked. Then we burst into laughter.

One of the navigations required of bringing a group of mostly non-Indigenous college students into a Tribal community involved their propensity for stereotyping. They often held their own vision of what Indigenous people, particularly a spiritual leader, should be like. For example, upon entering *subiyay*'s house, visitors would immediately see a nude photograph of Marilyn Monroe. For some of the students, this was too sexist, too libidinous, and too "white" to fit their image of the man *subiyay* "should" be. Some even felt a sense of betrayal that interfered with their ability to embrace the wisdom they already knew he possessed. Part of my work with the students included helping them examine why it sometimes felt so important that *subiyay* fit their own constructed notion of "Indianness" (King 2013).

There were other experiences with *subiyay*, such as delightedly collecting hawthorn berries (*Crataegus* spp.) from branches piled high around us as we laughed so hard my stomach hurt. On many occasions, *subiyay* advised me on personal matters, such as whether or not to sell my grandmother's home, or on professional matters, such as how to respond to the view of the Evergreen Administration that medicine should be made in the chemistry lab, not the kitchen.

In addition to the extraordinary privilege of talking with, listening to, working beside, and cultivating a garden next to *subiyay*'s house over the course of more than a decade, came the opportunity to attend the winter ceremonies in the Smokehouse. Every time I went, I knew what a gift it was to be there as a non-Indigenous person and witness

songs and dances that moved me deeply. Even my oldest daughter, for nearly the first ten years of her life, was able to join me on the benches while the fires burned hot in the stoves and the rhythms of the drums reverberated through us and out into the winter night.

The Final Lesson

I received a message from producer and filmmaker, Katie Jennings, saying that she was going to produce a film about *subiyay*'s life. She wanted to interview me about the gardens. I was pleased because the gardens, and the efforts of those who had manifested them with *subiyay*'s permission and guidance, would be shared as part of the tapestry that was his vision and his life. The film unfolded, and soon it was finished. Then, on the day before my fiftieth birthday, I received a call saying that *subiyay* had died of a heart attack. I recalled that he had just recently said that, when the film was finished, his work would be finished too. I was overwhelmingly sad. *subiyay* had filled a kind of father role for me, as he had done for many others. He had welcomed my ideas, and had allowed me to engage my students in manifesting a series of ethnobotanical gardens in service to the Skokomish community. Above all, he had trusted me. With him, I had experienced *engaged relationship*.

As I watched the completed film, *Teachings of the Tree People* (Jennings 2006), I was again moved by the hypnotic power of *subiyay*'s voice, his wisdom, and his conviction. I, like so many others, had come to truly love him. I realized, with profound gratitude, that no matter what I had and had not accomplished, no matter what strengths and weaknesses I had brought, he had given me his gifts in no small measure. I also realized that I now had both the opportunity and the responsibility to pass on to students what I had experienced and learned from him and, in doing so, I could continue to respect and honor him.

In the film, *subiyay* says, "Don't teach everyone the same thing. Then we won't need each other." In other words, we won't need — or seek — relationship. More than anything else, *subiyay*'s teachings were about relationship — relationship with self, with one another, with plants, with place, and with spirit. One of *subiyay*'s greatest gifts to me was that of clarity. I now recognized that I had a duty to teach in ways that would foster relationship.

subiyay Gerald Bruce Miller

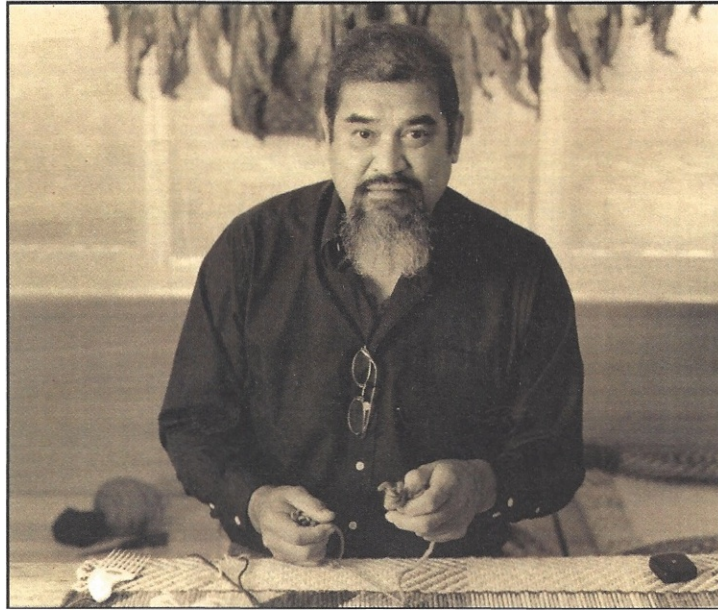


Photo by Fritz Dent

Chapter 5. Discovering and Cultivating Community-Based Herbalism While Teaching at The Evergreen State College



Tend and Tell: Developing and Interpreting an Ethnobotanical Garden

After *subiyay* Bruce Miller passed away in 2005, I stepped away from the garden projects on the Skokomish Indian Reservation and at The Evergreen State College Longhouse. By 2009, however, my desire to resume work at the Longhouse Ethnobotanical Garden led me to secure permission to teach a yearlong, part-time, daytime interdisciplinary program that focused on the garden. It was now almost fifteen years since the garden had begun, but little work had taken place on it since. The new program was called Tend and Tell: Developing and Interpreting an Ethnobotanical Garden. It was a pivotal year in many respects. First, it confirmed that people, in this case my students, can experience profound learning by being responsible for a garden within particular cultural, ecological, and *relational* contexts. Second, it was the year my father died. I will return to this.

In Tend and Tell, students worked as a multidisciplinary project team with a mission. They engaged in hands-on work to transform the fledgling ethnobotanical garden by refining existing habitat areas and developing the *sayuyay* Sister Garden — a medicinal portion of the garden that was patterned after the original garden on the Skokomish Indian Reservation. Through this work, students had the opportunity to create valuable educational resources and contribute to multiple communities including Evergreen, local K-12 schools, local Indigenous communities, and a growing global collective of

ethnobotanical gardens that promote environmental and cultural diversity and sustainability.

Specifically, during fall quarter, the students became acquainted with the garden and its plants, habitats, and history, along with the interpretive and archival materials that remained from its original establishment. They began to learn how to care for an educational garden as well as develop specific design ideas and implementation plans. During winter quarter, the students focused on the garden's *story* through work on interpretive materials such as signage, a web page, a film, and a book. Toward these ends, they worked intensively on research and project planning. They also prepared procurement and planting plans for the spring season. Finally, during spring quarter, the students planted and continued to care for the garden, wrapped up the interpretative work they had begun, and joined me in presenting at an academic conference.

This demanding academic program required commitment to a meaningful real-world project. It cultivated community by nurturing each member's contributions and growth, and it acknowledged the broader contexts of sustainability and global transformation. Basic program and project participation was offered for eight credits; students enrolling for twelve credits were able to undertake expanded project work. Their major areas of study included botany, environmental studies, Indigenous studies, horticulture, communications, education, and writing.

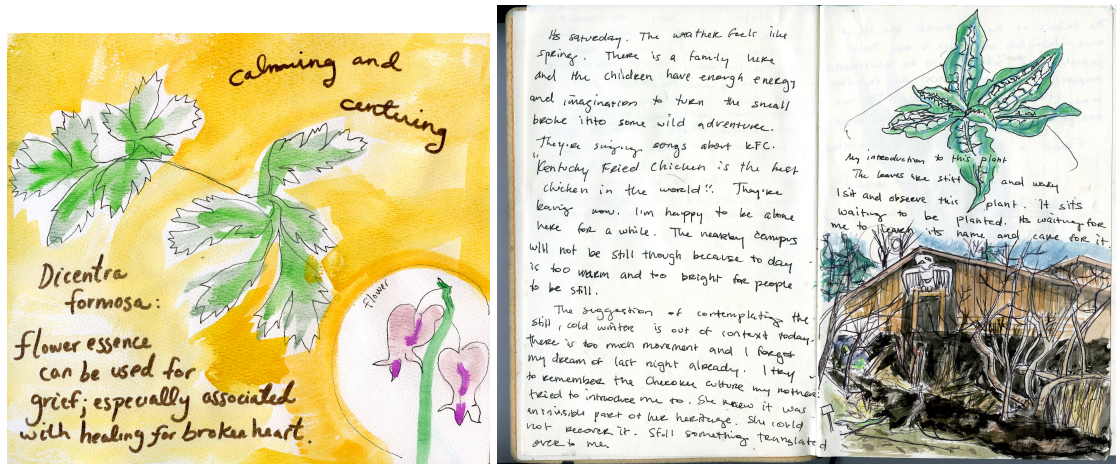
Assignments and Projects

Garden Area Stewardship

To accomplish the goals of the program, each student adopted one habitat or theme area in the Longhouse Ethnobotanical Garden. This was the central structural component of the program. It created a container for cultivating relationship with plants and place, and for applying theoretical knowledge. Each area had two or more stewards and each person had at least one partner, thus building community. Together, students learned about the type of habitat or theme the area represented through research and field observations. They learned about the history of and previous plans for their area from archival materials. Then they documented the current conditions of the area through ecological fieldwork, and began to care for and maintain it. Next, the partners collaboratively refined and updated the vision

for the area, proposed a new design if needed, planned, and, to the extent possible, carried out implementation.

As part of deepening their understanding of their area, students made regular entries into their nature journals about their observations and experiences. They were asked to make entries both when they worked in their areas and when they would simply sit and remain open to their senses and intuition. Their entries were to include both writing and drawing, which I found helped students see more clearly and create a stronger sense of intimacy.



The habitat and theme areas were distinguished as follows:

- Mixed forest area showcasing various tree species
- Shady riparian hillside
- Open riparian hillside including a symbolic shell midden
- Deep forest and moist forest edge
- South Puget prairies
- Middle and high elevations
- Decorative pollinator welcome areas
- Formal medicinal garden
- Dye garden
- Food forest

Spring Completion and Sharing

By the time spring arrived, students were ready to share their work, their learning, and their experiences with others. This took place in two locations — first, at the 33rd Annual

Society of Ethnobiology Conference in Victoria, British Columbia and, second, during a special event held at the Longhouse. On both occasions the students and I gave a presentation that described Evergreen, the Tend and Tell program, and the garden areas, and that included student participation. Excerpts from the presentation follow:



“Place to Meet the Trees”

A Mixed Forest Habitat Area

One of the forest habitats, this is the first area one encounters when walking from the main campus toward the Longhouse. This area called “Place to Meet the Trees” will ultimately contain a substantial number of tree species that are native to the Pacific Northwest.

Cameron, one of the current stewards, is creating sound stations that focus on the visitor’s sense of hearing.



“Secrets of the Forest”

A Moist Forest Habitat Area

On the south side of the Longhouse, one finds a moist forest area that we have come to call “Secrets of the Forest.” This map shows where Victoria and Brandon have opened trails to its center, where a seasonal creek emerges from the earth and later crosses the entrance to the building.



“Cedar and Rose”

A Shady Riparian Hillside Habitat Area

The third semi-forested area features two plants of strong cultural significance along the Northwest Coast: western redcedar and various species of wild rose. This area also slopes gently toward the seasonal creek where we have planted devil’s club, swamp lantern, Pacific willow, and western coltsfoot. Krista and Teasha tend this area.



“Hill by the Creek”

An Open Riparian Hillside Habitat Area

Nearby we find an open riparian hillside situated along the seasonal creek. The Longhouse architect, Johnpaul Jones, designed a small representation of a shell midden in this location. The area also features the welcoming symbol for the Longhouse “House of Welcome” – an open hand. Heidi, our filmmaker, is one of the stewards of this area.



“High Places”

A Mid- and High-Elevation Habitat Area

On the west side of the building and featuring a short, steep incline, we have created an area that represents the many foothills and mountains of the Pacific Northwest. Angel and Bob are planning to plant species that occur naturally in these habitats.



“Beautiful Camas Prairie”

A South Puget Camas Prairie Habitat

Between “High Places” and “Secrets of the Forest,” we have placed our South Puget Camas Prairie. It is perhaps an unlikely place but, remembering that the ecological conditions of the Evergreen campus would not have supported these habitats at all, we have selected a spot that has adequate sun and soil drainage to approximate these unique prairies and hint at a story that weaves glacial history and climate change with Indigenous land stewardship, and that results in some of the most culturally-important food species, such as camas (*Camassia quamash*). Sean and Rainboe are working to enable these areas to tell their story.



sayuyay Medicine Sister Garden

Finally, one of our major theme areas is the *sayuyay* Sister Medicine Garden. This garden replicates the original garden established on the Skokomish Indian Reservation, depicted here. Built in a shape that reflects the dogwood design in Twana basketweaving, the plantings are organized by body system, and include both native and non-native species, as *subiyay* wished. The sister garden at the Longhouse was only recently constructed. Billie and Luna are seeking to reflect the spirit and plantings of the original garden, encompassing species that support the nervous, digestive, immune, and respiratory systems, among several others.



Spring also emphasized outreach to others and the opportunity for students to ask: What does the garden have to tell? What experiences and learning can it bring? Students answered these questions by organizing tours and workshops for the campus community as well as by hosting a visit from a local middle school.

The presentation went on to describe a few principal projects. For example, I was developing a master plant list — which now included over 400 species — that involved working with Indigenous elders and scholars in hopes of recording the existing Lushootseed and Twana names for the plants. Additionally, the students and I were developing plant identification sign content that would incorporate the Indigenous language names along with the Longhouse logo, and we had begun to draft descriptive signs for each habitat and theme area.

Finally, I concluded my part of the presentation by discussing how, in Tend and Tell, the students had chosen a project-oriented approach to learning in which the needs and activities of the project guided its substance and timing. When they worked in the garden and did associated reading, research, and fieldwork, they gained substantial knowledge and skill related to botany, ecology, and horticulture. Further, the ethnobotanical garden surrounded the Longhouse for the purpose of learning about the *relationships* that Northwest Indigenous people have traditionally had with the plants. While reading, writing about, and discussing such texts as *Keeping It Living* by ethnobiologists Nancy Turner and Douglas Deur (2006), students were also taking on the role of habitat stewards. As they created, cared for, and interpreted the ethnobotanical garden, many found themselves developing their own relationships with the plants and places. Many came to feel that they and the plants and places had become *mutually*

connected through their on-going care and attention. The presentation ended with some of the students sharing, in their own words, the depth and power of their experiences.

First, Luna said:

We offer this work and wisdom and story up and out from our hearts to you all in this moment. We honor the spirit that brought it to us to share. We acknowledge ourselves as both a conduit and an active and unique participant in this telling, knowing that nothing we say or do or feel is completely unique, but that through our eyes and through our words and through our heart, the story takes on pieces of our uniqueness. Our uniqueness is beautiful and important to share. And so we stand here today, open hearted, telling you what we hold in our own two hands.

We stand here before you today as students and learners in a program that has called us all to a place of deep reflection. We stand here before you today to tell you our stories. What you will hear is only a snippet of our collective truth.

We were told simple things: put your hands in the earth, tend these plants, learn about this place. We were invited to connect in a world that asks us to disconnect, work together in a world that asks us to be separate. Some of us were afraid we didn't know how. Some of us felt more comfortable with the task. We all struggled along the way, unsure if we were moving in the right direction, or doing enough. Three seasons later, we have come full circle. Standing firm in spring's bright energy bursting forth, we can better see the fruits of our labor, see the value of our work, feel the fullness of what this garden has meant to us.

Cameron followed:

Before I was a mere thought in the back of my father's mind, and a simple echo of my mother's heart, my story was already being written. If I am the sum of my parts, then I am generations of mothers, fathers, sons, daughters, sisters and brothers, all the children of my name who walked this land before me. They are my map, my guidebook, the intuition I must learn to trust when my hands tend to the earth. It wasn't until I started listening and tending to the garden that I was able to fully understand the words of naturalist John Muir who once said, "The clearest way into the Universe is through a forest wilderness." From the inconspicuous lichen to the emergent Douglas-fir, I can't help but be humbled by the many worlds unfolding around me when I enter the "Place to Meet the Trees." This small forest wilderness stands as a gathering place where impersonal, passive encounters with nature are transformed into active and meaningful interactions with the earth. So it is here, that the gift in our work is in creating an open invitation for the community to develop a relationship with culturally significant plants, and facilitating a space that weaves many different landscapes into a story of the place where we all connect.

Sean came next:

Working with the garden over the course of this year, paying attention to the

minute details of what exactly she wants from me as the seasons wax and wane has grounded me, humbled me, and given me a strong sense of belonging on one specific piece of the Earth. My attempts at recreating such a specific ecotone as the South Puget Sound prairies on a microcosmic scale have been challenging to say the least, yet the rewards have been great, especially the intimate understanding gained of how fragile and complex such an area is. Getting to know and respect and care for the garden has changed the way that I view my surroundings. Spotting the electric blue of camas in flower or the gnarled & stately form of a Garry oak among the scotch broom on the side of the highway helps me to see back in time, smell the smoke of carefully crafted infernos, feel the weight of a basket full of geophytes on my back, and know that I am home. A sense of place and of being a part of the land upon which I walk is a difficult thing to find. For me it must be cultivated and tended to.

Lastly, Krista closed with a heartfelt message:

As a student who is constantly learning through her struggles and achievements, I offer to the garden in the purest form, all my love and respect. I offer the desire for that connection between human and plant, plant and human; desire that is deep rooted in each and every one of us. I offer to you stewardship and care, my patience and observation. I encourage your growth on behalf of all communities: plant, animal and human. I will nurture you. I will respect you. I will love you.

Transformation

In Tend and Tell, I witnessed a deep transformation in many of my students. This experience — coupled with participating intimately in my father's dying process and moment of death — transformed several things for me as well. I no longer had interest in anything that did not feel profoundly meaningful. What now felt especially important was to create more opportunities for students to experience a relationship with plants and place. Since, the following year I was expected to teach four-credit courses instead of an interdisciplinary program, I developed a course that focused on studying medicinal plants through a variety of lenses including field botany, botanical medicine, cultural studies, community-based learning, and art. I called it Medicinal Botany through the Seasons.

Medicinal Botany through the Seasons

In Medicinal Botany, my teaching now focused specifically on introducing plants as medicine to a diverse range of students, many of whom were working adults. I sought to

equip them with both a strong framework of discipline-based knowledge, along with perspectives and skills that would allow them to turn “theory to practice” — one of Evergreen’s five academic foci. I now had the opportunity to further refine my approach to cultivating engaged plant relationships within the context of healthcare.

Living Plants

Each quarter in Medicinal Botany, I repeated the same structure but varied the content according to the season. For example, each quarter we would begin with a botany component. In fall, we would study basic leaf anatomy, physiology, and morphology. In winter, we would focus on roots and stems, including winter twig identification. In spring, we would examine flowers and fruits. Each quarter involved a microscopy lab and field component.

We would begin with botany because I wanted the students to be anchored in attention to the plants as living organisms. This choice, at least partially, reflected a growing recognition of the ecological, health, cultural, and social benefits of community- and family-based “green” herbalism (Gladstar 2008, 1999; Phillips and Phillips 2005; Green 2000). It expressed my interest in supporting the ability to grow, harvest (including sometimes ethically gather uncultivated plants, known as *wildcrafting*) and process medicinal plants and make much of one’s own medicine, or to support others who are locally doing the same. All of this required a base of knowledge about, and experience with, living plants.

I would begin by telling the students that, if we are to work with living plants, we must work with them *as they are*. That is to say, we must engage with them as living organisms that are undergoing phenological change. Although we can learn about the flowers of the medicinal plants that surround us even when all that remains of the plant is covered in a foot of snow, doing so approaches the flowers in an abstract way. This is helpful — and even essential when only a limited number of floral types are available in the area — because it can lay a conceptual foundation for understanding what may be seen at another time or place. However, if we approach the plants *only* in this way, we lose the essence of them as complex, living, and vibrant organisms — the very quality that distinguishes many plant-based medicines from laboratory-synthesized drugs. Therefore,

if we are to cultivate a plant-based and place-based approach to botanical medicine, then we must be able to utilize the plants as they present themselves throughout the seasons. I would explain my belief that engaging in relationships with plants as medicine in this manner can put many pieces of life together in ways that can quite naturally support personal, social, cultural and environmental health in unison.

For some students, a brief introduction to plant anatomy and physiology was redundant due to their previous studies. For most, the material would be new and enlightening. This would be due to the fact that students came to Medicinal Botany with diverse backgrounds. Some came with strong backgrounds in physical sciences such as chemistry and hopes to eventually work in a laboratory doing assays on medicinal plants. Many had limited exposure to biology or environmental sciences, including natural history and field botany. Others had a strong background in environmental science but with a focus on marine mammals or birds, not plants. Some had worked with young children in varying capacities and wanted to become teachers or environmental educators. Some had worked as gardeners or landscapers, or wanted to become veterinarians, nurses, or naturopathic physicians. Others were parents hoping to help their children feel more at home in the natural world than they had felt as children. Still others had no science background whatsoever but would astound everyone with their ability to draw plants with stunning and detailed artistry. Finally, a few were very familiar with plants, but in Arizona or Indonesia rather than the Pacific Northwest.

Botanical Medicine

In addition to a seasonal approach to botany, each quarter in Medicinal Botany included a botanical medicine component that introduced basic medicinal concepts and practices as they pertain to selected body systems. The concepts included *medicinal actions*, which are specific terms that succinctly convey the activity or effect of a plant. Some actions, such as *analgesic* and *laxative*, would be familiar to students, while others would be less familiar. An example of this can be found in two distinct but related terms: (1) *adaptogen*, which clinical herbalist David Winston describes as the action or ability of a natural substance to “increase the body’s resistance to physical, biological, emotional, and environmental stressors [and] restore the balance of endocrine hormones, modulate the

immune system, and allow the body to maintain optimal homeostasis” (Winston and Maimes 2007:17); and (2) *alterative*, described by folk herbalist Kiva Rose as the action or ability to “restore function to the body by way of metabolism, through increasing both eliminative functions and also through increasing the absorption of nutrients” (2008:online).

I also taught the concept of *indications*, which refers to conditions such as injuries or illnesses that call for particular medicinal actions and sometimes for particular plant species. The term *indication* is robust because it contains the verb *to indicate*. In other words, it points to or *indicates* the actions or species that can help support or alleviate the condition.

Additionally, I introduced (1) the concept of *applications*, or how a plant is applied (which is often referred to as preparation, a term I prefer to reserve for preparing the application); (2) a variety of concepts related to *pharmacy*, including dosage and frequency; and (3) a number of concepts and practices associated with harvesting, processing, and preparing plants for medicine. Each quarter, these concepts were limited and grouped by focusing on one or two body systems. Even though body systems are artificial conceptual constructs — no single body system could function alone — using body systems as a teaching device has been helpful because they reduce, in a meaningful and coherent way, the relevant terms to be introduced at one time.

Cultural Orientations to Health and Healing

How would body systems be selected each quarter? This involved the cultural component of the course. My background in working with plants as medicine includes exposure to (1) local Indigenous traditions through work with Skokomish healer and traditional leader *subiyay* Bruce Miller, (2) classical Chinese Five-Element philosophy primarily through a two-year apprenticeship with herbalist Joyce Netishen, and (3) completion of the botanical medicine series of courses at Bastyr University in Kenmore, Washington. Thus I bring to my teaching a recognition that humans in different times and places not only work with medicinal plants in different ways but *perceive* them differently as well (Soukand and Kalle 2010; Vaughn et al. 2009; Wiersum et al. 2006; Baylor 2005; Farquhar 1996; Kleinman 1981; Frake 1961).

Classical Chinese Five-Element philosophy as I understand it (Haas 2003; Netishen 2002, personal communication) asserts that because we as humans are part of nature, the same energies that influence nature on the outside of us also influences nature on the inside of us. Because of this, a system of energetic correspondences among (1) seasons, (2) “elements” or phases, and (3) organs or organ functions — was recognized and codified in classical Chinese thought, and applied to approaches to healing (Haas 2003; Magner 2002; Ni 1995). Thus, I would select the body systems to be studied each quarter on the basis of the organs that are associated with that particular season (Haas 2003). In fall, we would focus on the respiratory system because, in Chinese Five-Element philosophy, the lungs have an energetic correspondence with fall. In winter, we would study the urinary system because the kidneys and bladder are the corresponding organs. Finally, in spring, we would look at the gastrointestinal system because the corresponding organs are the liver and gall bladder. While this greatly oversimplifies the broader understandings of the system, what we find when we look more deeply at these dynamic correspondences is that they are neither random nor fanciful, but wise and grounded in longstanding experience and observation. More will be said about this below.

Diverse Approaches to Learning About Plants

My multi-cultural plant studies have shown me that there are culturally diverse *ways* of learning about plants as medicine, some of which are not emphasized — or even accepted — in Western academia. Generally speaking, approaches to plant study fall into two broad categories: (1) direct experience, and (2) research into the experience, discoveries, and beliefs of others. Direct experience encompasses identifying, harvesting, processing, preparing, and using the plants as medicine *ourselves*. It also includes observations made while sitting with a plant and, for example, drawing or writing in a nature journal. While Western scientific theory holds that Indigenous People learned the medicinal actions of plants through trial-and-error, many traditional Indigenous healers state that they actually learned directly from the plant through quiet receptivity or through dream, in a “person-to-person” exchange (Buhner 2004). Such direct experience might yield a sense of the plant as (1) possessing a personality, sound, song, color or pattern, (2) providing relevant guidance, or (3) revealing its medicinal attributes for physical healing (Weed 2007; Buhner

2006; Heaven et al. 2006; Harrison 1998). In Ezra Small's film (2004) about our project at Skokomish, *subiyay* describes the plants as *people*:

We think about the beings we grow in this garden that we call the Plant People ... All the plants [were] the First People. They were the first created in our oral tradition, before the animals, before the fish, before the birds. Their duty was to hold the earth together and live their life as a teaching for those who would be created in the future.

In sharing these ideas with my students, I would convey what I believe to be the importance of opening oneself to the possibility of direct experiences of all (legal) kinds related to medicinal plants. I would also discuss the merits of research into what others have experienced and discovered, and I would provide the resources, knowledge, and format for students to carry out structured plant studies (either plant profiles or formal plant monographs).

Example of Integrated Content in Winter

The integrated content of Medicinal Botany in the winter season revealed to me that a seasonal emphasis can help students cultivate engaged relationship with medicinal plants even during a time of year when it might be considered difficult to do so. The winter content would include:

- *Botany*: Root and stem anatomy and physiology integrated with metaphorical reflection; winter twig morphology and identification; and introduction to taxonomy.
- *Botanical Medicine*: A brief introduction to the urinary system with associated concepts, terms, and plant species.
- *Cultural Orientations*: Exploration of *winter* from a classical Chinese Five-Element perspective
- *Hands-on Activities*: Nature journaling; tea blending; and plant art

The following section illustrates the potential content of Medicinal in Botany in the winter.

“Relational” Botany in Winter — Roots and Stems

For the botany component in winter, I would offer a basic introduction to the anatomy and physiology of first roots, and then stems. I would point out that the roots of many common medicinal plant species are medicinal. These include dandelion (*Taraxacum officinale*), burdock (*Arctium* spp.), and yellow dock (*Rumex crispus*) (Gladstar 2008, 1999; McLeod 2001; Green 2000; Tilford 1997). Further, I would explain that understanding the structure and function of roots can help one better appreciate the medicinal attributes of these and other species. Likewise, metaphorical identification with the plants can help one develop a greater sense of relationship with them, and reflective activities can help foster such relationality (Hall 2011). Therefore, I asked students in class to consider a series of questions such as the following, and write their reflections in their journals:

- 1) To what are you anchored? What “grounds” you? Are you attached or bonded to any particular places, people, ideas, or beliefs?
- 2) What do you draw into yourself from your environment or from the places, people, or things to which you are anchored? What do they provide that benefits you? What do they provide you that you truly value and/or need?
- 3) How do you store these benefits and values for times when they are not readily accessible to you? Do you keep and look at photos, drawings, or a journal? Do you store and reread letters or e-mails? Does music play a role? Meditation? Books?

After moving on to discuss root types, tissue types, and the structure and functions of the tissues as they occur in roots — as well as incorporating another reflection — I would introduce stems from the perspective of anatomy and physiology, again supplemented by metaphorical reflections. A winter twig identification lecture would also be included as well as a microscopy lab that involved looking at prepared slides of both roots and stems, along with plant material students brought in themselves. Students also maintained nature journals, writing and drawing observations in the field. Often, students found these journal activities to be very exciting because it would open their eyes to plant details they had never noticed before. It would also allow them to recognize how much is actually taking place during winter in preparation for a new cycle of spring growth that would soon be underway.

Botanical Medicine in Winter — Urinary System

Next, I would introduce the botanical medicine components of the winter course through a brief overview of the anatomy and physiology of the urinary system.

Indications Related to the Urinary System

After introducing the structures and functions of the urinary system (very basic anatomy and physiology), I would ask students to brainstorm associated *indications*. From the brainstormed list, I would give a brief introduction to such indications as (1) urinary tract infections (UTI), (2) kidney stones, (3) edema, and (4) prostatitis, all of which occur with relative frequency and all of which have been prevented or treated through traditional use of plant medicines (Geetha et al. 2011; Wojcikowski et al. 2007). Then I would introduce relevant *medicinal actions* and link them to the appropriate *indication*. Finally, associated plant species would be introduced.

Urinary Tract Infection (UTI)

Here is an example of the sequence of *indication-action-plant* connections with reference to urinary tract infections (UTIs). A brief introduction to this specific *indication* might include the following:

A urinary tract infection refers to an infection within any structure of the urinary system. However, with regard to kidney infection, I strongly recommend immediate consultation with a physician and consideration of the use of pharmaceutical antibiotics since it can produce serious damage to the kidneys and rapidly become life threatening (Mayo Clinic staff 2011). Therefore, our focus, as budding community herbalists is prevention and support with regard to early stage *bladder infection*, referred to as cystitis (a term that technically means inflammation due to bacterial infection) and *urethral infection*, referred to as urethritis. In both instances, symptoms typically include a frequent urge to urinate whether or not there is urine present, along with burning or pain, especially at the end of urination (dysuria).

Urinary tract infections are not infrequent in the United States. As the second most common type of infection, they prompt more than eight million doctor visits annually (National Kidney and Urologic Diseases Information Clearinghouse 2005). The most common pathogen responsible for urinary tract infections is *Escherichia coli* (commonly referred to *E. coli*), which is found in the lower intestine but can sometimes ascend into the urethra or bladder. About one in every five women is expected to have at least one UTI in her lifetime. Women experience

more UTIs due to having a shorter urethra than men. Having more than three UTIs in one year is classified as “recurrent.” Various conditions are considered causative for a UTI. These range from sexual practices to hygiene to water intake, among others.

Next, a brief introduction to some of medicinal actions associated with this indication would begin with (American Botanical Council 2013):

Analgesic: reduces pain

Antimicrobial: destroys or prevents the development or pathogenic action of a broad spectrum of microorganism. (Herbal antimicrobials are especially valuable since they tend not to produce resistance in pathogens. More specific terms include antibacterial, antiviral, and antifungal.)

Antiseptic: inhibits growth of microorganisms that cause infection

Astringent: constricts and binds tissues, reducing pain associated with irritation; does so by coagulation of proteins on the cell surface

Demulcent: soothes or softens internal tissues, usually by coating them with a mucilaginous substance; acts on inflammation

Diuretic: promotes formulation of urine in the kidney and produces urination

Finally, we would consider a sampling of *medicinal plant species* that have the aforementioned actions (Gladstar 2008, 1999; Hoffmann 2003), such as:

Analgesic: couchgrass, passionflower, uva-ursi, white willow

Antimicrobial: couchgrass, goldenrod, goldenseal, uva-ursi

Antiseptic: buchu, cranberry, uva-ursi, yarrow

Astringent: cleavers, cranberry, gravel root, stinging nettle, uva-ursi, yarrow

Demulcent: corn silk, couchgrass, marshmallow

Diuretic: buchu, corn silk, cleavers, couchgrass, dandelion, goldenrod, Marshmallow, uva-ursi, yarrow

Plants for the Urinary System

After the overview of *UTI (indication)—Medicinal Actions—Plant Species* as illustrated above, students would receive a list of many of the relevant species as abbreviated below. I would then introduce many of them in a lecture accompanied by photographs, dry plant materials, and medicinal tincture samples. I also would have already given students an introduction to basic principles of taxonomy by this time, thereby both encouraging and equipping them to develop fluency with Latin names (Genus and species) as well as Latin

and English family names. We also would have discussed several reasons for using Latin names, including but not limited to accuracy of identification, cross-regional and international clarity of communication, and recognition of relationships among different species and genera.

SELECTED SPECIES FOR THE URINARY SYSTEM (abbreviated)

<u>Latin Name</u>	<u>Common Name</u>	<u>English Family</u>	<u>Latin Family</u>
<i>Achillea millefolium</i> *	yarrow	Aster	Asteraceae/Compositae
<i>Agathosma/Barosma betulina</i>	round leaf buchu	Rue/Citrus	Rutaceae
<i>Agropyron repens</i> **	couchgrass	Grass	Poaceae/Gramineae
<i>Althea officinalis</i> ***	marshmallow	Mallow	Malvaceae
<i>Arctostaphylos uva-ursi</i> *	uva-ursi	Heath/Heather	Ericaceae
<i>Equisetum arvense</i> *	common horsetail	Horsetail	Equisetaceae
<i>Eupatorium purpureum</i> ***	gravel root/Joe-pye weed	Aster	Asteraceae/Compositae
<i>Galium aparine</i> *	cleavers	Madder	Rubiaceae
<i>Hydrastis canadensis</i> ***	goldenseal	Buttercup	Ranunculaceae
<i>Serenoa repens</i>	saw palmetto	Palm	Aracaceae
<i>Solidago</i> spp.*	goldenrod	Aster	Asteraceae/Compositae
<i>Taraxacum officinale</i> **	dandelion	Aster	Asteraceae/Compositae
<i>Urtica dioica</i> *	stinging nettle	Stinging Nettle	Urticaceae
<i>Vaccinium/Oxycoccus</i> spp.	cranberry	Heath/Heather	Ericaceae
<i>Zea mays</i> ***	corn (silk)	Grass	Poaceae/Gramineae

* indicates species that are native to the Pacific Northwest

** indicates species that are introduced and grow wild in the area

*** indicates species that can be garden cultivated in the area

An example of the kind of lecture information included in species' introductions follows:



Cranberry

Vaccinium spp. (sometimes placed in *Oxycoccus*)

Example: American or large cranberry, *V. macrocarpon*

Ericaceae – Heather or Heather Family

Description. Cranberry is an Evergreen shrub that is related to blueberry and huckleberry. It has upright branches with leaves that are speckled underneath with small dots. It offers pinkish flowers and red-black fruits that ripen in June and July.

Ecology. Cranberry likes bog habitats and is circumboreal. *V. macrocarpon* grows in northeastern North America, south to North Carolina at high elevations.

Part Used. Ripe fruit

Indications. Cranberry is used especially when there is a tendency for recurring urinary tract infections (UTIs) such as among older women with an increased tendency for infection. Studies support use in both of these instance. They also show that cranberry is not very effective against bacteria (typically *E. coli*) once they have attached to cells. Originally scientists thought that cranberry made the urine acidic enough to kill the bacteria. Now it is known that cranberry actually prevent bacteria from attaching to the walls of the urinary tract, making it most valuable as a preventative for both cystitis and urethritis (NYU Langone 2013).

Actions. Urinary antiseptic

Cautions. Cranberry is generally safe even in pregnancy. It contains relatively high levels of oxalates, however, so, in large doses, it can increase the risk of kidney stones. It should not be used as a substitute for antibiotics. It may interfere with the effects of warfarin used to thin blood (University of Maryland Medical Center 2013). Some studies indicate that cranberry should not be combined with uva-ursi because each reduces the effectiveness of the other due to their mechanisms of action, although others refute that claim (Gardner and McGuffin 2013).

Cultural/Historical Information. *V. macrocarpon* has long been eaten and used as medicine by Indigenous people of North America for urinary tract health and other indications including digestive disturbances (NCCAM 2012).

Cultural Perspectives on Winter: Classical Chinese Five-Element Philosophy

After introducing the urinary system and explaining that it was selected for our winter focus because of its energetic correspondence with winter in the classical Chinese Five-Element perspective, it would be necessary to explain the basis of this association. To do so, it would also be necessary to explain some basic aspects of the Five-Element philosophy itself. This would illustrate perspectives on health, healing, nature, and medicine, which are quite different from those found within Western mainstream healthcare. My introduction would be based largely on the understandings I had gained from a two-year apprenticeship with herbalist Joyce Netishen from 2002 to 2004, along with subsequent deepening of those understandings through observation, reading, and reflection over the years since my apprenticeship. However, it should be emphasized that during my apprenticeship, we were directed to not read or engage in theoretical analysis of the Five-Element philosophy. We were expected to draw upon very basic principles that were introduced orally by Joyce, and then to explore them through observation and reflection over time. Still, there exists a large body of literature on the subject that is rooted in *The Yellow Emperor's Classic of Medicine*, an ancient text attributed to Huang Di, the mythical Yellow emperor, and subsequently translated, interpreted, and expanded upon in various editions (Veith 2002; Ni 1995). *Ling Shu or the Spiritual Pivot* further illuminates the relational dynamics of the classical Chinese philosophy (Wu 2002).

In the Medicinal Botany class I would explain that, in classical Chinese thinking, the same energies are viewed as affecting both the world of nature outside humans *and* the world of nature inside humans. At the source of these energies is considered to be a singular energy. Whether it is called God, Chi, Shiva/Shakti or the Great Mystery, this *one* is at the core of all that manifests. Then, in ways that are unknowable, the *one* splits and becomes *two*. The advent of *two* thus enables polarity in all its expressions and forms such as night and day, in and out, up and down, here and there, now and then, yin and yang, male and female. This also enables the emergence of time, space, light, and sound because polarity manifests the *wave*. If we look more closely at the wave, we notice all the points along its curve and discover that we can also view the wave as a spiral that returns to its original point, or nearly so. Along the way we find all numbers and all phases, and we discover the concept of the cycle with its universality of beginnings, middles, and ends.

We see these cycles all around us in days and seasons and years, in the journeys of planets, and beyond.

Of particular interest to the human experience is the cycling of the seasons. In classical Chinese thinking, nature offers five seasons, not just four. *Spring* gives way to *summer*, which unfolds into *late summer* before letting go into *fall* and *winter*. These seasons do not align exactly with the astronomical markers of the equinoxes and solstices. Rather they are influenced by climate and weather dynamics. When I think of fall, for example, I notice that there is an early period characterized by fruitful abundance and a golden crispness in the air. This feels distinct from the dark time that follows when both leaves and fruits drop, skies darken, and inwardness beckons. In classical Chinese thought, the earlier period is called late summer. The latter is reserved for fall.

The five seasons are associated with five *elements* or phases, which are translated from the Chinese word *xing*, emphasizing dynamic movement and change (Anderson 2014, personal communication). This differs from the Western emphasis on four static elements: air, fire, earth, and water. In classical Chinese philosophy, spring is associated with *wood*, summer with *fire*, late summer with *earth*, fall with *metal*, and winter with *water*. Further, both the seasons and the elements are generative, not random. In other words, one *creates* the next. Simple metaphors can illustrate this, though they should be viewed more as caricatures pointing to a deeper wisdom that must be examined to be well understood. For example, *wood* (spring) burns and creates *fire* (summer), which gives way to ash, a form of *earth* (late summer), and the *earth* itself contains *metal* (fall) at its core. Finally, when *metal* is left out over night, dew or *water* precipitates upon it (winter). The important point here is the generative or creative capacity of each element. Often the seasons and elements are drawn at the tips of a five-pointed star. In older systems, earth was drawn at the center with the remaining four elements drawn around the outside, a design that looks more familiar to the Western eye. There is so much to say about each of these elements or phases, particularly those that are least familiar to the West: *wood* (spring) and *metal* (fall). In my teaching, I would focus on the present season and its element or phase, in this case, *winter* and *water*, because that helped us recognize that the Five-Element system is grounded not just in abstractions but also in the senses.

With a focus on winter, I would begin by asking everyone to brainstorm about what

is going on *outside*, and we would share those observations. Then everyone would brainstorm about what was going on *inside* of them and in their personal lives. We would share those as well, and I would list them on the board. Noting connections between the two lists, I would then weave the observations and experiences into the story I would tell. In this story, we would begin by remembering fall. We would revisit the way in which the leaves have fallen and the plants look as if they are dying. We would also consider this appearance more carefully, realizing that what is really happening now in winter is that water from rain and snow is percolating through the fallen leaves and detritus, acting as a menstruum or solvent, and drawing out their nutrients like a tea. In this way, even the annual plants with one-year life cycles live on, in a sense, through the nutrition they provide for the next cycle of growth, their own and others'. What may appear as death is really a quiet pause that represents completion, assimilation, rest, and preparation. The nutrients contained in last year's growth now wash into the soil and nourish the roots, doing so beneath the surface and out of view — as if nothing is happening at all. Yet, without this quiet unseen activity, future growth would not take place.

Additionally, we would have noted through students' brainstorming that many were feeling tired, introspective, quiet, and perhaps fearful. I would point out that, like the water under the soil, the metaphorical water *within* is also doing its invisible work at this time through the vehicle of sleep and dreams. Indeed, a little winter occurs every night when we sleep, rejuvenate, and ready ourselves for a new day. During the winter season, in the Five-Element philosophy, we must draw upon our faith that spring will indeed come again (since there is no real *proof*), and we are given the opportunity to recognize that we are not the conscious architects and builders of everything that is of value. In this way, the deepest parts of ourselves can also access our authenticity and, without our conscious direction, ready us for new beginnings. Specific formal associations with winter in the Classical Chinese Five-Element philosophy include the following (Haas 2003; Magner 2002; Ni 1995):

Element or phase: *Water*

Color: *Blue-black*

Look at the clear sky in the depth of winter. Note the churning Water beneath the frothing rapids of a swollen creek.

Emotion:	<i>Fear</i> Darkness, cold, and isolation can generate fear. It is harder to stay alive in winter.
Odor:	<i>Putrid</i> Have you ever smelled the water in a vase after the flower stems have rotted?
Sound:	<i>Groaning</i> Think of tree branches and trunks rubbing against each other in a storm.
Organs:	<i>Kidneys and Bladder</i> The organs that process <i>water</i> .

At this point, I would introduce the idea that, in classical Chinese thought, organs are not conceived as strictly physical entities, the way they are in Western concepts of medicine and health. They are thought of, first, as *functions* that take place not just in the body, but also in the mind and spirit. In this view, physical organs, such as the kidneys or bladder, are a physical expression of a function that also manifests on other levels. This concept would be unfamiliar to most students, just as it was initially to me. However, as with all of the ideas that were introduced to me during my apprenticeship with Joyce Netishen, I was not asked to take her (or anyone else's) word for *anything*. Instead, I was told to look and listen, taste and smell, write and draw, and sleep and dream to find *for myself* which of these ideas hold merit, and which are authentic and true *to me*. I have asked my students to do the same while offering these ideas for their consideration.

With regard to the *kidney function*, we would recall that the physical kidneys are involved in separating waste products from useful products in the blood, excreting the former, and reabsorbing the latter. Then we would consider what this might metaphorically look like on the mental level. Our minds contain a stream of thoughts and ideas. Some are useful to us. Others are not. Some were useful at one time but no longer have value. *Kidney function* on the mental level could be described as the process of discernment that enables us to focus on useful thoughts and ideas, and let others go. Likewise, just as the bladder controls excretion, expression of thoughts and ideas could be thought of as the *bladder function* within the mind. Sometimes people babble incessantly. Other times we might find it difficult to relax and speak at all. The metaphors here are not difficult to see. Finally, a similar process could be applied to the level of spirit. The *kidney function* here might be considered the ability to separate, retain, and release the elements

that contribute to a sense of meaning and purpose in life, and the *bladder function* as part of the ability to modulate appropriate authentic expression in social contexts and mark our spiritual territory in life. Classical Chinese Five-Element perspectives on all the seasons, not only winter, offer a tremendously robust opportunity for exploring potential integration of mind, body, spirit, and “nature.” The key within these perspectives is valuation of the ability to flow and find balance as the wheel moves around the seasons and as we, as humans, move with it (Patwardhan et al. 2005; Haas 2003; Jing-Nuan 2002; Ni 1995; Joyce Netishen 2002-2004, oral communication).

Other Topics and Activities

Additionally, we would cover other relevant topics such as plant *applications* (the forms in which the plants are prepared and applied) and we would preview topics to be emphasized in the upcoming spring season such as growing, harvesting, and processing the plants. Perhaps most important would be the hands-on activities that would serve as a kind of relational glue for the intellectual content. These activities would also allow the information to find a meaningful place in students’ lives as well as to create, to the extent possible, a hospitable environment within a college classroom. For example, we would hold a “tea party” in which students would work in small groups to create a tea blend. (We would already have discussed the nature, purposes, and preparation of medicinal *infusions* and *decoctions* as well as considerations regarding plant combinations.) This would require students to discuss among themselves the overall indications they wanted to address as well as select and briefly research appropriate plant species. Then they would prepare their teas, create a visually attractive and informative display about each blend’s *indications* and the component plants’ *medicinal actions*, and set up an inviting table complete with a complementary snack or treat. Many benefits would result from this activity, including confidence in preparing medicinal applications and experience in creating community with plant-based medicine at the center.

Additionally, students would read, write responses, and discuss such texts as *The Herbalist’s Way* (Phillips and Phillips 2005). They would create a set of “morphology” cards that included a color drawing on one side of a 4” x 6” card and, on the other side, a black-and-white diagram of the plant species’ arrangement (alternate, opposite, whorled or

basal) along with detailed naming information. At the end of the quarter, the cards would be used for memorization games. Students would also create scratchboard art focusing on the theme of winter and the details of twigs. They would participate in plant walks I would lead in the Longhouse Ethnobotanical Garden. Finally, they would become acquainted with each other's beliefs and practices regarding medicinal plants by using an interview tool that would also help them consider why people, in general, do and do not use plants as medicine. This is discussed in Chapter 10.

Student Response

Taken together, these various elements, drawn from different disciplines and different cultural traditions, had the effect of opening many students not only to knowledge, but also to a way of life that was often quite new to them. As with Tend and Tell, I began to see many of my students having profound transformative experiences and writing about them. Their writing often included amazement and delight about (1) how many plants around them, including “weeds,” have medicinal value; (2) the specific medicinal attributes of individual plant species; (3) their newfound abilities to identify plants as well as how and when to ethically harvest them; (4) learning how to grow medicinal plants; (5) the exciting prospect of becoming a more active and informed participant in their own healthcare; (6) reclaiming knowledge and engagement with their families and communities that had been culturally lost; and (7) beginning to inhabit their lives and worlds in ways that I have since come to characterize as *relational engagement* and to see as the central attribute of Community-Based Herbalism.

Next, Chapters 6 through 8 examine the concept of *relational engagement* from numerous perspectives. Chapter 6 explores relationality within the context of the history of ethnobiology and introduces the idea of *paradigms*. Chapter 7 examines relationality from various discipline-based perspectives, explores a particular form of relationship known as *attachment*, and looks at broken relationship in several forms and contexts including paradigm conflicts. Chapter 8 then considers how relational engagement can be achieved, with emphasis on the concept of *ecotone* drawn from landscape ecology, which is applied metaphorically in the concept of an *ethnobiological ecotone*.

Chapter 6. Using Ethnobiology to Introduce Relationality

Ethnobiology: What It Is and Why It Matters

A thorough exploration of teaching, studying, and using plant-based medicines involve must involve consideration of human interaction with plants in terms of health and healthcare. There are other types of interactions humans have with the plant world, of course, and all of these can be thought of as a subset of the broader interactions and relationships that humans have with the natural world, including those with animals and environments. An interdiscipline that examines these types of interactions and relationships is ethnobiology, which ethnobiologist John Stepp (2005:211) defines as “the scientific and humanistic study of the complex set of relationships of the biota to present and past human societies.” While some suggest that the most fitting focus of ethnobiology is non-Western cultures (Hunn 2007: 9), others explicitly do not (Anderson 2011). Ethnobiology in this dissertation emphasizes human relationships with the natural world in the contemporary mainstream United States as well as other contexts.

Ethnobotany is a major subdiscipline of ethnobiology. Like all academic disciplines, ethnobiology has followed a trajectory of changing perspectives, sometimes leading and sometimes responding to the changing perspectives in society at large (Nolan and Turner 2011). This chapter uses the history of ethnobiology/ethnobotany to identify three such perspectives. I propose that these three perspectives reflect three underlying paradigms that also correlate with the levels of iatrogenesis discussed in Chapters 2 and 3. Further, I propose that, since paradigms can both focus perception and limit understanding, they can also serve as barriers to relationship. This can set the stage for harm to occur through interactions that foster separation rather than mutual awareness, understanding, and respect. With this in mind, the chapter concludes with a proposed emergent relational phase of ethnobiology, which could reflect a *relational paradigm* that could potentially integrate the three paradigms and help reduce harm in healthcare on the three identified levels of iatrogenesis.

History of Ethnobiology Embedded in Eras

Several researchers have described the history of ethnobiology using a model of phases (Anderson 2011; Hunn 2007; Clement 1998). While terms and emphases vary slightly in different versions, a basic trajectory in which each phase reflects the broader social and intellectual context remains the same. Here, I draw upon and modify the four-phase model of ethnobiologist Eugene Hunn (Hunn 2007, personal communication) with emphasis on the underlying contextual eras. Further, while each phase is temporally situated on the basis of its period of initiation and dominance, the time periods do not have strict beginnings and endings. Conceptual and practical threads have preceded each phase and have continued since.

Ethnobiology's four phases have been characterized by different foci, moving from an early emphasis on exploratory, often utilitarian collection and cataloging (through roughly the 1950s); to reflexive interests in linguistics, classification, and human cognition (1950s-1970s); and then to concerns with Traditional Ecological Knowledge and Wisdom (TEKW) with particular reference to environmental stewardship, medicine, legitimization of knowledge, and the global marketplace (1970s-1990s). Finally, the most recent phase has been driven largely by Indigenous assertions of autonomy and authority. In other words, Indigenous people the world over have been demanding control of their own knowledge by creating the terms of their relationships with outsiders who wish to engage them in research (1990s-present) (Anderson 2011; Hunn 2007; Clement 1998). For the purpose of this work, I will be focusing on the first three of these phases and emphasizing the contextual eras in which they emerged.

Roots in European Exploration, Conquest, and Colonization

Academic ethnobiology (particularly ethnobotany) is rooted in what preceded it through European expansionist exploration and colonization that began to weave the world into the global political configuration seen in more recent times. A portion of this larger story relates to the Pacific Northwest, where the primary fieldwork of this dissertation takes place. Here, from the late eighteenth century until the mid-nineteenth century, Spain,

England, Russia, and the young United States were in competition with one another for laying claim to the lands on the western side of the North American continent. For the most part, the explorers wanted sea otter furs to trade in China for spices, fabrics, and tea, which could bring a significant profit in Europe and the United States (Gibson 2001). They also wanted to determine what other resources and knowledge might be useful to them either back home or *in situ* if settlers were sent to establish colonial holdings. Toward these ends, naturalists, some of the earliest de facto ethnobiologists, generally accompanied the sea captains on their ships. Botanists Archibald Menzies and David Douglas count among those whose job was to document the nuances of the land and Indigenous peoples in the Pacific Northwest for later evaluation of potential benefit to the colonizers. Menzies, the medical officer and naturalist who traveled with naval officer George Vancouver, maintained a journal that was subsequently published in 1923. John Forsyth describes Menzies' mission (which was described as "materially connected with some of the most important objects of the expedition") in his biographical notes:

He was to investigate the whole of the natural history of the countries visited, paying attention to the nature of the soil, and in view of the prospect of sending out settlers from England, whether grains, fruits, etc., cultivated in Europe are likely to thrive.... He was to dry specimens of all that were worthy of being brought home and all that could be procured, either living plants or seeds, so that their names and qualities could be ascertained at His Majesty's gardens at Kew.... Inquiry was to be made into the manners, customs, language, and religion of the natives and information obtained concerning their manufactures, particularly the art of dyeing. (1923:ix-x).

The land at that time was considered "available" for settling. Europeans and European Americans perceived it as uninhabited because the Indigenous people who populated it were not Christian, were viewed as uncivilized, and were often considered not fully human (Shiva 1997; Sale 1991). As revealed above, the "manners, customs, language and religion of the natives" were in the same conceptual category as plants and soil, that is, "the whole of the natural history" (Forsyth 1923: ix).

Other defacto ethnobiologists, however, revealed a more nuanced, respectful, and engaged interest in the Indigenous people and places they participated in "exploring." Franciscan friar Bernardino de Sahagún collaboratively undertook an ethnographic project with Aztec students at the Colegio de la Santa Cruz at Tlatelolco in Mexico as early as the

sixteenth century (Hunn 2007). His Aztec students participated in documenting their elders' traditional knowledge, including the use of plants and animals as medicine and food. Sahagún undertook this work even though a colleague was simultaneously destroying existing sources of Indigenous traditional knowledge, which were perceived as expressions of “the evil influence of Satan” (Hunn 2007:5). Sahagún's choice to record similar knowledge put him under threat of the Roman Catholic Inquisition. In the United States, early examples of respectful research relationships can also be found.

Anthropologist Frank Hamilton Cushing, who lived and worked among the Zuni of New Mexico in the nineteenth century and is credited as being one of the first to practice *participant-observation* (one of anthropology's central research modalities) (Green 1990; Cushing 1978). Still, ethnobiologist Daniel Clément (1998:161) asserts in “The Historical Foundations of Ethnobiology (1860-1899)” that most Western researchers were interested in the economic usefulness of the plant and animal products they observed among the Indigenous people they studied. He states:

The researchers — botanists and zoologists, as well as ethnologists, missionaries, and adventurers — often worked for museums. They denied any form of scientific knowledge to indigenous people. They were more interested in the products which could be used by Western civilization than in the knowledge of the people they assigned to a savage state.

By the late nineteenth century, opportunities for conquest of land, at least in North America, had diminished enormously. Boundaries and ownership had been established between England, Spain, and the United States. Overland wagon routes had given way to railroads. A vast frontier was dotted with cities. Expansion was well underway. Intellectual conquest was now coming to the forefront. The fields of anthropology and biology, among others, were developing and expanding.

Ethnobiology Phase 1.

Period: Late Nineteenth to Mid-Twentieth Century (1890s-1950s)

Key Era Descriptors: Utilitarian/Modernist/Appropriative

In the nineteenth century, the developing fields of anthropology and biology found a great deal to study in North America, especially “out west.” The federal government was

conducting surveys in association with railroad construction (Tyler 1998; Viola 1987). Archaeological excavations were taking place in various areas, especially the southwest. Artifacts were being shipped “back east” and made available for general viewing in museums and fairs, and looting of archaeological sites had become a significant problem (National Park Service 2014). The 1893 “World’s Fair: Colombian Exposition” in Chicago included archaeological specimens from a dig in Mancos Canyon, Colorado that contained food, dress, and household items (Zwinger 1986). Shortly after this, in 1895, the term *ethno-botany* was introduced in passing during a lecture about the Mancos Canyon collection by botanist J.W. Harshberger (Schultes 1995(2008)). The following year, Harshberger proposed ethno-botany as a new field of study involving “recording the uses of plants by ‘primitive’ peoples” (Nolan and Turner 2011:135). Nearly fifty years later, in 1944, ethnobiologist Edward Castetter acknowledged a broader scope of interest and formally defined *ethnobiology* as the study of the “utilization of plant *and animal life* by primitive peoples” [emphasis added] (Castetter 1944:60).

It is important to acknowledge that the policies of the United States government toward Indigenous North Americans amounted in effect and by intent to ethnocide and genocide (Niezen 2000; Chalk and Jonassohn 1990). Indigenous people who were moved off their traditional territories experienced debilitating disruptions to their means of livelihood. Children were forced to attend residential boarding schools where they were often tortured if they spoke or looked “Indian.” As discussed in Chapter 2, these and other efforts to “destroy the Indian and save the man” followed widespread decimation of sometimes 90-95 percent of villages from diseases such as smallpox that were often spread by contaminated blankets (Krech 2000; Mayor 1995; Stearn and Stearn 1945). Such devastation left in its wake confusion, despair, and widespread destruction of traditional lifeways. Historian Frank Chalk and sociologist Kurt Jonassohn state (1990:203), “Ethnocide was the principal United States policy toward American Indians in the nineteenth century, but the federal government stood ready to engage in genocide as a means of coercing tribes when they resisted ethnocide or resorted to armed resistance.”

Now that many European Americans viewed Indigenous people of North America to have been largely “tamed” or on their way to extinction, they became a topic of romantic fascination and nostalgic study. While the “left hand” of European-American

society was engaged in destruction, the “right hand” was engaged in collecting what remained (Nason 1997). This came to be known as *salvage anthropology* (Buckley 2011; Starn 2011; Bruchac 2010; Gruber 1959). Some of the motivation for salvaging Indigenous cultural property in the form of artifacts and knowledge was academic (Starn 2011) and related to the important role that collection had played in the development of European natural history (Jardine et al. 1996; Whitaker 1996), an aspect of the exploration described earlier. However, another major motivation for salvaging cultural property, especially knowledge, remained utilitarian, an aspect of which was an appropriative by-product of exploration and colonization. This fed a growing, market-oriented agenda and was formalized in *economic botany*. For example, appropriated medicinal plants that included quinine from the cinchona tree (*Cinchona succirubra*), long used by Andean Indigenous People for reducing fevers were later appropriated to treat malaria (Lee 2002). Madagascar's endemic rosy periwinkle (*Catharanthus roseus*) has been used to develop pharmaceutical drugs to treat leukemia and other cancers, yielding Bristol-Myers Squibb \$100 million in annual sales, from which virtually nothing was returned to Madagascar (Roht-Arriaza 1997).

This phase of ethnobiology, from the late nineteenth century into the 1950s, took place during an era in which *modernism* dominated mainstream European-American society and academia. As the twentieth century unfolded, technological advancements created more means by which “improvements” could be made upon nature and previous human invention. These advancements, typically generated *ex situ* in laboratories and workshops, represented specific and discrete accomplishments of modernity. The modernist view saw history as a unilineal social progression away from humanity’s “primitive” past toward a future characterized by capitalism, science, technology, whiteness, and the West (Spalding 1939). Gradually, the dominant view came to hold that science and technology — including laboratory-synthesized, pharmaceutical drugs — could solve most if not all natural and social problems. Indigenous people, viewed as “primitive,” were seen as vestiges of an earlier evolutionary state: simple, savage, curious, romantic, and barely human (Krech 2000; Berkes 1999). The Darwinian concept of “survival of the fittest” was reinterpreted and socially applied, and “modern civilization” was seen as triumphing at the top of the ladder (Hofstadter 1944).

Ethnobiology's Dual Roots: Biology and Anthropology

Before examining the remaining phases of ethnobiology, a word is in order about ethnobiology's dual nature and dual roots. Duality is inherent in all interdisciplinary pursuits that carry the prefix “ethno.” “Ethno,” with its connection to the word “ethnic,” points to an interest in people and cultures, such as is represented by anthropology. Biology is self-explanatory. Pairing them, as noted above, creates consideration of the myriad ways in which people and cultures relate to other living organisms (Ford 1978). While this composite anthropological-biological approach creates a merger that is inherently unique, its component disciplines draw upon widely different concepts, contexts, methodologies, and histories. However, it was the interdisciplinary interests of a few individuals that powerfully influenced the development of these intersections.

For example, Franz Boas — who is often called the “Father of American Anthropology” (Holloway 1997) — had interests and training in both psychology and geography before he began his career as an anthropologist in North America and challenged the modernist evolutionary view of social progress described above, even during its era of dominance. Instead, Boas introduced the concept of *cultural relativism* (Lewis 2001), and influenced a generation of anthropology students. Among others, these included Paul Radin (1927), who argued that differences between cultures should not be viewed in terms of superiority and inferiority; Ruth Benedict (1934), who also fostered appreciation of cultural diversity and explored patterns of relationship between individuals and their cultural contexts; and the highly influential Alfred Kroeber (1925), who collected and preserved a large body of information about Indigenous people in the western United States; among others (Moore 2009).

Over time, it came to seem more relevant that anthropologists become trained in biology, especially botany, in order to better understand the people they studied. Likewise, it seemed increasingly relevant that botanists pay attention to the Indigenous *people* of a floristic region and what they could teach about the plants (Gilmore 1932).

Ethnobiology Phase 2.**Period: 1950s-1970s****Key Era Descriptors: Postcolonial/Postmodern/Cognitive/Linguistic/Classificatory**

While the phases of ethnobiology/ethnobotany may be temporally sequenced within different historical eras, the different emphases of these eras persist even into the present. For example, the modernist, collection-oriented, utilitarian, and often appropriative motivations that dominated the era of Phase 1 grew largely from biology and natural history, and can be seen today in *economic botany* (although this field is not limited to utilitarian interests). Now I will show that Phase 2 draws more upon ethnobiology's anthropological roots. In other words, the postcolonial, linguistic, cognitive, and classificatory — some would say postmodern — motivations that dominated the era of Phase 2 grew more from the anthropological roots that had already emerged and were mentioned above.

By the 1950s, a strong academic movement was turning away from non-reflective modernist supremacy and was engaged in deconstructing modernist assumptions (Anderson 1998). This perspective — later labeled by some as postmodernism (a term that has a long and varied history^o (Ferraris and Teraboletti 1988) — increasingly recognized a cultural pluralism in which divergent ways of thinking and being were seen as equally valuable rather than chronologically hierarchical (Aylesworth 2013; Feyerabend 1988). Following after the earlier anthropologists described above (Boas, Radin, Benedict, and Kroeber), among others, one man who has been described by some as the “father of modern ethnobotany” (Harvard University Gazette 2001) played a notable role in disseminating this movement beyond academia. Further, it was his ethnopharmacological research that was an important agent of influence.

In the 1930s, Harvard professor Richard Evan Schultes, whose training was in biology and botany, participated in peyote ceremonies while carrying out fieldwork among the Kiowa people of Oklahoma (Gorman 1995). He became interested in identifying mushrooms and plants used in healing rituals and traveled to Mexico and Colombia to explore them there. Schultes made acquaintance and began to work with Swiss biochemist Albert Hoffman (who later synthesized LSD) (Schultes and Hoffman 2001) and researcher R. Gordon Wasson (Riedlinger 1997). Wasson became particularly interested in working

with Mexican Indigenous healer Maria Sabina, who used sacred mushrooms in her healing work. In contrast with earlier botanical researchers who expected a distanced, non-participatory approach to working in the field, Schultes and Wasson chose to participate in some of the consciousness-shifting rituals that accompanied the healing practices they witnessed in their respective fieldwork. These experiences seemed to allow them to recognize that the healing processes they witnessed were contextualized within alternative ways of viewing the world. In 1957, Wasson published a series of articles in *Life* magazine describing the healing practices of Maria Sabina. Some feel that this and other writing by Wasson — inspired in large measure by Schultes' work — played a major role in stimulating the broader social “hippie” movement with its interest in exploring alternative states of consciousness through psychoactive chemicals (Davis 1997).

Within the era of ethnobiology's Phase 2, a powerful interest emerged in how people think about, name, and classify living organisms. The doctoral dissertation of anthropologist Harold Conklin in 1954 is often cited as a seminal link between cognitive anthropology and ethnobiology through his examination of the Filipino Hanunoos' “surprisingly extensive lexicon of plants, consisting of over 1800 terms, categorized by an elegant, hierarchical principle of organization” (Nolan and Turner 2011:135). Later, anthropologist Brent Berlin (1992) and others such as Eugene Hunn (1999, 1989) and Cecil Brown (1986) sought to document systems of *folk classification* and to examine relationships among systems, including the Linnaean-based taxonomic system of Western science. Divergent avenues of interest resulted from Berlin's exploration of universal features found across systems, on the one hand, and Hunn's exploration of cultural variation, which he attributed to practical needs, on the other (Hunn 1999, 1989, 1982). Biological anthropologist Justin Nolan and ethnobotanist Nancy J. Turner (2011:135) summarize a major impetus of this phase in saying “researchers constructed and contested theories of human cognition vis-à-vis ethnological evaluations of culturally salient plants and their corresponding names and uses.”

Ethnobiology Phase 3.**Period: 1970s-1990s****Key Era Descriptors: Ethnoecology/Ethnomedicine/Traditional Ecological Knowledge/Legitimization**

The practices in ethnobiology's Phase 3, usually referred to as *ethnoecology*, emphasized non-Indigenous academics seeking to understand Indigenous knowledge in relationship to the total environment and incorporating ecological, taxonomic, linguistic, social, and medicinal knowledge. As ethnobiologists Nolan and Turner (2011:138) state:

Ethnoecology entails interpreting complex resource management strategies. The intrinsic value of diverse ways of knowing, and perpetuating local knowledge, are foci of ethnoecology. This field also emphasizes how and why human feelings, attitudes, values, memories, and emotions become associated culturally with plant-based foods, medicines, and other natural resources... Knowledge of regional ecosystems, when examined through expressive traditions and customs of use, can revivify resource philosophies and practices.

This emerging interest in the total environment was taking place in the 1960s and 1970s, when the discipline of ecology and its associated environmental movement was promoting awareness of the dizzying rate at which tropical rain forest species were being decimated by practices such as agriculture, logging, and cattle ranching, among other environmental concerns (Williams 2006; Rome 2003). Capitalizing on both environmental worries and eroding confidence in mainstream medicine's ability to deal with a range of conditions from HIV and cancer to the common viral cold, a group of ethnobotanists (largely students of Schultes) began discussing the values they saw in ethnobiology as an interdisciplinary research tool. In other words, they began to make a case in support of an updated version of salvage anthropology that integrated the utilitarian (medicinal and commercial) motivations of Phase 1 with knowledge-based motivations of Phase 2, and partnered them with environmental concerns (Nazarea 1999; Cox and Balick 1994). They argued that, with the loss of plants and habitats — losses to the *biosphere* — came the loss of knowledge, particularly medicinal knowledge — losses to the *ethnosphere* (Davis 2007). Conversely, it followed that, if Indigenous knowledge was being lost so rapidly through introduced illness, displacement, emigration, poverty, and assimilation, even if raw resources remained, their potentials might not be recognized.

The reasons for concern were said to be great. Of the estimated 265,000 flowering species recognized in the mid-1990s, only one percent had been thoroughly investigated for chemical constituents and medicinal potential (Balick and Cox 1994), and only about 120 major prescription medications were biologically active derivatives of 95 species (Rates 2001). Prior to 1988, the National Cancer Institute, part of the National Institutes of Health (NIH), had examined about 35,000 species for cancer curing properties. While that might have sounded like a large number of species, these ethnobotanists noted that the research had only looked for one potential use. Furthermore, of those 120 plant-derived medicines, 74 percent had resulted from scientific follow up of traditional folkloric uses (Farnsworth 1988). Some believed that, of the various approaches available for discovering biologically active drugs based on random screening, taxonomic relationships, ecological interactions, and Indigenous knowledge, the leads drawn from Indigenous knowledge could “increase the success ratio in trials for useful substances from one in ten thousand samples to one in two” (Roht-Arriaza 1997; Cox and Balick 1994). (Others, however, disputed this assertion (Cragg et al. 1994).)

Therefore, the need for ethnopharmacological research was said to be enormous, as was the need for preservation of the species and habitats that might yield new medicines (Reyes-Garcia 2010). These and other concerns about environmental threats to species, habitats, and fundamental life support systems fostered increased interest in Traditional Ecological Knowledge and Wisdom (TEKW) on the part of mainstream academia, business, and healthcare. Defined by ecologist Fikret Berkes, TEKW is “a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment” (Berkes 1999:8). As such, TEKW— frequently a form of Indigenous knowledge — became increasingly viewed as a likely source of alternatives for existing mainstream approaches to environmental management, medical research and development, and profit. Through this, a type of legitimization of the value of traditional knowledge, practices, plants, and places occurred. However, this legitimization was conditional. It was argued that habitats and knowledge should be protected in case they might lead to useful (and lucrative) medicinal products. But what if they did not? Or, perhaps worse in some respects, what if they *did*?

In other words, in this view, legitimization was conditionally based on values that existed and endured only if and when the resource and/or knowledge were needed in order to accomplish value-added development. Value, in this view, was not inherent. As environmental activist and eco-feminist Vandana Shiva (1997b:74) put it:

The concept of adding value...hides the removal and destruction of the value of indigenous plants and knowledge. As the genes of a particular plant gain value, the plant itself becomes dispensable, especially if the genes can be replicated in vitro. As useful characteristics of plants are identified by indigenous communities, the communities themselves — along with their lifestyles and knowledge systems — become dispensable.

The introduction of an ecological component into ethnobiology did not simply invite attention to environmental elements. It also allowed for consideration of associations between local, global, ecological, and economic systems, and it deepened these considerations to include the structural elements that underpin the various systems. While utilitarian interests from Phase 1 (and before) remained present as well as interests in classification of habitat components and interconnections from Phase 2, the broader orientation of Phase 3 was a more inclusive incorporation of underlying lifeways and links between systems and contexts.

Ethnobiology Phase 4.

Period: 1990s-Present

Key Era Descriptor: Indigenous Authority

Something else was happening during the ethnoecological third phase of ethnobiology as Western academia and the global medical marketplace accelerated their reach into Indigenous knowledge and the places in which it was rooted. Indigenous people the world over were asserting their authority to change and control the dynamics of their relationships. For example, Indigenous scholar Linda Tuhiwai Smith dedicates the second half of her book, *Decolonizing Methodologies* to examining “the different approaches and methodologies that are being developed to ensure that research with indigenous peoples can be more respectful, ethical, sympathetic and useful” (Tuhiwai Smith 1999:9). She goes on to say:

Communities and indigenous activists have openly challenged the research community about such things as racist practices and attitudes, ethnocentric assumptions and exploitative research, sounding warning bells that research can no longer be conducted with indigenous communities as if their views did not count or their lives did not matter (1999:9).

In *Research is Ceremony*, Opaskwayak Cree researcher and author Shawn Wilson describes it this way, “Indigenous scholars began to assert their power. No longer would they allow others to speak in their place. They began to articulate their own Indigenist perspective and demanded to be heard in doing so” (2008:50). Further, Eva Marie Garrouette (2005:170-171) labels this perspective, *Radical Indigenism*, stating that Indigenous people “possess philosophies of knowledge that can be understood as rationalities – articulable, coherent logics for ordering and knowing the world...” and that these are valuable not merely as “objects of curiosity...but as tools for discovery and for the generation of *knowledge*.”

The effects of Indigenous assertions of authority were substantial and undeniable. In the words of anthropologist Virginia Nazarea (1999:4), “Gone are the so-called simpler days when anthropologists could refer to their fieldwork sites as ‘my village’ and speak authoritatively about ‘my people,’ or use Western systems of thought as the yardstick for everything that is good and beautiful and true.” In place of those so-called simple days came enormous complexities.

The term biopiracy has been used to refer to these complexities. In this term, piracy merges with the prefix “bio,” which refers to life and forms of life as well as, according to scholar and activist Vandana Shiva (1997:5), “non-Western traditions of relating to and knowing nature.” Thus, biopiracy can be described as the robbery, hijacking, or unauthorized use (piracy) of the natural world *as well as* of the traditional knowledge — often developed over generations among Indigenous people — that refined the possibilities of this use within a specific cultural context. In other words, biopiracy refers to obtaining through unauthorized and unethical means (such as deceiving or stealing) and using in unethical ways (such as withholding from rightful users) property (productions, inventions or conceptions) created by an *other*, be that *other* a non-Western tradition or nature itself. Indigenous concerns about biopiracy have focused on, among other issues, patents, intellectual property rights, ownership, representation, compensation, privacy, community,

control, power, self-determination, reciprocity, and access (Posey 2002, 1996, 1990). Of the long-standing, non-Indigenous pattern of biopiracy, as well as of its implications, Shiva (1997b:3-5) offers this incisive analysis:

The assumption of empty lands, *terra nullius*, is now being expanded to “empty life,” seeds and medicinal plants... The takeover of native resources during colonization was justified on the ground that indigenous people did not “improve” their land... The same logic is now used to appropriate biodiversity from the original owners and innovators by defining their seeds, medicinal plants, and medical knowledge as nature, as nonscience, and treating the tools of genetic engineering as the yardstick of “improvement” (p.4.). Five hundred years ago, it was enough to be a non-Christian culture to lose all claims and rights. Five hundred years after Columbus, it is enough to be a non-Western culture with a distinctive worldview and diverse knowledge systems to lose all claims and rights. The humanity of others was blanked out then and their intellect is being blanked out now. Conquered territories were treated as peopleless in the patents of the 15th and 16th centuries. People were naturalized into “our subjects.” In continuity with conquest by naturalization, biodiversity is being defined as nature – the cultural and intellectual contributions of non-Western knowledge systems are being systematically erased...

Capital now has to look for new colonies to invade and exploit for its further accumulation... The colonies have now been extended to the interior spaces, the “genetic codes” of life-forms from microbes and plants to animals, including humans... Resistance to biopiracy is a resistance to the ultimate colonization of life itself – of the future of evolution as well as the future of non-Western traditions of relating to and knowing nature. It is a struggle to protect the freedom of diverse species to evolve. It is a struggle to protect the freedom of diverse cultures to evolve. It is a struggle to conserve both cultural and biological diversity.

Ethnobiologist Darrell Posey (1996) identified nine categories of cultural resources or intellectual property that Indigenous peoples around the world have expressed the desire to protect from biopiracy including knowledge of current, previous, or potential use of plants; preparation, processing and storage of useful species; formulations with multiple ingredients; individual species including plant, management, and selection practices and criteria; and ecosystem conservation that may offer environmental protection and/or potential commercial value.

In ethnobiology’s fourth and current phase, conceptual and operational assumptions of non-Indigenous institutions no longer remain invisible and unchallenged as Indigenous people more and more fully assert their right to self-determination, which includes free access to resources on their traditional land. As Eugene Anderson (2011:10) points out, “It

has now become common for Indigenous and non-indigenous coworkers to coauthor books, as in the case of the many ethnobotanies of Nancy Turner and collaborators.”

Now that I have introduced ethnobiology through phases embedded within historical eras, I will next propose the presence of underlying paradigms within three of the phases. I will further show how these paradigms correlate with the three levels of iatrogenesis identified in Chapter 2.

Paradigms Introduced: Specificity, Systemic, and Structural

In Chapter 2, I grouped the causes and outcomes of iatrogenesis in U.S. mainstream healthcare into three categories or levels. Listed from narrowest to broadest, they are: (1) *specific* practices within mainstream healthcare such as biomedical mistakes; (2) *systemic* factors such as expenditures, outcomes, and access at the societal level; and (3) the historical conditions and *structural* violence in which mainstream healthcare developed and operates, and which it frequently perpetuates, along with environmental processes. I now further propose that each of these types of iatrogenesis is rooted in a distinct worldview or paradigm. In other words, each category of healthcare harm (iatrogenesis) is embedded within a distinctive framework of beliefs, values, and experiences that organize perception, shape understanding, and motivate action. Likewise, I propose that the eras in which the three phases of ethnobiology are embedded correlate with these three levels of iatrogenesis through underlying paradigms in which they are rooted. These paradigms are as follows:

- *Specificity Paradigm*
Ethnobiology Phase 1.
Period: Late Nineteenth to Mid-Twentieth Century (1890s-1950s).
Key Era Descriptors: Utilitarian/Modernist/Appropriative
Level of Iatrogenesis: Specific
- *Systemic Paradigm*
Ethnobiology Phase 2.
Period: 1950s-1970s
Key Era Descriptors: Postcolonial/Postmodern/Cognitive/Linguistic/
Classificatory
Level of Iatrogenesis: Systemic

- *Structural Paradigm*

Ethnobiology Phase 3.

Period: 1970s-1990s

Key Era Descriptors: Ethnoecology/Ethnomedicine/Traditional Ecological Knowledge/Legitimization

Level of Iatrogenesis: Structural

Further, each paradigm is characterized by dominant types of relationship among humans and between humans and the natural environment. The following section examines the proposed underlying paradigms and how they correlate with both the levels of iatrogenesis and the phases of ethnobiology. Recognition of how these paradigms operate in two different contexts serves to deepen understanding of the paradigms, which, in turn, helps illuminate the types of approaches to healthcare that can contribute to reducing healthcare harms on each level of iatrogenesis. In this section, I also propose that approaches that create engagement across paradigms — relational approaches — can be particularly helpful. This paradigm analysis and the proposed importance of relational engagement will inform later examination of the types of approaches to healthcare that are inherent in Community-Based Herbalism.

Phase 1. Specificity Paradigm

As stated above, each paradigm or worldview tends to organize perception, shape understanding, and motivate action. In the Specificity Paradigm, perception is tuned to discrete units and is understood in terms of concrete functionality that is independent of context and interchangeable with other similar units, much like the parts of a car. Generally speaking, in the Specificity Paradigm, motivations include collection, testing, evidence, objectivity, replication, improvement, commodification, ownership, and profit.

Most often, the term *iatrogenesis* is used to apply to a discrete, unintended biomedical outcome, such as an adverse drug effect, a nosocomial (hospital-induced) infection or a misdiagnosis. These outcomes focus on direct cause and effect as illustrated by early versions of the biomedical theory of disease specificity — *germ theory* — which holds that a specific pathogen acts in an isolated manner, independent of the context and condition of its host.

As described above, the era of ethnobiology's Phase 1, late nineteenth century to

the 1950s, was dominated by utilitarian interests and appropriative interactions, and was embedded within a modernist view that saw humans and cultures as rising out of crude primitivism and ever improving to the present day. It primarily focused on discrete elements such as (1) particular plant species with actual or potential use, and (2) units of traditional knowledge about that species' use, both of which were collected in isolation from the cultural or ecological context of origin. This modernist orientation typically extracts these discrete items, stores them, and applies them in other contexts, such as in an attempt to identify the active constituents in a traditional medicinal plant species, isolate one of them, and reconstruct or modify it in the laboratory to produce a patentable and potentially profitable pharmaceutical drug. Most such synthetics are close copies, chemically speaking, of nature's creations. However, nature's creations are ecologically contextualized by virtue of, for example, secondary metabolites that provide services to the plant such as pollinator enticement or pest deterrence (Briskin 2000). Likewise, creations of thought and knowledge are culturally contextualized with reference to both human community and place.

In summary, the Specificity Paradigm, which favors isolation of specific discrete units, and the ability to replicate these units and then apply them in novel contexts – that is, to abstract and universalize them – is a hallmark of Western scientific method and remains very much alive in medicine and healthcare. In other words, in the Specificity Paradigm, phenomena are understood through deconstruction whereby discrete, component units are isolated and decontextualized, studied, modified, reapplied, and potentially marketed.

Phase 2. Systemic Paradigm

In the Systemic Paradigm, perception is tuned to human systems and understood in terms of contexts of interaction among social, cultural, and political groups. Generally speaking, in the Systemic Paradigm, motivations include understanding patterns of thought, cognition, and behavior by understanding their contexts.

Iatrogenesis on social and systemic levels broadens the focus to include socioeconomic conditions as determinants of biomedical health outcomes. In other words, a Systemic Paradigm recognizes socioeconomic conditions such as poverty, substandard living conditions, and lack of education as determinants of an individual's health. In so

doing, it expands the concept of disease etiology beyond specific pathogens and considers the context, likelihood, and prevalence of those pathogens in social and systemic terms. Stated simply, specific units are considered, but not in isolation. Broader social and systemic determinants are recognized as well.

The era of ethnobiology's Phase 2, 1950s-1970s, was characterized by an increasingly widespread recognition that diverse cultural contexts produce diverse and equally valuable patterns of thought, language, classification, and social arrangements. This broadened the perceptual and conceptual fields beyond attention to specific units desirable for appropriation, to the social and systemic contexts of these units. To a certain extent, this approach grew out of a corrective intention focused on remedying colonization and ethnocide. It further reflected interest in understanding the cognitive, linguistic, cultural, ethical, and health-related dynamics that both differentiate cultural groups and bind them together recognizably as humans.

The Systemic Paradigm emerged as part of the social and intellectual climate associated with Phase 2 of Ethnobiology. Broadly speaking, it opened perception to the systems surrounding specific elements, and it opened understanding of functionality to contextual elements. In mainstream healthcare, the Systemic Paradigm fostered motivation to (1) develop cultural competency and incorporate narrative approaches to healing, (2) broaden concepts of disease etiology, (3) alleviate socioeconomic inequities, and (4) remove barriers to healthcare access.

Phase 3. Structural Paradigm

In the Structural Paradigm, perception is tuned to fundamental social and environmental structures that support and limit the systems that emerge within them as well as the specific elements that comprise them. The Structural Paradigm focuses attention on the role these fundamental structures play in shaping the systems and elements they contain as well as the power they have to allow or prevent human needs to be met. Motivations for action within the Structural Paradigm include, on one hand, removing barriers and violence often present in social structures, and, on the other hand, harmonizing human behavior with the requirements of environmental structures.

In terms of iatrogenesis, even broader than systemic health determinants are

structural determinants that can result in structural iatrogenesis or, more broadly conceived, structural violence. Earlier, in the context of healthcare, Chapters 2 and 3 discussed how structural iatrogenesis takes many forms including racism, sexism, classism, ageism, and homophobia as well as environmental pollution, climate disruption, pharmaceuticals in waterways, and drug-resistant bacteria. In other words, the broad structures that undergird and frame socioeconomic and systemic conditions as well as influence specific biomedical health outcomes (see, for example, the concept of allostatic load or weathering in Chapter 2) are, in terms of structural iatrogenesis, within the purview of healthcare to address and *redress*.

In the era of ethnobiology's Phase 3, 1970s-1990s, attention turned to similarly broad structural elements with particular emphasis on the cultural-ecological — or ethnoecological — relationships that contain and influence social dynamics, environmental stewardship, intercultural exchange, ownership regimes, market interactions, and approaches to health and healing. The emergent Structural Paradigm emphasized the underlying structures, including environmental structures, upon which social systems and specific elements rest.

Central to the Structural Paradigm is the idea that structures exist in *situated* contexts. Virginia Nazarea's 1999 text on ethnoecology is subtitled, *Situated Knowledge/Located Lives*. This phrase implies that a feature of ethnoecology and Phase 3 of Ethnobiology is its interest in *knowledge that occurs in a given place and time*. This includes a scholarly imperative to not simply examine traditional knowledges as generalizable abstractions, but rather to situate them by documenting their actual historical, cultural, and ecological frameworks. However, even this approach turns out to be limited. In other words, in this view, external documentation of Indigenous knowledge can itself be seen as an act of delinking — or "un-situating" — the knowledge from its cultural and ecological context and, in so doing, creates significant changes in the knowledge itself. While documentation might keep a record of certain aspects of knowledge that are conducive to extraction and written encoding, this record should not be confused with the full complex of the knowledge which only exists as it is lived. External documentation of Indigenous knowledge is not like a seed that can be replanted and grown into a living, transpiring plant. Even seeds, when planted and grown outside of the ecological and

cultural context in which they were developed, or in which much of their potential for interconnection with other living organisms was expressed, grow into plants that are different from what they were. External documentation may preserve a shadow of lived experience, but it should not be confused with preservation of the knowledge itself, which requires a full complex of systems and structures to live and thrive.

As Nazarea suggests, if knowledge is truly situated, it can only be fully understood in connection with its social and structural context. Part of this context is the *relationship* between the community of the knowledge-keepers and that particular knowledge. Further, this relationship includes the terms and conditions of its transmission. In other words, if knowledge is situated, then the conditions and means by which it is shared are also situated. Many Indigenous people began to hold the position that knowledge dissemination would need to take place on the basis of criteria established not by outside researchers but by the knowledge holders themselves (Smith 1999). I hold the view that failing to respect the community's terms and wishes with regard to knowledge *transmission* — that is, the community's protocols for when, where, how, and with whom knowledge should be shared — fails to approach full understanding of the knowledge *itself*, and is simply wrong. This position finds support in numerous international conventions, agreements, and acts (Gilmore and Eshbaugh 2011; Hardison and Bannister 2011) as well as in an ethical imperative for *relational accountability* (Wilson 2008), which means that accountability to those with whom one engages in research relationships must be paramount.

Paradigm Conflicts

Since a paradigm constitutes a distinctive framework of beliefs, values, and experiences that organize perception, shape understanding, and motivate action, paradigms have the capacity to strengthen awareness and comprehension of phenomena as well as limit it. For example, when operating from a Specificity Paradigm, it is possible to view humans and the natural world only (or primarily) in terms of discrete units. I propose that the history of ethnobiology shows that the Specificity Paradigm of the modernist phase tended to function in this way. I further propose that the Specificity Paradigm, when present today, tends to continue to function similarly. Likewise, the Systemic Paradigm and the Structural

Paradigm contain their own perceptual and conceptual areas of emphasis and limitation.

A metaphor may prove helpful here. Radio waves have different frequencies. When tuning a radio receiver, a particular frequency becomes available and a radio station broadcasting at that frequency will be heard. Typically, other stations at other frequencies cannot be simultaneously heard. I propose that paradigms can act similarly, both allowing clear perception and understanding of the elements to which people are “tuned” as well as limiting perception and understanding of elements that are excluded. Because of this, conflicts can occur when individuals or groups operating from different paradigms seek agreement over a range of matters including environmental stewardship, healthcare delivery, food security, and more. As a result, paradigms can serve as barriers to relationship between the individuals who are oriented by those paradigms, setting the stage for harm to occur through lack of empathy, understanding, respect, and mutual support as well as a reduced ability for one or more individuals to access that which meets their needs.

Relational Ethnobiology: Next Phase? Next Paradigm?

After considering these three paradigms — the *Specificity Paradigm* of the era of Phase 1 Ethnobiology and biomedical iatrogenesis, the *Systemic Paradigm* of the era of Phase 2 Ethnobiology and social iatrogenesis, and the *Structural Paradigm* of the era of Phase 3 Ethnoecology and structural/environmental iatrogenesis — I propose that the opportunity exists for ethnobiology to enter a phase that is not dominated by a single perspective nor potentially separated from or in conflict with the others, but rather *generates relationship between different perspectives*. I call this potential next phase *relational ethnobiology* and characterize it by a *Relational Paradigm*. In such a Relational Paradigm, the strengths and values of appropriate *specifics* would be understood within social and *systemic* contexts in full recognition of situated *structural* influences, responsibilities, and potential power. A Relational Paradigm would offer the capacity to engage across significant paradigmatic differences. In this way, relationship itself becomes the dominant paradigmatic influence and, I propose, the key to reducing harm of many kinds. I further propose that Community-Based Herbalism models such a Relational Paradigm and in doing so offers a relational approach to healthcare that can help reduce healthcare harm, or iatrogenesis, by fostering

interactions characterized by mutual awareness, responsiveness, and respect.

Understanding this calls for a careful examination of relationship, which I undertake in the next two chapters.

Chapter 7. Relationship Explored

Relationship: What It Is & Why It Matters

Every moment of every day humans are in relationships of one kind or another. We are in relationship with air, with sun, with clothes, with objects, with food, with other humans, and much more. In this way, life itself could be thought of as an assemblage of relationships whether minor, major, fleeting, or long lasting. We are affected to some extent by virtually everything that surrounds, touches, and enters us.

While the word relationship is widely used, it often goes unexamined (Miller 1997). Various dictionary definitions can begin an examination (MacMillan Dictionary 2014, Merriam-Webster Dictionary 2104, Oxford Dictionaries 2014). In the simplest of terms, *relationship*, a noun, is what exists between two or more entities such as people, objects, or ideas when they are connected; it is the state of being in connection. *Relation*, also a noun, is one entity's effect on, relevance to, feelings about, behavior toward, or natural association with another; it *is* the connection. *Relational*, an adjective, concerns or points to the way in which entities are connected. Finally, *relationality* is the state of being relational or having a relational force.

Stated differently, relationships consist of three primary elements: (1) entities, often known as agents; (2) links or relations between the agents; and (3) ideational components that are associated with each (Scott 2009). I suggest that of these, the *agents*, being specific fixed units, tend to be easier to examine than the *links between* the agents. To understand relationship, however, it is valuable to consider both agents and links as well as the ideas they carry. It is also helpful to consider ideas about relationship from various perspectives, beginning with environmental science (specifically, biology and ecology) followed by social science (specifically, psychology, sociology, and anthropology).

Discipline-Based Explorations of Relationality

Environmental Relationship: Ecology

One might say that ecology is *the* science of relationship in the natural world. *Ecology* emerged from biology, the study of living organisms (Vandermeer and Goldberg 2003). While biological inquiry accompanied early interest in medicine in many cultures (Magner 20020), it came to serve a European colonialist agenda through natural history's emphasis on collecting, cataloging, and describing exotic and potentially useful organisms (Jardine et al. 1996). Biology did not coalesce into a distinct field in Western science until the nineteenth century (Coleman 1978) and, as technology developed, it focused on understanding the internal functions of discrete organisms at smaller and smaller scales (cell, molecule, genome, and gene) (Woese 2004). Awareness of the interactions of these organisms with each other and the habitats in which they live preceded the emergence of ecology as, first, a term coined by German physician and scientist Ernst Haeckel in the late nineteenth century and, then, an evolving discipline that examines relationships among organisms as well as between organisms and their environment (Odum 2004; Worster 1994). Formal consideration of human agency in environmental modification and balance entered the stage through the field of *human ecology* with the premier edition of *Human Ecology: An Interdisciplinary Journal* in 1972, during the same era as ethnoecology (Chapter 6). However, the term itself had entered published literature much earlier through the work of environmental scientist Ellen Swallow Richards (2012/1907), which reflected the recognition that human beings are part of — rather than separate from — nature. This was further developed in the sub-discipline of *landscape ecology*, which considers the role of human impact on the environment through such concepts as patch/matrix dynamics at varying scales of interaction ranging from a tiny patch of sun to an entire region (Forman and Godron 1986). Another concept that emerged from landscape ecology is *ecotone*, which describes the “edge effect” where two adjacent habitats influence each other. This useful and metaphorically rich concept emphasizes the ways in which the edge is different from the interior of each habitat and, as such, becomes an area of both tension and creativity. More will be explored on the topic of ecotones in later chapters.

Human Relationships: Psychology, Sociology, and Anthropology

Psychology explores and clinically engages with the human mind — including perceptions, cognition, emotions, memories, and dreams — as well as with human behavior, which is considered, on the one hand, evidence of how the mind functions and, on the other, an outcome to be influenced through the mind. To the extent that psychology concerns itself with behavior, it intersects with consideration of relationship insofar as relationship consists of behaviors. While *interpersonal psychology* focuses directly on this aspect of behavior, it tends to examine the agents more than the relations, as explained by German psychologist Fritz Heider (1982:1): “The discussion will center on the *person* as the basic unit to be investigated. That is to say, the two-person group and its properties as a superindividual unit will not be the focus of attention.”

Sociology and anthropology move away from an emphasis on individuals to an emphasis on the groups or social units of which the individuals are part. While families, organizations or cultures (broadly speaking) exist by virtue of relationships between individuals, these disciplines are not as much interested in the relationships themselves as the broader patterns that result from the relationships or that are reflected through the relationships.

For example, anthropology, with its various subfields, concerns itself with a range of topics including interpretation of the material and oral remains of past cultures, evolution of human beings in comparison with other primates, the structure and diversity of language, and the diversity of more recent or existing lifeways as a whole, the latter of which might examine relationships in so far as they illuminate and comprise environmental practices and healing traditions, for example. Here again, relationships tend to become the currency for interpreting and describing wider cultural patterns, not ends in themselves.

While sociology has a great deal in common with anthropology, it contains important distinctions. For example, sociology tends to be concerned with contemporary societies through analyzing social aggregations and behaviors, especially interactions. This can be illustrated in German sociologist Max Weber’s theory of social action (1991) which contains a hierarchy of social exchanges that (1) begin with simple social actions designed to elicit a response, (2) become paired social contacts, (3) emerge into more complex social interactions, and (4) ultimately form a broad construct of social relations based on the

symbolic integrations and meanings that inform the agents' roles.

Other Perspectives on Relationship

Western scholars in other disciplines have also explored the concept of relationship. As a result, new approaches and sometimes even new sub-disciplines have emerged. Some of the approaches offer a critique of the tendency to focus on agents rather than on the links between them. A few examples can help advance understanding of the nature and power of relationship, its expression in various paradigms and, ultimately, its potential to reduce harm in healthcare as will be modeled through Community-Based Herbalism.

Relational Examples in Biology and Physics

Biology, the discipline that spawned ecology, has tackled the theme of relationship in several ways, including through what has become the sub-discipline, *relational biology*. In his 1954 article, "Topology and life: In search of general mathematical principles in biology and sociology," Ukrainian-American theoretical biologist Nicolas Rashevsky sought to understand biology through the organization of its relations. Later, mathematical biologist A.H. Louie (2009:on-line) contrasted their shared school of thought with traditional biology in *More Than Life Itself: A Synthetic Continuation in Relational Biology*. He states:

The essence of reductionism in biology is to keep the matter of which an organism is made, and throw away the organization, with the belief that, since physiochemical *structure implies function*, the organization can be effectively reconstituted from the analytic material parts. Relational biology, on the other hand, keeps the organization and throws away the matter; *function dictates structure*, whence material aspects are entailed.

Likewise, in physics, relational models of reality have existed alongside the doctrine of absolute space and time. For example, Gottfried Leibniz, a contemporary of Isaac Newton in the seventeenth century, promoted the theory that space and time do not exist as places in which things reside and move, but rather as *systems of relationships* between things. Leibniz illustrated this concept with an analogy to a genealogical tree, as philosophers Nick Huggett and Carl Hoefer (2006:on-line) describe:

Unlike the relationship between, say, a mighty oak and its leaves, a genealogical tree is not something which exists as a thing independently of, and prior to, its members, but is itself rather something like an abstract system of relations holding between brothers, sisters, parents, children, aunts, uncles, etc. Analogously for Leibniz, space and time are not to be thought of as containers in which bodies are literally located and through which they move, but rather as an abstract structure of relations in which actual (and even possible) bodies might be embedded.

Network Theory

Resuming consideration of social theory, relationships can be characterized in several ways such as degree, kind, and directionality. *Network theory*, especially social network theory and analysis, offers concepts and techniques for thinking about specific attributes of various types of relationships. However, network theory is most frequently used to examine systems — or networks — with numerous components, and to evaluate the interactions between the components of the systems in terms of frequency and type of encounters. It shows that some components function as *hubs*, others as *nodes*. Some nodes cluster into *modules*, and the exchanges between them are identified as *ties*. It offers a mathematically grounded, diagrammatic understanding of interactions. For example, various symbols are used to signify certain nodes as, say, a source or unit of storage, and certain ties as simple interactions of various types (Odum 1983). The application of network theory can especially be seen in the field of computer science (Surhomme 2010).

Social network theory applies similar ideas to kinship groups, businesses, organizations, and communities. Like network theory, it creates diagrams or maps that depict agents (people) as nodes and the links between them as ties to which it further attaches qualities such as type and intensity and direction. It describes agents in terms of *attributes* and generates *attribute data* that consist of “attitudes, opinions and behaviour of agents, in so far as these are regarded as the properties, qualities or characteristics that belong to them as individuals or groups” (Scott 2009:2). Links are described as *relations*, and *relational data* are said to:

Relate one agent to another and so cannot be reduced to the properties of the individual agents themselves. Relations are not the properties of agents, but of systems of agents; these relations connect pairs of agents into larger relational systems. The methods appropriate to relational data are those of network analysis, whereby the relations are treated as expressing the linkages which run between

agents (3).

In other words, social network analysis organizes qualitative characteristics of *both* major components of a network — or a relationship — the agents *and* the ties or links between agents (with the addition of *ideational data*, which I am not examining here). On this point, biologist Mike Wade (2005) states on his webpage, “Theories Used in IS Research: Social Network Theory”:

The power of social network theory stems from its difference from traditional sociological studies, which assume that it is the attributes of individual actors — whether they are friendly or unfriendly, smart or dumb, etc. — that matter. Social network theory produces an alternate view, where the attributes of individuals are less important than their relationships and ties with other actors within the network. This approach has turned out to be useful for explaining many real-world phenomena, but leaves less room for individual agency, the ability for individuals to influence their success, so much of it rests within the structure of their network.

These examples demonstrate efforts to move consideration of relationship beyond the agents involved to the nature and role of the links between the agents. The next section explores the particular kind of links — or relations — that I propose can help prevent harm in general and within healthcare in particular.

Engaged Relationship

Since this dissertation proposes that relationship is the key to reducing iatrogenesis, and that Community-Based Herbalism models a relational approach to healthcare, it is necessary to identify the kinds of relationships that have the capacity to reduce harm. I propose that what I call *mutually engaged relationship* or simply *engaged relationship* has this capacity, and I introduce it here.

As described in the previous section, relational links between agents can be examined in terms of various characteristics such as directionality. For example, suppose I saw two deer strolling across my neighbor’s front lawn early this morning. I was in relationship with them, watching and savoring their beauty and poise as they stood alert in the cool dawn air. I felt moved and grateful. I was affected in that moment, but I quickly forgot about them as I stepped into a warm shower. One could say I also, then, had a relationship with the water, as it soothed and cleansed me, and even with the towel, as its

texture dried me. But, clearly, these relationships could not be described as deep, profound, intimate, or enduring, despite the fact that something did stay with me from seeing the deer.

Here I have been talking about *unidirectional* effects: the way in which the deer, the water, and the towel hypothetically affected *me*. As for my effects on *them*, I may have momentarily startled the deer, my showering changed the temperature and relocated the water, and I likely put a slight bit of wear on the fabric of the towel. However, in each example, the relationship with the animal or object drew upon or fulfilled a need, desire, or interest of *mine alone*. There was little or no commensurate fulfillment. While my fulfillments were minor and unidirectional, they nevertheless constituted an effect enacted by an *other* and, in this sense, represent a form of simple — though, non-engaged — relationship in which the emphasis was on *me*. Again, I am not suggesting that I had no effect on the situation, scene, or the other entities involved. I *am* suggesting that the experience of a need or desire being fulfilled took place primarily if not exclusively on my part.

In contrast, an *engaged relationship* as I define it cannot be unidirectional. It assumes some type of mutuality. In human terms, it involves active awareness drawn from paying attention *to each other* as well as each person allowing oneself to be seeable and seen. Depending upon circumstances, this might involve revealing hopes, needs, desires, vulnerability, history, and/or other aspects of self to another person, which, in turn, presupposes some level of awareness of self. From this comes an intentional response that sometimes generates change and is consistently respectful and supportive. It contains elements similar to those discussed by the founder of the ShadeTree Multicultural Foundation, Orland Bishop (2007: on-line), in his definition of the Zulu greeting, *sawubona*, which goes beyond a simple hello to mutual affirmation and support of each person's potential. As Bishop states, "*Sawubona* is one of the primal words [from] when people were still able to really see each other. In fact, the word says *we* see; it is not a single person... It's a dialogue. Seeing is a dialogue... It is an invitation to participate in each other's life... and to give to each other what's needed for that moment of life to be enhanced."

Relational Psychology and Anthropology

The aforementioned descriptors are highly psychological in nature. They find resonance in one of psychology's subfields, *relational psychology*, which emerged from a feminist critique of tendencies in psychology to assert male-dominated theories about female development rather than listening to the stories of girls and women. Psychologist Judith Jordan (2012), one of a group of women whose insights and work led to relational psychology and its framework, explains *relational-cultural theory* (RCT) as follows:

Relational-cultural theory (RCT) is built on the premise that, throughout the life span, human beings grow through and toward connection. It holds that we need connections to flourish, even to stay alive, and isolation is a major source of suffering for people, at both a personal and cultural level. Seeing connection as the primary ongoing organizer and source of motivation in people's lives, transforms the work of socialization into assisting our children to develop relational skills and elaborating the possibility for mutuality in relationships. It furthermore calls attention to the need to alter sociopolitical forces of disconnection that create significant pain for people. Invested in the task of social change, RCT provides a model for doing therapy that emphasizes movement out of isolation. RCT challenges not only the prevailing developmental theories, which frame independence as the hallmark of mature development, but some of the basic tenets of 21st century Western culture, which celebrate autonomy, self-interest, competition, and strength in isolation.

One might feel that this strongly psychological emphasis is some distance from anthropology. However, there are those who have argued that all anthropology is inherently psychological (Bock 1988), and that, conversely, psychological concepts are rooted in culture (Shweder 1991). Either way, interdisciplinary subfields such as psychological anthropology and cultural psychology reveal a conscious emphasis on the association between psychological processes and cultural processes (Heine 2011; Kitayama and Cohen 2010; Bock 1988, 1999). I propose that engaged relationship in healthcare harm reduction exemplifies such psychological-cultural intersection insofar as human relationships and healthcare both have psychological and cultural components. A form of relationship that has profound psychological and cultural implications is known as *attachment*, which I explore in the next section.

Attachment: A Primary Relational Model

The relationship between parent and child models the potential for deeply engaged relationships. In this important relationship, the role of each agent encourages its own type of engagement. On one hand, *parenting* has the capacity to foster selflessness and protectiveness. While it is theorized that parenting responses are based on genetic ties and designed to ensure survival (Hamilton 1964), it has also been shown that adoptive parents can demonstrate these parenting traits (Brannam and Gillett 2005; Allison 1992). The *archetype of motherhood* contains a commitment to observing the needs of another and meeting them.

On the other hand we, as humans, all come into this world as a *child* within this framework of mother, by and through whom our needs will hopefully be met. If our needs are not met (by either our biological mother or another person in that role, regardless of gender), something within us may break. The capacity to attach, to bond, and to cultivate our own conscious engaged relationships may be wounded. These ideas will be explored first through an autoethnographic narrative, and then through a deeper consideration of the ideas introduced.

Mothering Like a Warrior

I am the mother of two daughters I adopted from India as a single woman. My first daughter came home from Kolkata as a three-month-old baby born in an orphanage. The second was found by the police on the streets of Mumbai at about the age of three, and then brought to a local orphanage that was double its capacity with over ninety children. There, she slept on the floor, was hit when she didn't fall asleep immediately, and watched Bollywood movies on a small monitor for entertainment in an otherwise bleak and run down facility. Here my future child languished for two years as the orphanage and affiliated adoption agency both lost their licenses. While I waited for the adoption process to move forward, I learned enough about adoption of older children to understand that attachment issues could be a possible concern. I queried the orphanage, but the director confidently assured me this would not be an issue with my daughter-to-be. I also shared the information provided by the orphanage with local physicians and psychologists, who agreed with the orphanage director. I was relieved because I had learned that serious

attachment disorder could be so challenging it would require a two-parent family. While I felt I could handle grief and cultural transition, I feared that I could not manage attachment disorder on my own.

Finally, the hurdles were surmounted. I traveled to India with my older daughter, who was age seven at the time, to bring home the little girl who was now about five. We arrived at the orphanage. Through barbed wire, we could see the aging buildings. After waiting two hours, someone arrived who had the proper authority to release my daughter. She was brought to the office where her smile immediately turned to tears and resolute refusal to leave with us. It took several hours before she agreed to go. Three days later we left Mumbai and headed home to Olympia.

I had made arrangements for my new daughter to attend half-time kindergarten at the local public school. I thought doing so would give us more time for intimacy and bonding since, clearly, this would be a different path to building a mother-daughter relationship than it had been starting with an infant. It wasn't long, however, before difficulties began. Minor at first, my daughter's resistance to what was asked of her grew to defiance and from there to violence. She yelled, bit, kicked, clawed, and spit in a wild frenzy. She was strong, but still just small enough that I could carry her up the stairs to her bedroom and, if necessary, straddle her face down with her arms held behind her back. Gradually, she would calm down, and sometimes eventually go ahead with what I had asked of her. In the meantime, my adrenalin would peak and I would be shaking. Within weeks, this small, beautiful child had managed to give me a neck injury and a concussion. I was so distraught I did not know if I could carry on with my teaching or even with parenting my older child. I certainly did not know if I could go through with the adoption. In the meantime, I came to recognize that I was dealing with exactly what I had hoped to avoid: attachment disorder. In desperation, I sought, and thankfully found, resources such as books and videos by attachment expert, Nancy Thomas (2005). I discovered attachment-focused therapy practices such as one in Seattle run by another attachment expert, Deborah Gray (2002). Fortunately, we were admitted into this practice on an emergency basis. We drove two hours every Sunday for therapy where I learned parenting techniques I would never have considered — or even imagined — under other circumstances. While we struggled at home every day of the week, the effort paid off. We are all still together as a

family. Today, though still quick to anger, my daughter loves and, above all, trusts me. I love her dearly and admire her deeply.

Broken Attachment

I continued to learn more about broken attachment. I found that a spectrum exists from mild attachment issues to full-fledged Reactive Attachment Disorder (RAD). It was hard to say exactly where my daughter fell on the spectrum. She clearly felt some bonding to me, but initially it was very tentative. Regardless of the severity of the attachment issues, the etiology is essentially the same: When a young child experiences a repeated cycle of needs arising and going unmet, myriad coping mechanisms develop such as unwillingness to trust and attempting to assume control. These mechanisms then become “hard wired” and then transfer into future situations, whether warranted or not (Gray 2002). In other words, my daughter was now experiencing a world in which her only parent could not be trusted and she *had* to be in control — regardless of any facts related to my behavior or her abilities. I was dealing with a human being whose capacity for relationship had been seriously wounded. It was my job as her mother to try to help heal her ability to trust me as well as to maintain my ability to hold hope in our relationship. I was mothering like a warrior. I was gradually learning and understanding the nature and importance of attachment.

Attachment Theory

The term *attachment* is used to describe a critical aspect of the relationship between a child and a parent or caregiver, which involves ensuring that the child is safe, secure, and protected (Benoit 2004). This is a primary relationship through which it is widely believed that human beings develop their view of themselves as lovable or not; their view of the world as a safe place in which their needs can be met or not; and their template for future relationships (Gray 2002). In other words, the blueprint for our personality, our social relatedness, and even some of our neurological wiring as human beings are believed to be set within the context of this relationship. Further, we do not and *cannot* fully develop in isolation outside of the framework of relationship, as relational-cultural theory also asserts (Jordan 2012). According to attachment specialist Deborah Gray (2002):

The quality of parent/child attachments becomes a template for all future relationships and core beliefs. When they nurture and show sensitivity to needs, parents invite children into a good quality relationship. Unless challenges stand in the way, children naturally respond to trustworthy, nurturing, and sensitive parents by forming a trusting and secure relationship. A professional might describe them as having a “secure attachment” (15).

In short, psychiatrist and research Diane Benoit (2004) states, “Attachment is a powerful predictor of a child’s later social and emotional outcome.”

Secure attachments usually develop within a child’s first year as the result of repeated cycles of needs arising and being met. Gray (20) refers to this as the “Season of the Soul.” However, what happens if something interferes with the cycle? What happens if a young child’s needs arise but go unmet? Some of the answer depends on what specifically causes the cycle to be broken along with the developmental timing of the break. There are many possible ways in which attachment can be interrupted. Children might be physically separated from their parents due to hospitalization (of either parent or child), extended employment demands, incarceration, foster care, or abandonment. Parents who are physically present may not be consistently available or accessible due to serious mental, emotional, or physical illness, or drug or alcohol addiction. Children may also experience trauma related to neglect, abuse, or violence as well as orphanage care or adoption.

As a result, children may not form an attachment, or they may lose the fragile attachment they have begun to form. Depending on circumstances, age, character, and development, children respond with any number of approaches to a life in which they have not been able to count on their needs being met. They may even experience additional trauma generated by those who would be expected to meet those needs. When some degree of attachment has taken place, these responses have been classified according to attachment type with descriptors such as insecure, avoidant, ambivalent, or disorganized. However, when children remain unattached, they are typically diagnosed with Reactive Attachment Disorder (RAD), and characterized by descriptors such as ambivalent, inhibited or hyper-vigilant, or disinhibited (Gray 2002: 69-80). Further, RAD can manifest itself in more extreme forms of violence, including destruction of property, physical assault, and even murder (Thomas 2010).

The roots of attachment theory date back to the 1930s and the early conceptual

work of John Bowlby, who was later joined by developmental psychologist Mary Ainsworth and others. From early in his budding career as a child psychiatrist, Bowlby countered the dominant view that developmental problems in childhood hinged on fantasies and internal conflict generated by sexuality and aggressiveness, arguing instead that actual experiences in the family environment were far more determinative. Using a gardening metaphor, he proposed that psychoanalysts should examine not only the organism (child), but also the surrounding growth conditions like soil (parents), in order to best understand the child and provide effective therapy (Bowlby 1940:23). Bowlby collected data about maladjusted, especially affectionless, children, which allowed him to see correlations between symptoms and deprivation/separation from the mother. Soon he established a research effort that focused on mother-child separation, and concluded that, to ensure healthy mental development, “the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment” (Bowlby 1951:13). Ainsworth joined Bowlby in 1950. She brought an interest in, and a body of research that was focused on, the developmental importance of security, about which she similarly proposed that, “family security in the early stages is of a dependent type and forms a basis from which the individual can work out gradually, forming new skills and interests in other fields. Where familial security is lacking, the individual is handicapped by the lack of what might be called a secure base from which to work” (Salter 1940:45).

Over the ensuing decades, Bowlby and Ainsworth drew upon their various research projects and gradually refined theories of attachment and social development that grew to include nuanced understandings of the effects of different qualities of mother-child interaction. Their work has further moved into the realms of adult attachment, known as *ecology of attachment*, which involves family and social network factors, and examination of cultural influences and variables (Bretherton 1992). Regardless of the diagnostic details, the relationship is so central to the development of humanness that the primary relationship, the one in which we need *to attach*, shapes our capacities even as adults. Among other things, it affects our ability — or lack thereof — to bond in future relationships and to enter into mutual engagement. Relational-cultural theory concurs with this assertion, as explained by researcher Christina Robb (2007:xxiv) in *This Changes Everything: The*

Relational Revolution in Psychology:

Relational psychologists are saying ... that nurturant human connections are essential. Somebody has to stay close to babies if they are to live. Somebody has to stay close to children if they are to develop. Somebody has to stay close to adults if they are to know happiness. Somebody has to get close to traumatized adults if they are to regain happiness.

Whether or not one agrees with the details of Bowlby's understanding of attachment theory (Lee 2003; Harris 1998; Field 1996), neuroscience affirms the need for bonding in early human development. Neuroscientist George Perry and journalist Maia Szalavitz (2011) ask "What do neuroscientists mean when they say we need one another to maintain the health of our stress systems, [and] when they claim that our bodies are actually interdependent?" (2). Their answers include the following:

We are indeed born to love. But at birth, we are not yet fully loving. Infants' brains are the most malleable — and vulnerable — that they will ever be outside the womb. The gifts of our biology are a potential, not a guarantee. As with so many other human potentials present at birth, empathy and love require specific experiences to develop. Just as Mozart could never have become a musical genius if his father hadn't provided lessons and instruments — and Michael Jordan would not have become the superb athlete he has been without access to hoops, balls, and courts — babies don't learn to care and connect without specific early experiences. Changes in the timing, nature, and pattern of these experiences will influence how relational capabilities emerge in an individual. These changes even help determine which of our genes will be activated and which will never reveal their potential—for good and for ill (6).

Still other scholars and researchers, working from a variety of perspectives, have explored the idea of a human relational imperative, along with its components and role in human life. Psychologist Robert Hogan (1983), for example, has examined personality development and social organization as evolutionary adaptations. In this regard, he and others have considered the nature and role of *empathy* — described as sensitivity to the condition or mental state of another — as being central to understanding social behavior (Smith 2006; Johnson et al. 1983; Hogan 1969). Again echoing attachment theorists, Perry and Szalavitz (2011) argue in *Born to Love: Why Empathy Is Essential* that, "It is in our nature to nurture and be nurtured... Empathy isn't extended to everyone. And certain specific experiences, certain particular actions on the part of those closes to us, are required

for empathy to develop” (304).

Understandings of social behavior (Perry and Szalavitz 2012; Gray 2002; Bowlby 1988, 1977; Maslow 1968) often contain variants on what has been called the *belongingness hypothesis*, or the theorized need for humans to create and sustain strong, on-going relationships. Psychology professors Roy Baumeister and Mark Leary review numerous manifestations of this hypothesis in their 1995 article, “The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation.” They also evaluate the hypothesis in several respects. For example, their evaluation considers if and how the belongingness hypothesis meets proposed criteria for what constitutes a fundamental human motivation, one criterion of which is that failure to satisfy a fundamental motivation produces profoundly negative effects that may include medical, psychological, and behavioral pathologies. They conclude (as have others noted above) that the absence of belonging meets this criterion. Additionally, Baumeister and Leary describe what they perceive to be the two central features of the hypothesis. In order to meet the need to belong, they propose that (1) a person must have frequent direct contact with another person that is positive and enjoyed; and (2) each person must perceive the relationship to be stable, characterized by care and concern, and expected to continue. As Baumeister and Leary (1995) put it, “To satisfy the need to belong, the person must believe that the other cares about his or her welfare and likes (or loves) him or her. Ideally this concern would be mutual, so that the person has reciprocal feelings about the other” (500).

On the face of it, other theories of social behavior, such as sociologist George Homan’s influential *social exchange theory*, might appear to contradict the belongingness hypothesis insofar as social exchange theory proposes that relationships are formed and negotiated on the basis of on-going cost-benefit analyses that balance self-interest and interdependence (Homans 1958). This theory suggests that agents create links on the basis of the prospective benefits of what another agent has to offer, and that the resulting exchanges (links) derive from a rational economic model tending toward balanced reciprocation. While the theory has been critiqued as diminishing the dimensionality of human relationship (Miller 2005), I propose that it can also be understood from the perspective of engaged relationship — and belonging — insofar as it describes human interchange that is both positive and mutual.

I have introduced the concepts of attachment, bonding, and ‘sense of belong’ in order to illuminate fundamental attributes of engaged relationships or relational engagement. The presence of these attributes on the part of a primary caregiver with young children — including empathy, security, responsibility, and a sense of being needed — has been shown to foster development of the same attributes in the child. Conversely, the absence of the attributes associated with attachment, bonding, and belonging, has been shown to foster alienation, isolation, and a host of medical, psychological, and behavioral pathologies. I suggest that if the qualities of relational engagement are capable of helping young children develop highly valued human qualities (Perry and Szalavitz 2011), it would follow that relational engagement among adults would also foster positive outcomes.

Community-Based Herbalism is not merely the use of herbs as medicine. It is also the *context* of the use of herbs as medicine, specifically (1) the use of herbs that are minimally modified from local living plants, and (2) the use of herbs within local living communities. Both of these aspects of Community-Based Herbalism — living plants and living humans — create opportunities to cultivate, express, and nurture the attributes associated with relational engagement as described above. I have discussed relational engagement between people. Next I discuss aspects of relational engagement — particularly the role of attachment and bonding — between humans and non-human nature. This will help further an understanding of relational engagement between humans and plants.

Attachment to Nature: Primary Relational Model Extended

Earth Attachment

Another particularly relevant subfield of psychology is *ecopsychology*, which sees relationship with the natural world as also playing a central role in human development and wellbeing. For example, theologian and counselor Howard Clinebell’s aim in his book, *Ecotherapy: Healing Ourselves, Healing the Earth*, is to “explore an expanded, ecologically grounded theory of personality development, the widely ignored earthy dimensions in understanding human identity formation” (1996:xv). Further, Clinebell discusses negative impacts of separation from the earth, sometimes known as *ecological*

alienation, along with the benefits of connectedness, by saying, “Earth bonding and people bonding are complementary needs that, when satisfied, are mutually reinforcing. Enjoying intimate connectedness with the natural world sometimes opens people’s whole organism to deepening emotional and bodily intimacy” (13).

Similarly, researcher and author Richard Louv (2008) introduced the concept of *nature-deficit-disorder*, not as a formal diagnosis but rather as “a way to describe the psychological, physical and cognitive costs of human alienation from nature, particularly for children in their vulnerable developing years” (2009). From this, Louv championed a *leave-no-child-inside* movement, encouraging place-based learning in the natural world and highlighting studies that demonstrate academic, social, psychological, and physical benefits as a result of outdoor and experiential education and activities (Louv 2008, 2009, 2012). Louv (2009: on-line) further asserts that, “the children-and-nature movement has perhaps even greater potential — because it touches something even deeper within us, biologically and spiritually.”

A related area of human-nature relationship involves human-animal bonds, which psychologist Froma Walsh explores with regard to the relational significance of *companion animals* (2009a, 2009b) — a term preferred over *pets* because it incorporates the idea of a mutual bond and psychological relationship. Walsh cites numerous studies that show correlations between relationships with companion animals and positive health outcomes ranging from lowered blood pressure to post heart attack survival rates to optimization of functioning in the case of developmental disabilities as well as reduction in anxiety, depression, and loneliness. Walsh also points to the broader relationality involved in the domestication and socialization of animals, which she describes as “an interactive process of *mutual* cooperation and coevolution based on a *shared need* for shelter, food, and protection [emphasis added]” (2009a: 463). Attachment theory, when applied to understanding human-pet relationships, has revealed the presence of strong and secure attachment (Brown 2007), and pets have been shown to enhance the development of empathy in children (Melson 2003). Further, the attachment and empathy individuals experience with their pets can foster a sense of responsibility and of being needed (Walsh 2009a: 473). Fulfilling this *essential role function* for another living being or entity — human, animal, or, I might add, plant — can in turn foster self-worth.

Ecopsychology, with its embedded concepts of ecoliteracy, ecowisdom, and the *ecological self*, places attachment theory within the broader position that human health cannot be separated from environmental health (Conn 2004; Macy and Brown 1998; Naess 1994). According to clinical psychologist Sarah Conn (2004) of Harvard Medical School's Center for Psychology and Social Change:

Ecopsychology explores the human psyche within the earth as a living system. The health of the earth depends on the development of sustainable and mutually-nurturing relationships among the human and non-human aspects of this living system. Ecopsychology explores the development of these relationships through four interrelated arenas of healthy human functioning: 1) Diversity in ways of knowing, 2) Embeddedness in place, 3) Embeddedness in community, [and] 4) Ecological identity.

In addition to articulating his view of the many reasons that an expanded theory of human health and development is essential, Clinebell describes what he sees as a therapeutic-educational continuum. Here, the same theoretical foundation is present all along the continuum, but therapy is seen as appropriate when *healing* is in order because the bonds with nature, self, and others are severely disrupted, while education is seen as more appropriate when some degree of bonding exists but is fragile or “insecure,” and *growth* is in order. In this regard, Clinebell (1996:63) states:

In both the ecotherapeutic side of therapies and ecoeducational dimension of teaching, interventions are designed to increase people's sense of caring connectedness with nature... Whereas ecotherapy uses methods designed to overcome internal and external alienation from nature, ecoeducation's methods are designed to strengthen self-care by deepening the nurturing bond with nature. All such methodologies seek to make more available to people's total body-mind-spirit selves the creative energies that flow when we deepen our nurturing connectedness with nature. Fortunately, enabling people to deepen their sense of connectedness with nature may also help them overcome other dimensions of alienation in their lives.

Further, Louv (2009) states, “The human child in nature may be the most important indicator species of future sustainability.” Here, I believe Louv is suggesting that the concept of attachment, and other interests of ecopsychology, can link the human psyche with increasing environmental imperatives for more sustainable practices in all areas of life, including healthcare (Haines 2013 Suzuki 2012; Jameton and Pierce 2001).

Broken Relationship: Other as Object

I have suggested that the absence of relational engagement fosters negative outcomes such as isolation, alienation, and a reduced capacity to empathize with another's condition or situation. These outcomes are associated with *harm*. Definitions of harm vary (Kleinig 1978), focusing, for example, on (1) damage or injury (Merriam-Webster); (2) loss of ability, freedom or pleasure (Gert 2004); or (3) diminishment of one's welfare including one's physical, mental, emotional, social, economic, and environmental wellbeing (Feinberg 1984). It is not difficult to think of egregious examples of relationship that are not mutually engaged, such as rape. In rape, a person is in relationship with another person based on the perpetrator's wishes, without regard for the other's wishes, needs, comfort, or consent. Virtually every example of violence or abuse contains similar disregard for "other." In these kinds of relationship interactions, "fulfillment" is fundamentally unidirectional, as was the case with, for example, my hypothetical shower towel. But here we are talking about two *humans*, not a human and an object. Yet, in abuse, one person is treated like exactly that: an object. The person is *objectified*. This is not engaged relationship.

Interestingly, objectification shares its root with objectivity. To objectify means precisely to make impersonal. Objectivity means, in part, to deal with a condition without influence of feelings. The root of both is, of course, object, which refers to, among other things, something physical toward which thought, feeling, or action is directed. Objectivity can seek to *eliminate* relationship; that is to say, it can seek to eliminate any effect of an active agent upon a passive agent, such as eliminating the effect of an observer on the observed. Conversely, objectification seeks to eliminate any effect, other than the one desired, of a passive agent upon an active agent. In either case, the possibility of engaged relationship is diminished, if not destroyed.

Instances of the objectification of *other* are abundant. They occur in sexism, racism, capitalist commodification, all forms of hegemony, education (Wilson 2008: 20), pesticide-use (Jensen 2002), and in a medical system where bodies are perceived as cars to be fixed (Weed 1990:61-73) rather than expressions of multi-dimensional dynamic beings. Shawn Wilson, in *Research is Ceremony: Indigenous Research Methods*, discusses the

effect of objectivity on research. Wilson (2008) states:

With the notion of objectivity in research comes the idea of separating before one can unite or of looking for the smallest individual component before seeing “the big picture.” Tafoya (1995) explains this by saying that western research “has a history of people being told to amputate a part of themselves to be able to fit something that’s rigid, and not built for them in the first place (27).” So he explains, practices within the western paradigm can amputate your sexuality, your gender, your language and your spirituality, by looking at individual components rather than by looking at the total person and the complexity of the connections and relationships that allow that individual to function (56).

Objectification also occurs in colonization. Here, representatives of one nation or culture objectify members of other nations and cultures so thoroughly that the “others” essentially disappear, as humans, from the view of the colonizer. As discussed in Chapter 6, this allows appropriation of land that is perceived to be “empty” and appropriation of knowledge that is perceived as disembodied and abstract. Indeed, colonization can be so thorough that it objectifies life itself, creating unidirectional, non-engaged, rape-like relationships with the soil, the mountains, the oil, the sea, the animals, the plants, and the genetic heart of life (Shiva 1997a, 1997b).

Finally, broken relationship and resulting objectification even figure in some contemporary theological discussions of the meaning of original sin. This is a condition that the Roman Catholic Church has long asserted all humans are born into as a result of Adam’s initial wrongdoing. A creation-centered, reformation tradition has proposed that, instead, humans are born into “original blessing” — a form of fundamental engagement — and that the primary nature of sin is the objectification that results from broken relationship. Matthew Fox (1983:49), author of *Original Blessing*, states, “From Meister Eckhart to Mary Daly, the sin behind all sin is seen as dualism. Separation. Subject/object relationships. Fractures and fissures in our relationships. Take any sin: war, burglary, rape, thievery. *Every such action is treating another as an object outside oneself*. This is dualism. This is behind all sin” [emphasis added].

Again, I suggest that tremendous destructive power can be found in broken relationship or, stated conversely, in the absence of relational engagement. In the next section, I begin to apply these ideas to relationships between paradigms, particularly the three paradigms that were proposed in Chapter 6, and underpinning both the three phases

of ethnobiology, also discussed in Chapter 6, as well as the three levels of iatrogenesis proposed in Chapter 2. The section begins with a cross-cultural case study related to environmental stewardship in which relational engagement was not achieved.

Paradigm Conflicts: Where Relationship Breaks Down — A Case Study Involving Land Exchange and Cross-Cultural Environmental Stewardship

When strongly held paradigms collide – whether Specificity, Systemic, Structural or other — relationship easily breaks down. What follows is a case study that illustrates this point. Consistent with Indigenous assertions of authority and autonomy during the most recent phase of ethnobiology, one Northwest Tribe was asserting its rights and seeking a relationship with the U.S. Forest Service on its own terms. In 1994, I was asked, as an ethnobotanist, to support the Tribe's efforts (Eloheimo 1999a).

Specifically, the Forest Service was in the process of transferring sections of its own public land into the ownership of a timber company in exchange for different sections of that company's private land. Such an exchange was a simple undertaking from a mapping standpoint because numerous geometric sections of public and private land had been laid out in a uniformly alternating checkerboard fashion throughout parts of Washington State, particularly in and around the Cascade Mountains. This arrangement was a vestige of historical efforts to prevent railroad companies from owning enormous contiguous swatches of land (Jensen and Draffan 1995). However, in this instance, the sections of public land to be given to the timber company were located in the “usual and accustomed” hunting and gathering territories of one particular Tribe, while the private land to be exchanged for them was a considerable distance away from their territories. As a result, this Tribe stood to lose sections of land that had been to some extent protected by public ownership. Now the timber company would be free to do whatever it chose to do with the land unless further protections were put into place.

On the basis of the National Historic Preservation Act (NHPA), the Forest Service was obligated to determine the presence and significance of potential Indigenous “cultural properties,” including those associated with plant gathering and use, in the land exchange area. In other words, it was incumbent upon the Forest Service to make certain that no

negative cultural effects would result from removing this section of land from public jurisdiction. However, the Tribe felt that the Forest Service had not responsibly and adequately fulfilled its duty. As a result, I was enlisted by the Tribe's anthropologist to (1) critique the Forest Service's methods, (2) propose an accurate model of Tribal gathering practices, and (3) demonstrate ways the model could determine the presence of Indigenous cultural properties in order to accurately predict cultural effects of the proposed land exchange. I was asked to undertake this endeavor because, as an ethnobotanist, I am familiar with the perspectives and practices of both anthropology and botany. In this case, this meant that I could understand both the Tribe's cultural practices and concerns, and the plants themselves, along with the methods and terms employed by Western scientists to assess them. I hoped to be a conduit for an engaged relationship between the Tribe and the Forest Service.

One cultural nuance I understood was that, outside of the report I would submit to the Forest Service on behalf of the Tribe, I was never to disclose the name of the Tribe or the specific locations under consideration. Therefore, even now, I can only mention that the land exchange vicinity was located on the western slopes of the Cascade Mountains in Washington State and was botanically rich with many plants that the Tribal community had used for at least hundreds of years, and still continued to use.

Transmission of Knowledge

Knowledge of culturally significant plants (where they grow, when and how they are gathered, how they are prepared, and how they are used) is a highly valued heritage within this Indigenous community, as with many others (Subbiah 2004; Stephenson 1999). Individuals would generally learn about plant usage from their elders and, for a variety of reasons, would not normally feel at liberty to disclose to others the knowledge they received, especially with regard to medicinal plants. When such information would be shared, it would generally be only with persons who were known well and would continue to safeguard and use it wisely. These would often, though not exclusively, be family members; almost always they would be Tribal community members. I have witnessed these cautionary protocols in meetings where, if an elder were present who did not choose to disclose plant information, younger Tribal members would in turn not disclose the

information, even if they were also knowledgeable.

In order for even generalized, culturally sensitive information to be shared with people outside of the community, arrangements that would satisfactorily respect and safeguard its importance and privacy would have to be in place and agreed upon by the Tribe. Trust, and trust in confidentiality protocols and systems, would need to have been established. In this case, the Tribe determined that the Forest Service's rules on non-disclosure of confidential cultural information were not absolute, leaving room for exceptions under a number of circumstances (U.S. Forest Service Handbook 1994). As such, the Tribe had no real guarantee that the Forest Service would not pass on its knowledge and information to other parties.

In the absence of arrangements that would satisfactorily protect the importance and privacy of its traditional and contemporary knowledge and practice, the Tribe had chosen to not disclose detailed and specific information about plant harvest locations and plant use. Instead, the Tribe had provided generalized information, asserted that more detailed information *did* exist, and explained its reasons for nondisclosure. Despite this, the Forest Service held firmly to the view that no disclosure meant no information, and that no information meant no cultural impact. Additionally, the Forest Service did not appear to recognize that disclosure requirements were no longer unusual in negotiations between Tribes and non-Tribal entities. Likewise, they seemed unaware that such requirements were not unfounded, given the impacts and implications of such enormous historical and contemporary issues as conquest and colonization, intellectual property rights law, pharmaceutical commerce, and legal limits on Federal confidentiality protection. It was my role to attempt to bridge this enormous divide and facilitate an engaged relationship.

Culturally Significant Species (Ethnographic and Historical Evidence)

Despite the fact that previous Forest Service reports contained lists of species that had *probable* cultural significance, it remained necessary to identify and communicate to the Forest Service the plant species that had *definitive* cultural significance to the Tribe, and to do so in a culturally appropriate manner. This required drawing from sources of information that were already publicly available, along with Tribally held knowledge that was deemed suitable for sharing.

To accomplish this goal, I drew upon (1) interviews that had been conducted with Tribal members and were made available to me by the Tribal anthropologist, (2) notes from various ethnographers dating to the 1920s and 1930s, and (3) cultural inventories from the 1980s, many of which were accessible to the Forest Service as well. However, rather than catalog specific harvest and use details, I reported *eleven general categories of use*. These pertained to animals, basketry, ceremony, food, hygiene, medicine, and material technology, and also included name information, associations with legends, and broad general use. Within these categories, 18 species of trees, 27 species of shrubs, and 36 species of herbaceous plants and ferns were determined to be culturally significant to the Tribe. This totaled approximately eighty species with documented cultural significance.

Additionally, on the basis of ethnographic documentation and practice among *other* Tribes in Western Washington that had long been able to access many of the same plant species that were present in the land exchange vicinity, at least fifteen other species appeared likely to hold cultural significance to this Tribe. It was clear that continued research would likely yield additional ethnographic and historical evidence.

Presence of Culturally Significant Species (Botanical and Ecological Evidence)

Once at least some of the culturally significant species were identified, it became necessary to determine whether or not they were present in the land exchange area. It would have been ideal to draw from plant surveys that had been conducted for the explicit purpose of assessing the impacts of the land exchange (ecological *or* cultural) on the culturally significant species and related practices, particularly if they included mapping of current locations and abundance. However, no such surveys existed. Instead, a few plant surveys had been carried out for the purpose of assessing the *ecological impacts* of the proposed land exchange on *listed rare plants*.

The existing rare plant surveys had been conducted by a botanical consultant in portions of several sections within the land exchange vicinity. Typical of Forest Service methodology in the case of rare plant surveys for timber sales, the surveys utilized the Intuitive-Controlled method as opposed to more thorough transects or plots. What this meant is that a botanist would select and walk routes in an “intuitively controlled” fashion, and all species encountered would be recorded. Special habitats were noted, along with

dominant trees, shrubs, herbs, and plant associations. Using this method, approximately forty acres were surveyed each day in areas selected on the basis of habitat differentiations and the likelihood of the presence of target species — in this case, those that were listed as ecologically rare. A total of ten percent of the habitats considered “high probability” with regard to rare plant species was surveyed. This was not ten percent of the total area to be exchanged. It was ten percent of a much smaller area considered most likely to contain rare plants.

Because all species observed had been noted, it was possible to look at these data for the presence of culturally significant plants in the sites surveyed. Analysis of the available surveys indicated that twelve of the eighteen culturally significant trees, 22 of the 27 culturally significant shrubs, and 23 of the 36 culturally significant herbaceous plants occurred on one or more of the sites surveyed. That totaled 56 out of 71 culturally significant species (not including ferns).

Admissible Evidence

The Forest Service was interested in determining specific locations where plants were harvested. More precisely, it was interested in determining any narrowly circumscribed sites where plant harvest had taken place continuously over time and still took place. This interest was based on the view that such sites — and *only* such sites — would provide (1) evidence of cultural practice, and (2) locations that might qualify for protection or at least mitigation. The problem was that this site-specific evidence was the only kind of evidence the Forest Service acknowledged, yet it only partially reflected the actual practices of the Tribe. While the concept of site-specificity was drawn from Eurowestern plant harvest practices that primarily took place in defined and bounded gardens, fields, and farms, the Tribe’s actual practices looked more like the following, as described in my report to the Forest Service (Eloheimo 1999b):

The Tribe has traditionally gathered and still continues to gather plant materials in various locations across the land exchange vicinity. Some plants are gathered from locations that are traditional, favored, and visited repeatedly. Some plants, once gathered from locations that may have changed their botanical, ecological or access characteristics for a variety of reasons including commercial timber harvest, are now gathered from different locations. Additionally, some plants are gathered

while traveling from location to location for various purposes. In sum, the Tribe's gathering practices rely upon access to areas of reasonable size with an adequate abundance and richness of habitats. Under current conditions, the land exchange vicinity contains such areas.

This description introduced two important features that had been previously ignored or discounted: (1) movement throughout the area, and (2) variation in selection and location of harvested plants over time.

One plant species did clearly fit the site-specific harvesting model the Forest Service sought. It was huckleberry (*Vaccinium* spp.). The archaeological and ethnographic record suggested that, for contemporary members of this Tribe as well as their ancestors, harvest of huckleberries was in fact associated with specific sites to which the people have returned again and again, sometimes over the span of hundreds, if not thousands, of years. Additional evidence demonstrated similar patterns to be true of other Tribes in the region (Deur 2002). It was known, for example, that many traditional huckleberry- gathering areas were customarily managed by controlled burning. Evidence of this kind of management on the part of California Indian peoples had already been collected and studied (Blackburn and Anderson 1993).

The record did not, however, provide site-specific evidence with regard to most of the other cultural plant resources including various food, medicine, and basketry plants. In some cases, the existing record provided little or no information pertaining to the locations of gathering. This was especially true with regard to medicinal plants. The scarcity of information suggested two overlapping factors: (1) knowledge of harvesting areas for medicinal plants was guarded and shared only very discretely (as described above); and (2) harvest of medicinal plants took place in various *and changing* locations. Ample evidence supported this assertion. For example, the *ethnographic, historical, and contemporary record* suggested that the Tribe had long followed patterns of movement throughout the landscape for a variety of reasons such as hunting, fishing, traveling for trade to areas on the east side of the Cascades, and traveling to specific higher elevation berry-picking sites. These purposes were regularly combined as, for example, in seasonal excursions that often lasted several weeks as people followed ripening rates up to and over mountain passes.

The *botanical record* indicated that, even at the time of this work, after extensive

non-Indigenous use impacts, populations of culturally significant plant species remained in pockets of old growth coniferous forests, high elevation dry meadows, small deciduous wetlands, rocky non-forested outcrops, and even in some mid-succession forests.

The *ecological record* told the story of changes to habitats over time. These included natural disturbances, primarily fire. Other types of natural disturbances relevant to a middle elevation, montane environment, such as occurred in the land exchange vicinity, included wind, lightning, avalanche, ice storm, and infestation events. Such disturbances could significantly alter soil, light, and topographic conditions as well as change the composition and structure of plant communities.

Habitat changes also included human-induced alterations, some of which may have been intentional aspects of traditional harvest practices designed to enhance the conditions and populations of plants and animals. Additionally, traditional human-induced effects could have been a direct result of the harvest practice, such as peeling bark from trees, removal of plants from populations by digging up roots (or other underground parts) or entire aerial parts, along with collecting flowers and leaves. These might have, on one hand, reduced the available resources or, on the other hand, enhanced them through the thinning process.

Additionally, the *ecological record pointed to a logical cultural corollary*. Either natural or human-induced alterations of habitats would naturally alter the harvest practices associated with them. For example, once bark was peeled from a western redcedar (*Thuja plicata*), it could not be peeled again for a generation. As a result, other appropriate trees had to be found. Likewise, it seemed logical that if populations of plants were depleted (or, perhaps, simply reduced), alternative populations would be sought. This was likely true when impacts were limited to those induced by Indigenous people implementing “conservationist” gathering strategies. But it was also true as a result of contemporary non-Indigenous practices including timber harvest and associated practices such as chemical fertilizer and herbicide application, and progressive privatization of land and consequent gating-off or destruction of traditional access routes. Also, curtailment of traditional burning practices had resulted in a gradual change of species composition in many “usual and accustomed” gathering grounds (Larson 1999).

Finally, the *physical and archaeological record* contained ample evidence of trails

in the land exchange vicinity (Eloheimo 1999a; Larson 1999; Miller 1998). Some were currently active foot trails. Others were fragments of previously used trails that were designated as “cultural properties” by the U.S. Forest Service (Burtchard and Miss 1998). While the Forest Service, in its analysis of the affected area, had chosen to view these trail fragments as relatively recent and of non-Indigenous origin (that is, as Forest Service administrative artifacts), I argued that these and more recent trails should be viewed as logical evidence of previously used travel routes in constructing a description of ethnobotanical resource gathering by the Tribe and its ancestors.

When the record indicated seasonal travel into the mountains, it was through trails that this would have been carried out. Trails made it possible to reach appropriate hunting and gathering locations. Trails made it possible to identify alternative locations as disturbance dictated. Trails made it possible to travel to Puget Sound and over mountain passes. Further, plants were encountered all along the trails while they were being traveled. Common sense suggested that desirable plant species would be collected whenever they were encountered, even if plant collection was not the explicit purpose of the journey (Tribal Anthropologist 1999, personal communication).

When trails and trail fragments existed, I further argued, they should be viewed as potential components of a trail system constructed and utilized by the Tribe, and they should be studied thoroughly with the intent of seeking data that supported this likelihood. I asserted that, in fact, the presence of a contemporary trail, or even road, should be seen as *increasing* the likelihood that the route it traveled was based upon an Indian precursor, rather than decreasing or negating it. Field observations suggested that travel routes typically flowed along logical topographic pathways and that, if a previous route had been established along such a pathway, it would be easiest to construct a new route where one had already existed. Efforts to reconstruct and understand the full scope and connectivity of the trails and fragments of trails that existed at the time of this work were critically important to understanding traditional Tribal patterns of subsistence, and the plant resources utilized.

While existing Forest Service studies discussing the history, pre-history, and predominant cultural features of the Tribe and their ancestors had in fact acknowledged a broad-based subsistence pattern involving seasonal travels into the mountains of the land

exchange area, they had failed to acknowledge the *significance* of these Tribal practices. In other words, the Forest Service's insistence on only site-specific evidence did not allow for introduction of the cultural and ecological implications of such seasonal travels to various gathering locations, or the possibility of gathering "while on the move." Furthermore, this narrow construction not only prevented acknowledgment and study of what appeared to be actual Tribal practices, it also prevented acknowledgment and study of the effects that pressures on plant resources in adjacent habitats had upon these practices.

The Forest Service had applied the view that no *acceptable* — meaning site-specific — information meant no cultural impact. However, this reflected neither the ecological relationships inherent in the landscape, nor the cultural relationships inherent in the Tribe's actual practices, nor the ethnobotanical relationships between both the landscape *and* the cultural practices. Since it was abundantly clear that the Tribe's present and historical relationship with the land exchange area simply could not be understood using the Forest Service's approach, I asserted that it was essential to consider various types of evidence — ecological, botanical, archaeological, and ethnographic — *in unison*. Only in this way could a working model be constructed and used to explain them *as a relational whole*.

Multi-Modal Evidence

After establishing this theoretical framework, I proceeded to carry out a preliminary integration of the various kinds of evidence available from multiple areas within the land exchange vicinity in order to demonstrate a working model of actual Tribal harvesting practice — traditional and contemporary — that would shed light on the real cultural impacts of the land exchange. At the same time, I made it clear that such a preliminary discussion did not complete the process of gathering the necessary data and analyzing it thoroughly. Here is an example of applying this approach to an area in which the evidence was particularly robust:

Trails

A complex of trails was evident throughout. For example, a cultural property trail paralleled a creek in a north-south direction at the western edge of the exchange parcel.

After a short gap, another cultural property trail curved to the southwest still paralleling the same creek. After another short gap, a trail continued in a southerly direction; and, a short distance to the east from the southern end of the trail, yet another cultural property trail angled to the southwest. These trail fragments were either near or congruent with contemporary foot trails (Burtchard and Miss 1998).

Culturally Significant Species

A 35-acre field survey was conducted in an area that bordered one of the trails. Twenty-nine culturally significant species were present in this area that included a large remnant stand of old growth coniferous forest and a five-acre wet area dominated by scattered red alder and lady fern. The culturally significant species included red alder (*Alnus rubra*), western yew (*Taxus brevifolia*), beargrass (*Xerophyllum tenax*), western redcedar (*Thuja plicata*), huckleberry (*Vaccinium* spp.), salmonberry (*Rubus spectabilis*), trailing wild blackberry (*Rubus ursinus*), tiger lily (*Lilium columbianum*), devil's club (*Oplopanax horridus*), long-leaved Oregon grape (*Mahonia nervosa*), snowberry (*Symphoricarpos albus*), red elderberry (*Sambucus racemosa*), lady fern (*Athyrium filix-femina*), and wild ginger (*Asarum caudatum*).

Ethnographic Documentation of Travel Routes

The ethnographic record for this area suggested the existence of travel routes consisting of a network of trails that, I argued, should be thoroughly and extensively studied by carrying out (1) additional field surveys along their routes, searching for evidence of trail connections between fragments, (2) travel with Tribal members, and (3) an integrated analysis incorporating archaeological evidence such as lithic scatter.

Ethnobotanical High Probability Habitats

After reviewing the evidence available for specific sites and considering it *in combination rather than in isolation*, it occurred to me that some areas constituted the ethnobotanical equivalent to the ecological term, "high probability habitat," which was often used in reference to areas where there was high probability of the occurrence of sensitive and endangered species. An ethnobotanical "high probability habitat" would be

labeled as such when substantial cursory evidence was found to be present. The area would then, I recommended, be examined thoroughly for evidence of either traditional plant gathering or for present gathering potential on the basis of the following criteria:

1. Presence of an abundance* of culturally significant plant species in harvestable condition* and in adequate quantity* (or with the likelihood of reaching these characteristics within a “reasonable”* period of time).
2. Acceptable* level of impact on plants present from any human disturbance history in the immediate or adjacent areas.
3. Presence of one or more of the following:
 - a) Portion of a historical trail
 - b) Contemporary trail
 - c) Archaeological site
 - d) Traditional gathering area
 - e) Desirable* contemporary gathering area
 - f) Spring
4. Acceptable* access exists to the location.

(*Characteristics should be determined by Tribal members.)

A Cultural Landscape

It seemed to make little sense to consider the land exchange vicinity as a landscape composed of *discrete physical and biological components* that did not interconnect with each other, as the Forest Service had insisted upon doing. The assumption of such interconnectivity is, of course, the premise of ecology. Similarly, it made little sense to consider the vicinity to be composed of *discrete cultural resource components* that did not interconnect with each other.

Since traditional harvest locations likely moved as a result of natural disturbances (such as avalanche, wind events, and fire) as well as human disturbance (such as cumulative effects of previous harvesting or a conscious conservation strategy), disturbances in one area could have instigated either temporary or permanent moves to other areas perhaps with similar habitats and plant communities. In this way, an adequate supply of plant material could be maintained and harvest sites could regenerate. (See

western redcedar example above.) Plants along the access routes to the new locations would then also be readily accessible for harvest. A certain resiliency was demonstrated here both ecologically and culturally. As sustainable harvest would be implemented, new appropriate areas would be located and cultural tradition maintained.

While more recent land management practices such as clear cut logging had been implemented widely, the data suggested that culturally significant plants remained available throughout the vicinity, with some species especially, even uniquely, on federal lands where road building and timber harvest had been delayed. The probability of future exchange and continued checkerboard privatization of increasingly isolated federal areas would clearly impact their future availability. The Tribe demonstrated its resourcefulness and resiliency by finding access to appropriate gathering locations despite private roads and locked gates. Though not an easy task, the profound cultural significance of these plants was made apparent by the fact that Tribal members continued to locate and harvest them for food, medicine, basketry, ceremony, and other purposes. Indeed, the evidence suggested that the entire vicinity should be considered as one cloth, both ecologically and culturally, and could be described as such by the term, *cultural landscape*.

Investigation, Elaboration, Verification: Proposed Sequence and Methods

The report I submitted advocated strongly for consideration of a very different model of cultural utilization of the land than the Forest Service had been willing to consider thus far. I argued that study should be based on the model of cultural resource gathering and use occurring across a broad area. I further argued that study of the area itself, with an eye to impacts and potential mitigation, could offer several benefits. It could, for example, (1) facilitate dialogue between the Tribe and the Forest Service (which had not been particularly successful to date); (2) illuminate the concept of a *cultural landscape*; (3) constitute a predictive model that could be used by the Forest Service and private companies prior to harvest planning and road building; and (4) aid in reaching a fair and informed conclusion regarding the real effects of proposed ownership changes and land management activities on the Tribe. The report concluded with a proposed sequence of investigation and specific methods designed to both elaborate and verify the proposed model that the Tribe had long gathered ethnobotanical resources in a mixture of site-

specific and non-site specific ways, and that these drew heavily upon gathering along trail networks during travel for a variety of purposes.

Outcome

Despite all, the Forest Service's view of what constituted evidence of land use and plant-related cultural properties was so entrenched that it heard *nothing* of what was asserted in the report. Its official response was that *no evidence had been offered, therefore no cultural impacts existed*. Ultimately, although it was slightly modified in scope, the land exchange was carried out.

Paradigm Conflicts in the Land Exchange Case

The example of the land exchange case illustrates how the paradigms contained within the phases of ethnobiology continue to function, often in conflict and as barriers to one another. For example, the type of evidence considered admissible by the Forest Service in the Tribal land exchange was limited to location-specific plant use, equivalent, as stated previously, to a Eurowestern garden occupying a single defined space. If use in *that space* could be demonstrated, *that space* might be considered protectable. However, this model did not represent most of the actual Indigenous practices, nor did it reflect the understandings of ecology that link discrete elements into functioning systems as part of a Systemic Paradigm. Only evidence that adhered strictly to a Specificity Paradigm was admitted.

Careful consideration of the peeling of western redcedar bark (*Thuja plicata*) clarifies this paradigm conflict. In the mainstream model of protection, the Forest Service would protect a tree that had *already* been peeled, with the view that this would ensure future harvest from the same suitable tree. However, in Indigenous practice, once the bark had been peeled from the tree, it could not be peeled again for another human generation (Bruce Miller 1998, personal communication). Having made use of the resource on one occasion meant that it could not (at least any time soon) be used again. Therefore, protection meant *diversifying* resource sites in order to be able to adapt to changing environmental and cultural conditions. This view draws from multiple interwoven strands

that suggest entire landscapes require protection if both the resource and the traditional knowledge and practices that sustain that resource are to be maintained. Such a perspective integrates aspects of the three phases of ethnobiology and their associated paradigms: (1) the specific nature and growth requirements of western redcedar (Specificity Paradigm); (2) a post-modernist embrace of the multiple types of knowledge and practice involved in harvesting and using cedar bark, along with ecological interconnections (Systemic Paradigm); and (3) ethnoecological recognition of influences and changes — structures — at the landscape level over time, along with a long term view to sustainability within these structures (Structural Paradigm).

Since the model I proposed in the report that was submitted to the Forest Service on behalf of the Tribe demonstrated relational engagement among all of these paradigms, it could be considered a model of a Relational Paradigm. However, the hegemony of the Specificity Paradigm was so strong as to render invisible any elements that did not reflect that paradigm. As such, the U.S. Forest Service's response constituted an example of broken, or non-engaged, relationship.

Paradigm Conflicts in Healthcare

Some of the paradigm conflicts operating in the land exchange case generally, as well as with regard to western redcedar harvest in particular, are similar to conflicts occurring in healthcare in the United States. In order to better understand the presence of such paradigm conflicts in healthcare, the following three examples will be examined: (1) theories of disease etiology, (2) evidence of effective healing practices, and (3) drugs and plants.

Theories of Disease Etiology

After a trip to India in 2011, I became ill and eventually made a visit to the doctor. I was diagnosed, through blood work, with an atypical mycobacterial infection. I was grateful for the technology that enabled this diagnosis, and I was grateful to understand that a specific disease agent was responsible for my condition.

Germ theory, or the theory of disease specificity, is so fundamental to mainstream

healthcare that it often goes without mention. But this has not always been the case (Etkin 2002). For at least two millennia, and well into the 19th century, *humoral theory*, as mentioned in Chapter 3, dominated Western understanding of disease etiology both formally and informally. Humoral theory, which may have originated in North Africa, the Middle East or South Asia, was originally rooted in the idea that the four qualities of hot, cold, moist, and dry combined into four “humors,” and that health (both physical and “temperamental”) resulted from a balance in these elemental humors (eucrasia) while disease resulted from an imbalance (dyscrasia). These understandings existed in the absence of an awareness of the complexity of human anatomy and physiology. As a result, disease was viewed exclusively as a systemic phenomenon and interpretation of disease processes occurred through observation of effluvia — primarily vomit, urine, feces, and phlegm. Likewise, treatment occurred by means of influences upon the effluvia through the generalized actions of certain plants (such as diuretics and purgatives, and those that considered themselves to be, for example, “hot” or “cold”), and methods, such as bloodletting, that were believed to reduce excesses in one or more of the humors. Galen, as noted in Chapter 3, was influential in maintaining this conceptual framework and discouraging observational inquiry. Nevertheless, gradually — and for various reasons that included development of the microscope, recognition of the presence and functions of the cardiovascular system, and understanding of “side chains” that enabled molecular influence of different but structurally similar chemicals — the idea that disease originated at loci of decreasing size and specificity was emerging and taking hold. Following from Chapter 3, anthropologist and biologist Nina Etkin describes this transition as follows:

Until the mid-1800s, the body was perceived as a ‘system of dynamic interactions with its environment’ (Rosenberg 1979:5), each body part was related to all others, and health or disease was a general state of the whole organism. By the late 1800s the doctrine of specific etiology interjected the notion that nature (environment), the body, and disease are not coterminous. Each is distinct from the other; the environment is a source of other, of non-self; the pathogen, thus disease, is detached from the patient. Biomedicine began a meteoric trajectory when it ceased to rely on what patients say and started to focus instead on technology-generated, increasingly lower (more specific) levels of biologic resolution.... Increasingly, [treatments] took the form of chemical and antibiotic therapies (Etkin 2006:67-68).

So effective were these chemical and antibiotic (drug) therapies at curing specific

infectious agents that the theory of disease specificity became dominant in an era when urbanization, industrialization, immigration, and related population intensification were resulting in an onslaught of new and epidemic diseases. Furthermore, the ability to synthesize effective drugs both resulted from and strengthened the modernist Specificity Paradigm that viewed technology as a potential panacea.

However, while theories of disease and treatment specificity came to dominate the U.S. healthcare system, other understandings of disease etiology did not disappear. Other quite different concepts exist today, even in the presence of modern understandings of physiological complexity. These notions often embrace a “holistic conceptualization of health and disease, incorporating spiritual, physical and psycho-social factors” (Tirodkar et al. 2011), such as the idea that disease expresses *imbalances* (1) in heat and cold (Neff, n.d.), (2) in the social network (Snow 1983), and (3) in relationship with the natural world (Maller et al. 2005). Views such as these are often found in association with broader cultural views, suggesting that theories of disease etiology should be understood less as invincible fact than as changing cultural constructions (MITOpenCourseWare2012). However, this perspective, reflective of the Systemic Paradigm contradicts the perspectives of the dominant Specificity Paradigm in healthcare, resulting in paradigm conflicts. Nevertheless, the notion of cultural competency asserts that mainstream healthcare must do more than offer superficial and patronizing acceptance of divergent views; it must understand and fundamentally integrate different healthcare beliefs. Conflicts arise when the dominant modernist Specificity Paradigm in healthcare fails to allow this, becoming hegemonic — as the Specificity Paradigm did with regard to environmental management in the case of the land exchange.

Evidence Revisited: Effective Healing Practices

Another area of paradigm conflict involves the kind of evidence of effective healing practices that is considered relevant and admissible. The primary language of biomedical research is statistics. Whether discussing process control, clinical outcomes, risk assessment, or drug product development, the primary evidence used for analysis and interpretation is mathematical in nature. Statistics enables description as well as inference, prediction through sampling, and modeling and application, often toward complex goals

such as “to measure the magnitude of the variations of healthcare providers and to assess the role of contributing factors, including patients’ and providers’ characteristics, on survival outcome” (Guglielmi 2012:219). Statistics is used as the primary tool for evaluating quality, safety, efficacy, consistency, and efficiency throughout the healthcare system. As such, biomedical research, primarily through statistics, provides the evidence upon which *evidence-based healthcare* aims to ground its practices and decisions.

The Cochrane Collaboration (2013) describes evidence-based healthcare (EBH) as follows:

[EBH] is the conscientious use of current best evidence in making decisions about the care of individual patients or the delivery of health services. Current best evidence is up-to-date information from relevant, valid research about the effects of different forms of health care, the potential for harm from exposure to particular agents, the accuracy of diagnostic tests, and the predictive power of prognostic factors.

However, statistics, the language of biomedical research and evidence, has its limitations (Raha 2011; Gupta 2008; Matthews 1995). For example, statistics cannot express, analyze or interpret qualitative characteristics or *felt* phenomena such as alienation, empathy or a sense of belonging. Likewise, statistics considers aggregates of data but cannot illuminate an individual fact, phenomenon or figure. Statistical predictions or extrapolations cannot be guaranteed; at best they are highly likely outcomes. Finally, statistical data are especially susceptible to misinterpretation — such as conflating correlation with causality — as well as multiple selective interpretations in the service of multiple desired outcomes.

Furthermore, best *evidence-based* practices and their outcomes are not universally agreed upon, or accepted, by all U.S. healthcare stakeholders, particularly among all cultural groups. For example, *narrative medicine*, a healing model emphasizing *story*, is practiced largely outside the realms of mainstream healthcare. Two quite different proponents — Rita Charon and Lewis Mehl-Madrona — have been advocating and teaching practices that incorporate the stories that patients hold about many aspects of their lives, including (1) their identity, (2) their cultural, social, and familial roles, (3) the nature and roots of their affliction, (4) the purpose of life, and (5) the meaning of death (Charon 2008, 2005, 2001; Mehl-Madrona 2007). Physician, scholar, and Director of the Program in Narrative Medicine at Columbia University, Charon, anchors her interest in story to the

belief that listening and empathy within the physician-patient relationship are of primary importance. Cherokee and Lakota physician and anthropologist, Mehl-Madrona, emphasizing the perspectives of “the world’s indigenous medical systems,” states, “I often place ‘heal’ in quotation marks, to call attention to the possibility, as suspected by many aboriginal healers, that healing arises mysteriously through dialogue... (Mehl-Madrona 2007:12).” He goes on to advocate greater cultural inclusivity within mainstream healthcare generally:

I propose that medicine must reinvent itself to include the voices and visions of indigenous peoples. Those of us within medicine must discover how to get from where we are today to a paradigm (or a story) that is more conducive to health and well-being. We need to think differently about medicine, psychotherapy, and healing. What we have are collections of stories that make sense to the members of the culture who tell them. The world’s indigenous medical systems deserve appreciation for their wisdom. These traditional methods of healing include North American Native, traditional Chinese medicine, ayurveda from India, and African medicine, to name but a few. They hold many useful stories about health and disease, as valid in their own right as the stories told by conventional medicine (5).

I suggest that these views of narrative medicine reflect the interactive inclusivity of the Systemic Paradigm as well as the situated frameworks of Structural Paradigm. In other words, story itself generates relationship. When people explore memories of childhood or recollect or discover stories about family members or ancestors, they cultivate awareness of and relationship with themselves, sometimes referred to as forming *narrative identity* (McLean et al. 2008; Fivush and Sales 2006; Pennebaker 2000; Baumeister and Newman 1994). Additionally, when people tell these stories of self, family, ancestry or culture, they cultivate relationship with others (Alea and Buck 2003; Bavelas et al. 2000; Rosenwald and Ochberg 1992).

These narrative processes represent *systemic functions* because they engage social elements such as family, ancestry, and culture. They further represent *structural elements* because they situate individuals within the framework of their lives through recognition of genuine strengths, potentials, and limitations. According to Charon and Mehl-Madrona, both of these aspects of narrative medicine influence health outcomes not only on social and psychological levels but on physical levels as well (Charon 2008, 2005, 2001; Mehl-Madrona 2007).

However, story, empathy, and relationship do not easily yield themselves to the biomedical research, statistical analysis, and replicable evidence-based approaches of the Specificity Paradigm that focus on measurable changes on the part of the individuals or *agents* (Malterud 2001). Rather, in this view, health outcomes may manifest as *links* — that is, as experience of self, others, or ‘place’ (Cummins et al. 2007; Cohen 2004). These health outcomes reflect health defined as “social well-being” (World Health Organization 1946:100) and understood phenomenologically as one’s lived experience in the body, not only as the biological functioning of the body (Murphy 2009; Carel 2007). Narrative approaches to medicine are uncommon in mainstream healthcare, which is dominated by the Specificity Paradigm. This represents a paradigmatic conflict in which, similar to the land exchange case, the dominant Specificity Paradigm is unable to recognize the systemic and structural components of their respective paradigms. It also illustrates a type of harm in which a patient’s narrative identity is excluded from healthcare delivery and a sense of belonging is not achieved. Thus, relational engagement is not established due to paradigmatic hegemony.

Drugs and Plants

A number of protocols have been established both nationally and internationally for drug product development. As the pharmaceutical industry became more global, the need for more continuity among national regulations, particularly those of the United States, Japan, and the European Union, was recognized. To meet this end, the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) was established in 1990, and its purposes and terms of reference were developed and revised through 2000. The guidelines covered safety, quality, efficacy, and multidisciplinary topics in enormous detail, including, among others, preclinical trials, clinical trials, risk management, and pharmacometric analysis (Faltin 2012).

The ability to apply these types of guidelines exists because of the nature of isolated constituents or synthesized drug products. The molecular structure is clearly known, easily replicable, and capable of definitive evaluation, at least in the laboratory. Whole plants do not yield themselves to such consistency or clarity. As discussed in Chapter 3, whole plants are complex dynamic organisms containing numerous primary and

secondary metabolites that often interact synergistically and are greater — or at least different — than the sum of their parts. Further, plants present different chemotypes and genotypes in different habitats, under different climatic conditions, in different seasons, and even at different times of day. From the perspective of biomedical research — and the Specificity Paradigm — this presents a messy, undesirable situation that is not conducive to generating consistent evidence about the quality, quantity, safety, or efficacy of plant medicines. However, from the perspectives of the Systemic and Structural paradigms, this very diversity, along with the reasons for it, are largely what makes plants desirable as medicine. The plants are living, “breathing” (through transpiration and respiration) situated organisms in nature. As such, “the use of plants and animals by Native North American tribes presents a diverse, yet universal expression of intimate bonding between a particular tribe and its place” (Cajete 2000:118). Engaging with plants as medicine, therefore, engages the patient in the broader dynamic of nature, which is viewed as healing in itself, particularly when the body itself is also viewed as an ecosystem and the experiential aspects of health are conceived as expressions of the *balance* that changes through circumstances and seasons (Trasatto 2013, personal communication; Netishen 2013, personal communication).

Revisiting the land exchange case, it can be seen that in this example of actual Indigenous practices, access to medicine required access to land as well as access to, and maintenance of, long-standing knowledge that was needed in order to access both the medicine *and* the land. Thus the land exchange case was not only about environmental stewardship but about medicine and healthcare as well. It addressed engagement with land, through time and through change, in order to keep culture and health intact and strong. The goal was to maintain the integrity of the whole over time and without harm. However, the Forest Service, operating from a dominant Specificity Paradigm, failed to recognize the Tribe’s claims that the land exchange would result in harm not by limiting access to specific, culturally significant plants and places, but rather by limiting access to a cultural landscape — a concept reflective of both Systemic and Structural paradigms. Similarly, mainstream healthcare, operating from a dominant Specificity Paradigm, limits (1) concepts of disease etiology to germ theory, failing to recognize the potential roles of a complex of factors and experiential components ranging from *balance* to *spirit*; (2) types

of evidence to measurable phenomena on the part of individuals, failing to recognize the role of personal and interpersonal experience in the meaning and pursuit of health; and (3) protocols for developing and evaluating the efficacy of plant medicines, basing them upon models of pharmaceutical drug development and failing to value and validate the qualities inherent to living plants.

In Summary: Paradigm Conflicts

While it is natural for different individuals and groups to hold different perspectives — including those that characterize different paradigms — paradigm *conflicts* represent an absence of engaged relationship between these differences. This chapter has examined the nature and components of relationship from multiple perspectives. One recognition that has emerged is a tendency to focus on the *agents* in relationship rather than on the *links*. This can be illustrated by, and can perhaps help explain, the hegemonic inclination of the Specificity Paradigm, which tends to focus on discrete elements, entities, and agents rather than on the more fluid and sometimes elusive connections, systems, and links between them. In contrast, the connective aspects of relationship tend to be of greatest interest to the Systemic Paradigm and, as has been shown, various disciplinary orientations reflect the Systemic Paradigm, including ecology, relational biology, social network theory, relational-cultural theory, attachment theory, and ecopsychology.

Further, this chapter has sought to show the paramount importance of engaged relationship by consideration of a human's first and primary relationship — attachment between infant and mother figure — and, by extension, attachment between human and sustaining earth. When relationship is broken, harm can result. Therefore, it becomes important to consider means by which relationship can be established and maintained. A Relational Paradigm represents engaged relationship across differences, including those that occur within mainstream healthcare and, when in conflict, can result in barriers that generate healthcare harm, or iatrogenesis. In the next chapter, I seek to clarify my concept of a Relational Paradigm, and to illustrate approaches by which it might be achieved.

Chapter 8. Toward a Relational Paradigm

Building upon the idea that broken relationship promotes harm and engaged relationship reduces it, this chapter explores the concept of a Relational Paradigm, including challenges to it and ways to achieve it. This will help to illuminate my proposal that harm can be reduced in healthcare through relationality, along with the roles Community-Based Herbalism can play in helping to achieve it, examples of which will be considered in Chapter 9.

Ethnobiology as a Relational Ecotone

In the context of discussing Indigenous worldviews, Cree scholar Michael Hart describes a *relational worldview*, which, he states emphasizes spirituality in the context of *communitism*, and which he goes on to define as a sense of community tied together by familial relations and commitments, along with respectful individualism (2010:3). This concept contains individuals (agents) in relationship to each other (links: familial relations and commitments) within a context of spirituality that is flavored by respectfulness (engagement). Similarly, a *Relational Paradigm*, as I define it, is characterized by mutual engagement, which I illustrate in various contexts below, across diverse elements (individuals, groups, perspectives, and paradigms) such as those associated with the Specificity, Systemic, and Structural paradigms identified in previous chapters. Establishing relationships across these divergent paradigms can be a difficult task. It requires attention to the specifics, systems, and structural elements (both social and environmental) of a given situation, along with the ability to engage understanding and action across them. I propose that the concept of *ecotone*, drawn from landscape ecology, models relational engagement.

In an ecological sense, an *ecotone* refers to the edges of two adjacent habitats where the characteristics of each habitat influence the characteristics of the other. This mutual influence is referred to as the *edge effect* (Forman and Godron 1986). I have observed the edge effects, or ecotones, of various Pacific Northwest habitats — such as a

moist high-elevation forest adjacent to an alpine meadow — and have documented their mutual influence. For example, in the first few meters of the meadow, I found intermittent tree specimens and, for roughly the same distance into the forest, I found fingers of open treeless areas. Each of these portions of the ecotone represented a relational area where one habitat was modified by the other habitat, yet both retained their fundamental character.

Ethnobiology can be considered a type of *relational ecotone*. It both (1) draws from two or more disciplines, in this case anthropology and biology, and (2) results in mutual modification; that is, each discipline modifies the other. As a result, it is influenced by, yet different from, each discipline, just as the landscape ecotone is different from the interior of each habitat. As such, ethnobiology has the capacity to integrate two disciplines into a pursuit more like a woven blanket than a patchwork of fabric scraps. This constitutes an engaged interdisciplinary relationship.

One might ask if it is actually possible for the language, methods, and goals of two distinct lines of inquiry such as biology and anthropology to create an ecotone — that is, to integrate them into something different from yet consistent with each — since, often it is the differences between science and humanities in Western academia that are highlighted (Goldschmidt 1993).

I propose that four factors are essential to the creation of an ecotone: (1) proximity, (2) capacity, (3) mutuality, and (4) “respect.” First, the habitats, disciplines, or people must be in immediate proximity to one another; they must touch and interact. Second, the habitats, disciplines, or people must be capable of being influenced. Third, influence must not be unidirectional; that is, the habitats, disciplines, or people must be *mutually* influenced. Fourth, the influence must be respectful which, in an ecological context, represents the absence of invasiveness — defined as the tendency for one or more species to overrun and dominate an area. It is important to remember that, among people, respect is not restricted to an emotion such as liking. Respect, as described by psychologist Candyce Bollinger (2002, personal communication), is more a *behavior* than a feeling, and is called for regardless of how one feels about or is treated by another. Bollinger argues that, in this sense, respect consists of (1) trust in others’ ability and presumption of their basic goodness, (2) interest in others’ points of view even when they

are different from one's own; (3) recognition and ownership of one's part of a problem or conflict; and (4) recognition and acceptance that others have feelings that may be quite different from one's own and, if so, both sets of feelings can exist simultaneously. The useful and metaphorically rich concept of *ecotone* emphasizes the ways in which two habitats, disciplines, or persons enter into engagement with one another; are mutually and respectfully influenced at specific, systemic, and structural levels; and thereby develop distinct aspects — “edges” — that are often characterized by both tension and creativity.

The Invisible Space Between

Despite its capacity for interdisciplinary and relational insight, ethnobiology and its subfield ethnobotany face challenges, one of which is a tendency for their relational insights to go unrecognized. This is due in part to the greater difficulty found in observing and understanding the links than the agents in relationships. For example, that which characterizes and makes *interdisciplinary study* different from *simultaneous study* of two disciplines (links) can be more difficult to articulate than the content of each discipline (agents). Further, in the land exchange case described in Chapter 7, the ethnobotanical evidence of relational Indigenous stewardship practices (links) appeared as no evidence at all to the U.S. Forest Service. This tendency for *relational invisibility* again reflects the idea that attention tends to focus on the agents in relationships, presumably because they are more concrete than links, making them easier to discern and describe. The tendency for the interdisciplinary, ethnobiological ecotone to go unseen can be further illustrated by an example from academia.

The Evergreen State College is known for its emphasis on interdisciplinary teaching and learning. In fact, the first of its five pedagogical foci is *Interdisciplinary Study*, whereby “Students learn to pull together ideas and concepts from many subject areas, which enables them to tackle real-world issues in all their complexity” (www.evergreen.edu). Despite the emphasis on interdisciplinary teaching, faculty hiring is typically discipline-based.

In the academic year 2012-13, a group of Evergreen faculty began to discuss concerns over a shortage of faculty in social sciences who could look at interactions between human communities and the environment. When one faculty member suggested

the possibility of preparing a job description based on relevant themes (links) rather than disciplines (agents), the topic turned to hiring on an interdisciplinary basis in general. The idea was rejected. However, in the process of discussion, a number of concerns were raised. One concern focused on a perceived lack of opportunity for training in two or more disciplines, which led to concerns that the applicant pool of interdisciplinary candidates would be too small. No mention was made of the potential for an ethnobiologist, or other ethnoscientist, to teach interactions between human communities and the environment. Nor were any of the doctoral programs in ethnobiology — such as those that have been offered at the universities of Florida, Georgia, Hawaii, South Carolina, and Washington, or at Michigan State University, Northwestern University, and Rutgers University — mentioned as possible avenues for interdisciplinary training. These interdisciplinary graduate programs in ethnobiology were essentially “invisible,” even to an interdisciplinary institution like Evergreen.

There are several reasons for the “invisibility” of these programs, one of which I propose relates yet again to my assertion that the *links* in a relational dynamic tend to be harder to see than the *agents*. Stated differently, while interdisciplinary breadth makes ethnobiology robust and relevant to understanding relationality, it can also cast such a wide net as to make itself unrecognizable as a coherent field. For example, Indiana University’s *Anthropology Disciplines: Ethnobiology* website (2003) discusses a National Science Foundation (NSF) report that describes ethnobiology as having five general subject areas: (1) knowledge systems, (2) medicine, health and nutrition, (3) ecology, evolution and systematics, (4) landscapes and global trends, and (5) biocomplexity. However, it also states that the interdisciplinary nature of ethnobiology makes its connections to these subject areas “complex, diffuse and difficult to map.” The NSF report goes on to say that, “despite the rapid development of the field...there still exists a pressing need for Ethnobiology to define better its research focus, objectives and methodology for the study of people-biota-environment interactions.” With this in mind, Evergreen’s emphasis on discipline-based hiring to accomplish interdisciplinary teaching — even in the absence of discipline-based departments — may also be due in part to it being easier to conceive of — and implement — interdisciplinarity as a patchwork of disciplines (agents) than as a tapestry of interwoven relations (links), or an ecotone.

There are significant implications to prioritizing discipline-based hiring over interdisciplinary hiring for the purpose of interdisciplinary teaching. For example, since Evergreen is committed to interdisciplinary studies, it seeks to produce graduates who are interdisciplinary. However, if these interdisciplinary Evergreen graduates pursue similarly interdisciplinary doctoral work and then seek to find a teaching role at Evergreen, they may not meet the discipline-based requirements of faculty hiring. In other words, the more successful the interdisciplinary institution becomes in producing the interdisciplinary graduate, the less desirable the graduate becomes as a prospective faculty at the institution that produced it. This contradiction brings into stark relief the ambivalence generated by interdisciplinary, or *relation-based*, studies, training, and thought, such as ethnobiology. It also reiterates the tendency for invisibility of ethnoscientists and their value. Indeed, a wise staff member at Evergreen once cautioned me about the dangers she observed about my being the only trained ethnoscientist on the faculty, saying, “You sit precariously on the edges of two discipline-based chairs. Be careful you do not fall into the [invisible] space between” (Constantino 1994, personal communication).

Relationality in Indigenous Cultivation Practices

As described in Chapter 7, I experienced the “invisible space between” when I submitted a report to the U.S. Forest Service that attempted to draw upon ethnobotany’s capacity to function as a relational ecotone. The report described the relational nature of Indigenous environmental stewardship on the part of the contemporary Pacific Northwest Tribe with which I served as an ethnobotanical consultant (and agreed to maintain the confidentiality of the Tribe’s identity). However, not only was the multi-modal evidence presented in the report rejected, it was considered and categorized as no evidence at all. In other words, in this instance, ethnobotany did not successfully create relational engagement across paradigms.

This is not always the case. Ethnobotanist Douglas Deur, for example, in his 2000 doctoral dissertation, conveyed another relational aspect of Indigenous environmental stewardship in the Pacific Northwest, this time pertaining to pre-contact cultivation practices. As described in Chapter 4, Deur drew upon multi-modal evidence and

successfully demonstrated relational models of Indigenous practice on the Northwest Coast. Through this, he began to shift a longstanding anthropological orthodoxy that Northwest Coast Indigenous people were exclusively non-agricultural hunter-gatherers (Matson 1995; Ames 1994; Kruckeberg 1991). It is not that the evidence Deur offered was new. Rather it was the way Deur conceptualized the *relationships* between the various existing lines of evidence (specific, systemic, and structural) that functioned as an ethnobotanical ecotone and effectively integrated them into a Relational Paradigm. Both his understanding of Indigenous practices *and* his influence on mainstream views constituted expressions of a Relational Paradigm. Deur's dissertation was followed by collaborative work with ethnobotanist Nancy J. Turner (2006) in their book, *Keeping It Living*, which further elaborates and illustrates relational, Indigenous environmental stewardship on the Northwest Coast (Turner and Deur 2006).

Relationality in Indigenous Sciences

As I have attempted to show, ethnobotany has the theoretical capacity to recognize and articulate relationality when present, and to do so on the basis of its own inherent relationality. I have also shown that ethnobotany (and ethnobiology) do not always achieve this goal, nor do I as an ethnobotanist. Nevertheless, my work continually brings me into relationship with Indigenous sciences (Phiri 2008; Cajete 2000; Snively and Corsiglia 2000). For example, Dennis Martinez of O'odham/Chicano heritage and founder of the Indigenous Peoples Restoration Network once told me that I should not encourage my students to refrain from harvesting wild medicinal plants. Rather I should teach them the proper *relationship* for doing so (Martinez 1998, personal communication). As I understand it, this kind of relationship involves active engagement based on awareness and respect, and contains in it the idea described by Latino ethnoecologist Devon Peña (2013:3) when he states, "humans can play a positive role by providing 'ecological services' to the ecosystem." Tewa educator and ethnobotanist Gregory Cajete (2000:20-21) further expands upon the fundamental relational engagement within Indigenous stewardship practices as follows:

The Indigenous "physicist" [scientist] not only observes nature, but also participates in it with all his or her sensual being. Humans and all other entities of

nature experience at their own levels of sensate reality. The Indigenous experience is evidenced not only through collective cultural expressions of art, story, ritual, and technology, but also through the more subtle and intimate expressions of individual acts of respect, care, words, and feelings that are continually extended to the land and its many beings. *As we experience the world, so we are also experienced by the world.* Maintaining relationships through continual participation with the natural creative process of nature is the hallmark of Native science... [It] forms the foundation for respecting the compacts of mutual reciprocal responsibility shared with other inhabitants of one's environment.

The idea of human participation in the natural world as an expression of both respect and co-creation is echoed by the Lushootseed name — *s'ulôx* — which was gifted to the Longhouse Ethnobotanical Garden by *takshôblu* Vi Hilbert, esteemed Upper Skagit storyteller and scholar who passed away in 2008 at the age of 90. Her explanation of the name's meaning was, "We can really make use of, by gathering, the things the Creator has given us to gather. The life of the plant is provided by the Creator. It is ours to gather and then make use of. We are given the privilege of taking these things for our own use. We help ourselves. In doing so, we are honoring the Creator. These things are so special" (Hilbert 1996, personal communication). In this view, harvest can be an act of respect and co-creation.

As I understand it, Cajete and others hold the view that Indigenous sciences embrace a *multidimensional world* (physical, mental, and spiritual) of *co-creators* (human and other-than-human), and that this understanding derives from lived and situated experience including experience of the unseen (Cajete 2000; Digital Library of Indigenous Science Resources 2008; Rice 2005; Castellano 2000; Fitznor 1998). *subiyay* Bruce Miller, for example, taught me that the "small talk" between himself and other Indigenous people upon first making acquaintance was to allow a process of subtle recollection/connection to occur between the *ancestors* of each individual who may have known each other in the past (Miller 2002, personal communication). Therefore, and again, as I understand it, Indigenous sciences are rooted in an engaged relationality that recognizes, constructs, understands, and engages elements and entities across time and space as well as between contexts and dimensions.

Relationality in Indigenous Research

Various Indigenous scholars (Wilson 2008, 2003, 2001; Garrouette 2003; Smith 1999) assert that Indigenous research is also deeply rooted in relationship. In his book, *Research is Ceremony*, which began as a doctoral dissertation, Cree scholar Shawn Wilson (2008:60-61) takes the position that Indigenous research is a form of ceremony characterized in part by “the knowing and respectful reinforcement that all things are related and connected.” Throughout his book, he integrates stories, letters to his sons, experiences, and interactions with friends into (1) a textural explication of the nature and history of research paradigms; (2) a chronology of emergent Aboriginal research; (3) the criteria, elements, and responsibilities of an Indigenous research paradigm; (4) definitions and examples of relationality as revealed through relationships with people, the environment/land, the cosmos, and ideas; and finally, (5) the contextualizing imperative of relational accountability. The concept and practice of relationality is so central to Wilson’s work and life that he reiterates and re-illustrates it many times and in many different ways. Several additional examples follow:

One of the main points I am trying to get across through this book is the importance of relationships, that everything needs to be seen within the context of the relationships it represents (43).

If Indigenous ways of knowing have to be narrowed through one particular lens (which it certainly does not), then surely that lens would be relationality. All things are related and therefore relevant. This concept permeates recent scholarly writing by Indigenous scholars. They question whether, in fact, it is even possible for dominant system researchers to understand this concept with the depth that is required for respectful research with Indigenous peoples (58).

...rather than the truth being something that is “out there” or external, reality is in the relationship that one has with the truth. Thus an object or thing is not as important as one’s relationships to it. This idea could be further expanded to say that reality *is* relationships or sets of relationships. Thus there is no one definite reality but rather different sets of relationships that make up an Indigenous ontology. Therefore reality is not an object but a process of relationships, and an Indigenous ontology is actually the equivalent of an Indigenous epistemology (73).

The importance of relationships, or the relationality of an Indigenous ontology and epistemology, was stressed by many of the people who

talked with me about this topic. Several stated that this relational way of being was at the heart of what it means to be Indigenous. For example, when asked what being “Indigenous” meant to him, my friend Peter stated: “It’s collective, it’s a group, it’s a community.” And I think that’s the basis for relationality. That is, it’s built upon the interconnections, the interrelationships, and that binds the group ... but it’s more than human relationships. And maybe the basis of that relationship among Indigenous people is the land. There’s a spiritual connection to the land. So it’s all of those things (80).

These statements from Wilson emphasize the importance of relationship to his understanding of Indigenous ways of knowing. Wilson’s colleagues and friends suggest that relationality is central to their understanding of themselves as Indigenous people (“It’s collective, it’s a group, it’s a community.”) Even Wilson’s understanding of reality hinges on relationship (“reality *is* relationships”), and he points out that Indigenous scholars have wondered about the potential of “dominant system researchers” to understand this deeply rooted idea sufficiently to respectfully carry out research with Indigenous peoples. I suggest that this could be stated in terms of barriers that prevent relational engagement across paradigms.

The concept of *ecotone* models relational engagement in which individuals oriented by divergent paradigms can interact with one another in ways that allow their paradigmatic orientation to be modified but still retain its own fundamental nature. Often such paradigmatic relationality is not achieved, as in the case of my representation to the U.S. Forest Service of land stewardship practices of the Pacific Northwest Tribe in the land exchange case. This resulted in paradigm barriers. Other times, as in Douglas Deur’s 2000 doctoral dissertation, which also described Pacific Northwest Indigenous stewardship practices, paradigmatic relationality was achieved to the extent that his unprecedented assertions about a pre-contact Indigenous cultivation complex on the Northwest Coast resulted in profound perceptual shifts within Western academia and expectations of “re-writing of the textbooks in [anthropology]” (Louisiana State University 2001). In so doing, Deur demonstrated a Relational Paradigm at the same time that he revealed the relational nature of the practices he described, which integrated specific, systemic, and structural elements.

Again, the intention of this chapter is to describe a relational paradigm and

demonstrate how it might be achieved. The concept of ecotone reveals characteristics of a Relational Paradigm in which those who hold divergent paradigms interact and, as a result, something positive and potentially new emerges. The agents retain their perspectives but listen openly and respectfully to one another. In so doing, they allow their perspectives to be influenced and to change so that the new emergent ideas or perspectives contain elements of both (or all) of the paradigms. This exemplifies engagement. Furthermore, paradigms that inherently consist of multiple levels engaging with each other — illustrated, for example, by Cajete with regard to a multidimensional world (physical, mental, and spiritual) of co-creators (human and other-than-human) embraced by Indigenous sciences — also embody a Relational Paradigm. In the next section, I draw upon these and other insights discussed in previous chapters to suggest four approaches to achieving a Relational Paradigm across disparate paradigms.

Conceptual Tools for Achieving Relational Engagement

While ethnobotanists may recognize when relationality is present, the question remains: How might the model of an *ethnobotanical (ethnobiological) ecotone* actually help to engage two perspectives in unison, focus two sets of perceptual lenses together, and harmonize two discrete paradigms, thus creating a Relational Paradigm, especially within mainstream U.S. healthcare? Four conceptual tools follow that demonstrate how this might be achieved.

Multiple Dimensions Exist Simultaneously

One approach to utilizing the ecotone potential of ethnobotany — and thereby cultivating a Relational Paradigm — is to propose that multiple dimensions or levels exist simultaneously, none of which needs exert a hegemonic influence on the others. For example, in a human being, processes that are biological, chemical, electrical, genetic, and hormonal as well as psychological, sensory, mental, and emotional can be observed as functioning simultaneously. For example, Chinese Five-Element philosophy proposes that mind, body, and spirit are multiple dimensions or levels of a human being that are all functioning in unison (Haas 2003; Netishen 2002, oral communication). I propose that

when considering human interaction with a medicinal plant, multiple dimensions or levels of engagement can also be found, none of which requires denial of any other. In other words, (1) bioactivity due to *specific* chemical constituents can exist alongside (2) experience of the plant as a synergistic or *systemic* whole, both of which can also exist alongside (3) cultural and environmental *structures* perhaps embedded in story, song, dream, or harvest protocols. Thus, it is possible to “tune” or change the “frequency” of consideration from one dimension or level to another without having to suggest that, in doing so, one or more ceases to exist. Further, each of these levels can be perceived as *metaphorical* to the others because, regardless of how different they are from one another, they each exist as a perception and representation of the same plant. Seen this way, the narratives associated with one level have the capacity to generate deeper understanding of the narratives associated with another level and in doing so, to potentially generate new *relational* understandings. This demonstrates the ecotone at work. When this concept of ecotone is applied to the three paradigms — Specificity, Systemic, and Structural — it becomes possible to shift attention between specifics, systems, and structures in healthcare as well as other contexts, without denying the existence of any of them. It further offers the potential for each paradigm to shed light upon the others and to generate relational, cross-paradigmatic insights, that is, to generate a Relational Paradigm.

Basic Respect

Another point of entry into a Relational Paradigm could begin with the position of simple respect. For example, Indigenous people, I would argue, should have seats and agency at the table for creating environmental and health policy if for no other reason than the fact that *all* groups should have seats and agency on the basis of *respect*. Instead, questions such as “Are or were Indigenous people conservationists?” are posed by Western academics, and serve as barriers to roles of co-management on the basis of perceived lack of fitness for those roles (Eloheimo 2001).

However, if another group in power were to study the presence or absence of effective European-American conservation and health practices and, if the studies were used to demonstrate the *right* of European Americans to determine environmental or health policy, I would suggest that few European Americans would be granted this right.

Instead, the right to participate in environmental and healthcare management is assumed by European Americans on the basis of presence, not inferred or actual aptitude.

Likewise, I would argue that presence should confer the same right to Indigenous people and all people of color. Considering that Indigenous presence has been considerably longer than that of the European-American colonizers, perhaps this right should be stronger on the basis of seniority as well.

Further, in the United States, treaty rights guarantee Indigenous people the right to fish, hunt, and gather in “usual and accustomed” places in perpetuity. If habitats are degraded to the extent that they cannot support these resources, treaty guarantees are broken. This makes it incumbent upon land managers to not only include Indigenous people at the table of co-management, but to acknowledge both their fundamental *and* earned power in leading the development, execution, and evaluation of stewardship strategies. Likewise, as it becomes increasingly recognized that structural harm in healthcare includes environmental iatrogenesis, treaty rights may come to support Indigenous participation in development of healthcare policies and practices.

Additionally, the practice of respect as articulated by Candyce Bollinger and described above — consisting of trust in others’ abilities, interest in others’ point of view, responsibility for one’s role in conflict, and acceptance of differences — can facilitate engagement in the presence of discord. In this way, basic respect for the rights of all people to hold authority with regard to accessing what meets their needs *in cooperation with one another* can generate a Relational Paradigm through engagement of multiple perspectives and voices.

Effectiveness Trumps Rationale

Yet another point of entry into a Relational Paradigm could emerge from an emphasis on the value of effectiveness coupled with *de*-emphasis on the reasons for its effectiveness. This approach would enable a focus on evaluation of environmental and healthcare strategies that actually work, rather than the reasons *why* they work. Eugene Anderson (1996:11) signals his interest in such an approach when, in *Ecologies of the Heart*, he states:

My goal has been to look for common themes in resource management practices of various cultures. In particular, I have concerned myself with belief systems. I have become particularly fascinated with one kind of belief system: tightly ordered *systems that provide very good guides for behavior but are based on assumptions that are incorrect from the point of view of Western science*. Those systems show how beliefs can be effective. They also show how people make mistakes [emphasis added].

A corollary of this approach draws from the acknowledgment that an emotional element such as compassion has been recognized as a critical component of relational engagement both inside and outside of the context of healthcare (de Zulueta 2013; Cole-King and Gilbert 2011; Dutton and Workman 2011; Frost 1999). This is directly in line with the idea that engaged relationship can both lead to and follow from genuine caring. Anderson (1996) illustrates this by drawing on traditions from China:

The Chinese language has no word for ‘religion’ — in the Western sense — and literally cannot express the distinction between managing and venerating the landscape (18). The Chinese have succeeded in involving people, emotionally, in their landscape — and then harnessing that emotional involvement, as well as cosmological belief, to motivate people to plan good land use and reasonably sound architectural principles... Worship and rational planning were two different ways of observing the same facts and principles, not two opposed ways of managing the world (27).

I am making two points here. One point is that effective approaches can emerge from emotions such as compassion, which has been shown to be an important currency of relational engagement. The other point is that approaches can be effective even when understandings of why they work are not accurate. I propose that this recognition can reduce the inclination of individuals focused on the details of accurate assessment — an aspect, I propose, of the Specificity Paradigm — to dismiss an effective idea that is based on an inaccurate rationale. Instead, an *ecotone* based on effectiveness rather than rationale could be created that fosters relational engagement between (1) the socially or culturally generated sentiments and meanings of a Systemic or Structural Paradigm and (2) the analysis-oriented aspect of the Specificity paradigm. This could, in turn, serve to reduce paradigmatic hegemony and foster a Relational Paradigm.

Situating Self in (Research) Relationships

Finally, a Relational Paradigm can also be cultivated by researchers *situating* themselves in research endeavors, thus potentially deepening the mutual engagement of the relationship. As Wilson (2008:10) states with regard to Indigenous research, “I have situated myself in the research process by giving a detailed explanation of my background. This is required by the Indigenous axiology and methodology of relational accountability.” I will illustrate what this might look like by situating myself.

My name is Marja Eloheimo. I am a non-Indigenous, Finnish- and Italian-American woman. Marja means “berry” in Finnish. Eloheimo means “tribe of life” or “clan of the harvest.”

My father, Joseph Edward Eloheimo, was born in 1914 in Rochester, Washington, in traditional Chehalis territory. His mother, my Finnish grandmother, came to Rochester in 1907 to join her sisters’ families and her parents. Elvira Kumpula Eloheimo died in her home in 1996 at the age of 104. I lived with her from the time she was 95 until she turned 100. I learned Finnish and lived with family in Finland for several months in 1982. Although I have no siblings, I grew up as part of a large Finnish clan.

My mother, Mary Cecile Lambe, was born in 1918 on the Mississippi River in Arkansas, in traditional Choctaw territory. Her grandmother came from Genoa, Italy, without her husband but with her three children. She died in 1994 at the age of 76. I do not speak Italian, although my “nana” began to teach me just before she died when I was twelve. I have not spent much time in Italy and do not have much extended Italian family.

I adopted two daughters from India as a single woman. One came home from Kolkata at the age of three months. The other came home from Mumbai at the age of five years.

In my experience, Western academics tend to present themselves professionally as non-situated, de-personalized, and intellectually oriented. While some book introductions may include the kind of information I stated above, few scholarly articles begin — or end — with an introduction to the author that includes their personal *and* academic background;

their cultural, racial, and gender identification; and a statement of their values and life goals. Likewise, teachers rarely begin their courses with self-disclosure, nor do allopathic physicians routinely post statements of their philosophy of healing in their waiting rooms. Further, in my experience, if non-Indigenous people identify themselves at all before speaking at a public event, the association made is not usually personal or cultural, but rather professional, as in the statement “I am a faculty member at The Evergreen State College” not “My name means the Clan of the Harvest.”

On the other hand, in almost every traditional Indigenous event I have attended, Indigenous speakers begin public comment with a statement of their cultural and family affiliation, and their Indigenous name if they have one. I suggest that for non-Indigenous ethnobotanists and other researchers to bring multiple dimensions of themselves into research relationships, they are responding to Indigenous calls to change the structure of these relationships, personalize them, and infuse them with genuine respect based on mutual disclosure or, as stated above, to foster a Relational Paradigm.

These four approaches constitute *tools of the ethnobiological ecotone* that, I propose, could help foster a Relational Paradigm. In summary, the approaches consist of acknowledgements that (1) multiple dimensions and levels can exist simultaneously; (2) *all people* deserve a prominent role in environmental and healthcare co-management out of basic respect; (3) the effectiveness of actions are often more important than the reasons for or beliefs behind the actions; and (4) situating oneself in research can foster relational engagement.

In the next chapter, I present several cases that put flesh onto the bones of Community-Based Herbalism, and I follow these cases with an analysis of how they illustrate engagement across the Specificity, Systemic, and Structural paradigms and represent examples of a Relational Paradigm. Continuing to draw from those cases, the chapter ends with examples of harm reduction on the multiple levels that have been introduced.

Chapter 9. Herbalism in Community: Cases and Analysis

In this chapter, I present cases that illustrate the experience of undertaking studies related to Community-Based Herbalism at The Evergreen State College, along with cases that demonstrate the potential of Community-Based Herbalism in action. Together, these cases illuminate many of the concepts, approaches, and proposals I have provided in earlier of the dissertation. I follow the cases with analyses that show how Community-Based Herbalism fosters engagement both within and across paradigms and models a Relational Paradigm. Lastly, I show specific ways that Community-Based Herbalism can reduce iatrogenesis on the multiple levels that have been discussed (specific, systemic, and structural including environmental and pharmaceutical).

Cases I: Examples of Student Experiences (Elise, Julene, Heidi, Sean)

Many of my students at Evergreen have indicated that their experiences participating in studies related to Community-Based Herbalism have been profoundly meaningful and even transformative. Some have also continued their studies of plant-based medicine after leaving Evergreen and have even built career paths directly related to Community-Based Herbalism. I interviewed four such students whose positive experiences, both during and following academic studies, are relevant to my proposition that Community-Based Herbalism can foster harm reduction in healthcare. The experiences of these students lay the foundation for improved health for themselves and others in their respective communities, especially when health is understood phenomenologically as one's lived experience in the body (Murphy 2009; Carel 2007). Their experiences also illustrate how Community-Based Herbalism can improve health and healthcare on specific, systemic, and structural levels, which further demonstrates the potential contribution Community-Based Herbalism can make to shifting broader patterns of healthcare. As an example of this, I describe how one student has made a significant educational difference related to health and wellbeing in Indigenous communities; how a second student has been central to the establishment of a free herbal clinic and

educational collective; how a third student has supported the health of the local Latino community; and how a fourth student has both improved his own respiratory health and established a small herbal business. Analysis of the cases proceeds after they have all been introduced.



Elise

Elise Krohn came to Evergreen in 1998 as a 24-year-old freshman. This was early in the development of my approach to teaching ethnobotany as well as my involvement with the Longhouse Ethnobotanical Garden and the gardens on the Skokomish Indian Reservation. Elise already had significant experience with plant medicine, having attended the Southwest School of Botanical Medicine in Bisbee, Arizona, having studied with the respected late herbalist Cascade Anderson Geller, and having established an herb business and practice of her own three years prior. When Elise came to Evergreen, she was interested in integrating herbal medicine into allopathic practice so, in addition to my four-credit course, *Ethnobotany Grows in the Garden*, she took a foundational science program and a botany program before graduating with a Bachelor of Science degree in 2001.

It was during this ethnobotany course in 1998 that the idea emerged to create a formal medicinal garden as part of the Longhouse Ethnobotanical Garden. However, as we learned, funding for such a project was available only if it were built in a Tribal community. So, as explained in Chapter 4, I approached *subiyay* Bruce Miller to determine if we could build the garden on the Skokomish Reservation, beside his home and adjacent to the medicinal plant trail we had already established. He agreed. I thought carefully about whether there were any students I felt comfortable inviting to join

in designing and developing this garden. There were three; one of them was Elise, who brought her previous experience and knowledge, along with a respect that seemed fitting for work in a Tribal setting. She was simultaneously working as the herbal consultant, educator, and buyer at a local shop (where she continued to work until 2005).

Once the garden site was cleared and the raised garden structure built, *subiyay*, Elise, and I began to create the planting design, which we organized around body systems (also described in Chapter 4). This gave Elise the opportunity to combine her knowledge from Western herbalism with *subiyay*'s knowledge of traditional plant use among the Skokomish people. I facilitated this creative process and coordinated garden planning and implementation.

While my work through the years remained focused on my obligations at Evergreen, Elise, especially after graduation, began to work more closely with *subiyay*, bringing supplies and handouts for medicine-making workshops while *subiyay* delivered cultural teachings at Skokomish as well as in different Tribal communities around the region. In 2004, Elise began working with the Northwest Indian Drug and Alcohol Treatment Program in Elma, Washington to develop and utilize healing gardens as part of a culturally appropriate program of recovery and, in 2005, she began working with the Northwest Indian College based in Bellingham, Washington where she has developed, taught, and facilitated classes on traditional foods and medicine-making. (More will be said about this educational program below). Elise has also established her own blog, Wild Foods and Medicines, and has collaborated with Indigenous colleagues on two books: (1) *Wild Rose and Western Red Cedar: The Gifts of the Northwest Plants*, written with the intention of “validating traditional knowledge and increasing students’ sense of connectedness with their culture, their communities, their environment and themselves” (Krohn 2007:viii), and more recently, (2) *Feeding the People, Feeding the Spirit: Revitalizing Northwest Coastal Indian Food Culture* (Krohn and Segrest 2010).

When Elise reflects on her experiences while studying ethnobotany at Evergreen, the elements that stand out as particularly influential on her path relate to (1) learning about how to work respectfully in a Tribal community with its own unique culture and protocols for communication and action, (2) learning about how to collaboratively plan and implement cross-cultural community-based gardens, (3) strengthening her botany

skills, (4) discovering the concept of cultural landscape and how Indigenous people have implemented land stewardship, particularly with regard to South Puget prairies, and, in connection with this, (5) developing a stronger sense of place. Finally, Elise also found value, as she put it, in the way the coursework “identified students’ individual skills and built the garden project out of the specific skills people had or wanted to develop. “That has been a great model that I have carried in my teaching and community work,” she says.



Julene

Julene Graves came to Evergreen as an eighteen-year-old freshman in 2001. In her junior year, she joined my halftime academic program, Gifts of the First People: Plants as Medicine and Food, where she was able to work both in the Longhouse Ethnobotanical Garden and the Gifts Garden at Skokomish before *subiyay* Bruce Miller passed away. Julene had grown up with a small family food garden and a father who found it natural to turn to plants for everyday healthcare needs. Julene learned from her father, whose faith in the medicinal plants, in turn, generated in her a similar faith. For example, he would infuse arnica flowers (*Arnica* spp.) in rubbing alcohol and apply the resulting liniment when anyone in the family had a sprain or bruise; he insisted that everyone eat garlic (*Allium sativa*) when they had a cold; and he made peppermint (*Mentha x piperita*) tea when someone had a stomachache.

During her first years at Evergreen, Julene had been thinking about what it means to, as she put it, have a “strong ethical compass” and live in a way that “articulates the vision in your heart.” For Julene, that meant some type of involvement with plants.

Once in the Gifts of the First People program, this involvement began to unfold in a profound way. One day while in the Longhouse garden practicing plant identification, Julene felt very drawn to a particular plant. Being able to recognize the feathery leaves and small white flowers of yarrow (*Achillea millefolium*) inspired confidence. Moreover, it felt as if the plant was issuing an invitation for Julene to follow the path of an herbalist, a path she decided to follow. Soon after, Julene's roommate developed a urinary tract infection. Julene urged her to see a doctor, but she refused. For the first time, Julene turned to her books, notes, and local resources for information and plant material, and she prepared for her roommate a tea that included marshmallow (*Althaea officinalis*), uva-ursi/kinnikinnik (*Arctostaphylos uva ursi*), and yarrow. The infection quickly subsided. This experience strengthened Julene's desire to learn more about botanical medicine and strengthened her confidence to share it more widely.

Immediately after graduating from Evergreen, Julene began to travel, eventually, visiting the California School of Herbal Studies in Sonoma County. It felt like the perfect place to review and continue her formal studies. Working with renowned Welsh herbalist David Hoffmann, Julene strengthened her knowledge, confidence, and abilities as well as her passion for medicine making. No longer would she want, and be unable, to purchase tinctures she couldn't afford; she could make them herself.

At the end of her herbal studies in California, the topic of business arose and how one might cultivate a livelihood as an herbalist. Feeling grateful for the medicine plants made available, Julene was uncomfortable with the idea of restricting access to only those who could afford to buy it. As she put it, plant medicine is "the medicine of the people; it's a gift." How, she wondered, could she help make this gift available to all in a way that was ethical and sustainable?

When Julene returned to Olympia the following year, she found she was not the only person thinking about accessible plant medicine. Emma Rose had just returned from an apprenticeship with herbalist 7Song, who ran a mixed-modality free clinic in Ithaca, New York. There, Emma had been exposed to a model in which plant medicine and knowledge were made available to anyone, regardless of their ability to pay. Together, in 2008, Julene and Emma started the Olympia Free Herbal Clinic. (More will be said about this below.) Since then, Julene has also established her own small business called Breathe

Beauty Botanicals.

In reflecting on her coursework at Evergreen, Julene shared that it was particularly meaningful having had the opportunity to engage her intuition directly with the plants at the same time that she engaged her intellectual and analytical mind learning *about* them. She also valued the opportunity to explore her passions in a context that supported genuine authenticity and relationship.



Heidi

Heidi came to Evergreen in 2008 as a 32-year-old mother of three children. She had experienced a sense of connection to the earth since childhood, feeling she could both “recognize” and “be recognized by” the plants. Now, as an adult and licensed massage therapist, she was able to “listen” through her hands to people’s bodies and tissues, discovering that a perception of, say, darkness might occur in a place where cancer later developed. When Heidi first came to Evergreen, she joined a fulltime freshman program I co-taught with Hirsh Diamant called Living in the Sacred Garden, which appealed to her due to its holistic integration of cultural, environmental, and health studies, along with writing. Here, Heidi discovered that individuals in various cultures sometimes gain acquaintance with plants through “listening” to them. She wondered if her ability to “hear” a person’s body might mean she could also “hear” plants. As assigned, Heidi sat with plants, drew and wrote about them in her nature journal, and grew, harvested, and used them. Having had severe migraine headaches since childhood, Heidi planted feverfew

(*Tanacetum parthenium*), which is used to reduce migraine frequency and intensity (Ernst and Pittler 2007). One day Heidi ingested some feverfew and felt quite sick. Curious, she sat with her plant, drew it, and “listened,” sensing that it was guiding her *away* from using it and revealing what seemed like a clearer understanding of the cause of her headaches. Heidi now felt she could “hear” the plants.

The following year, Heidi joined Tend and Tell: Developing and Interpreting an Ethnobotanical Garden (see Chapter 5, pp.93-102). Heidi’s area in the Longhouse Ethnobotanical Garden was “Hill by the Creek,” an open riparian hillside habitat. Sometimes she would sit in a thicket of willows near the seasonal creek, gazing up at the mesh of branches. At these moments, Heidi would feel in the presence of the “lungs of the earth.”

After Tend and Tell, Heidi travelled to South America. She first went to Ecuador with Evergreen’s academic program, Spanish Speaking World, to learn Spanish and better understand the cultural dichotomies that exist there. In Quito, Heidi was exposed to a way of life in which herbs were used regularly. Each type of sickness called for eating a particular fruit, putting lemon in hot water, and drinking a medicinal tea. If people did not know which fruit and tea to use, they would simply go to the market place and describe their symptoms to the vendors who would point to the appropriate choices. Healing and healthcare were community-based. The following year, Heidi traveled to Venezuela with a different Evergreen program where she focused on alternatives to the structures of capitalism. When she returned to Olympia, Heidi completed her undergraduate career with an independent learning contract that integrated her interests in herbalism and political economy with the needs of the local Latino community.

Heidi became involved in the Olympia-based organization, CIELO, a group dedicated to supporting the personal, social, and cultural wellbeing of the Latino and wider community. Here, Heidi made a series of small documentary films, assisted with childcare and fundraising activities, and volunteered as an English language instructor for Latino immigrants. Before her language classes, Heidi would gather stinging nettle (*Urtica dioica*) and make herself a batch of tea. When her students grew curious and asked about the tea, Heidi’s knowledge about local medicinal plants became evident. Coming from poor conditions in their home countries, these Latinos were accustomed to

using traditional folk remedies as their primary healthcare as well as to having medical doctors berate them for doing so. Now they shared their desire for someone to introduce to them *in Spanish* the many unfamiliar medicinal plants available so that they could prepare a basic first aid kit. Heidi's experience in Ecuador, where she was not yet fluent in Spanish but wanted to understand the medicinal plants, helped her empathize with the frustration these Latinos were feeling.

Another aspect of Heidi's life gave her even more empathy with her Latino students, most of whom did not have health insurance and could rarely afford to visit a doctor. For the first time, Heidi was herself without health insurance due to divorce. She had never been eager to utilize mainstream healthcare, but she had viewed access to it as a safety net. Now, for the first time, with neither insurance nor money, visiting a doctor was not an option so she began taking responsibility for her health in a way she had never done before. Heidi's approach to healthcare now drew upon the seasonal emphasis of the Classical Chinese Five-Element philosophy, which she shares with her new Ecuadorian husband. Heidi plans to offer seasonal plant workshops at CIELO to members of the Latino community to help smooth their adjustment to their new homes and climate and to continue their ability to use local herbal medicine in each season.



Sean

Sean came to Evergreen in 2009 as a 26-year-old junior and, like Heidi, enrolled in Tend and Tell. He had grown up in a family professionally involved with mainstream healthcare — his mother was a nurse and his uncle a physician — as well as amidst

gardening —his mother grew flowers and vegetables and he began to garden independently as a teen. In *Tend and Tell*, Sean adopted the South Puget Prairie Habitat Area in the Longhouse Ethnobotanical Garden. While caring for it, he studied the history of the unique camas-rich prairies it represents. Reading *Keeping It Living* by ethnobotanists Nancy J. Turner and Douglas Deur (2006), Sean discovered models of local Indigenous stewardship that benefited the land. Having been previously exposed only to destructive models of human interaction with nature, this discovery felt very significant. Sean began to find a *sense of place* in the world of plants, not only as a gardener, but also as a harvester and medicine-maker. As his knowledge of the medicinal uses of specific, local plants grew, so did his knowledge of ecologically and culturally sound harvest techniques. Additionally, he was introduced to resources and skills for researching medicinal plant species including how to create a rigorous plant monograph format I had developed as well as to members of the local herbal community. Also in *Tend and Tell*, Sean found himself becoming interested in the chemistry of plants and how specific constituents interact with the human body. Sean worked with Evergreen chemistry faculty, learning laboratory techniques and carrying out assays on lavender (*Lavandula* spp.) and black cottonwood bud (*Populus trichocarpa*). At the same time that Sean's *intellectual* relationship with the plants was deepening through his study of plant chemistry, his *felt* relationship was deepening through gardening, wildcrafting, and “reaching out” to the plants as “friends” with *personhood* — something directly related to *subiyay*'s description of the plants as “the first people” (see Chapter 4). As Sean spent more time among the plants, he also felt better physically, which strengthened his sense of connection with bleeding heart (*Dicentra formosa*) and devil's club (*Oplopanax horridus*) among others.

When Sean reflects on the aspects of *Tend and Tell* that affected him most profoundly, he mentions (1) Indigenous knowledge related to ecological stewardship and particular local habitats, (2) the opportunity to apply ecological and cultural knowledge to hands-on work in the Longhouse Garden, (3) transformation in his felt sense of belonging within the natural world, (4) knowledge of the medicinal use of specific local plants, (5) knowledge of harvest and medicine-making techniques and ethics, (6) skills and resources for carrying out and documenting reliable research about medicinal plants, and

(7) discovering a community of like-minded people.

Throughout the years following Tend and Tell, Sean continued to research medicinal plant chemistry, giving presentations on his findings at professional conferences. He also served as the assistant gardener for the Longhouse Ethnobotanical Garden, a place where he felt contented and “safe.” Sean continued wildcrafting and making medicinal tinctures from the plants he harvested. Since friends often asked if he had plants that might support their various health needs, Sean started to share his tinctures. In order to make the tinctures more widely accessible to the community — and to make their production more financially sustainable — Sean created a small business partnership called Understory Apothecary, selling his medicines at the local Farmer’s Market. Sean also regularly harvests and provides medicinal plants to the Olympia Free Herbal Clinic as well as supports his own health with medicinal plants. While Sean has been asthmatic most of his life, he has discovered that devil’s club will stop his asthma attacks in five to ten minutes. Although it may not act as quickly as albuterol, using plant-based medicine has helped Sean “gain control over [his] own health.” Sean’s improved health and sense of empowerment have been enormously important to him.

Brief Analysis of Student Cases

The students introduced above exemplify many of the topics discussed throughout this dissertation, including the approaches to achieving a Relational Paradigm proposed in Chapter 8 (pp.191-196). First, the idea that *multiple dimensions (levels) can exist simultaneously* is seen in the way each student successfully interwove divergent paths of study and understanding. For example, both Julene and Sean studied the biology and chemistry of the plants at the same time they experienced a sense of direct communication with the “personhood” of the plants. Elise studied the specifics of plant biology while she also explored various Indigenous perspectives on how plants function within a cultural landscape. They all practiced *basic respect* by listening and responding to the healthcare needs of the communities around them, and, they *situated themselves* in authentic relationship with those communities. Additionally, they all fostered *a sense of belonging* as they supported others in accessing that which could meet their healthcare needs in ways that were authentic to *them*.

Further, these four students demonstrate how Community-Based Herbalism can foster harm reduction in healthcare on the multiple levels that have been introduced and explored. Harm reduction on a *specific level* is illustrated in the support of Sean's asthma through devil's club, resulting in reduced reliance on a pharmaceutical drug (Chapter 3). Harm reduction on a *systemic level* is shown in the efforts Julene undertakes to empower individuals regardless of their socioeconomic status with resources to improve their health outcomes (more below). Harm reduction on a *structural level* is demonstrated through Heidi's work to help Latino immigrants maintain the use of local foods and medicinal plants as a primary approach to healthcare, and through Elise's work to support local Indigenous communities in identifying and providing their own knowledge of food and medicine to their community members (more below).

Additionally, the students demonstrate a transition from learning about Community-Based Herbalism in a college environment, to cultivating and practicing it in communities outside of academia. In the next section, I introduce four examples of existing Community-Based Herbalism, two of which involve these same students. These examples of Community-Based Herbalism in action reveal the components and relational processes that I have been discussing throughout the dissertation. After the examples, I provide an extended analysis linking them with key concepts and assertions.

Cases II: Examples of Existing Community-Based Herbalism

In this section, I introduce four different existing programs that each demonstrate Community-Based Herbalism in contexts ranging from Indigenous and mainstream communities in the United States to a Tribal community in India. All of the examples contain features central to Community-Based Herbalism, such as local sourcing of plants and relational engagement among community members. While individuals from outside of the communities might provide some elements of training, the emphasis is on empowering community members to educate and support other community members. Further, all of these examples involve expanding access to affordable healthcare by helping individuals better understand (1) their healthcare needs and (2) the ways in which locally accessible medicinal plants can support these needs. As with the students

introduced above, I provide analysis of the cases after they have all been introduced.

Northwest Indian College – Community-Based Herbal Education

In 2004, the Northwest Indian College and the Northwest Indian Drug and Alcohol Treatment Center both sought grants to implement plant-related programs in which *subiyay* Bruce Miller would be the lead teacher. *subiyay* asked Elise to assist him in both of these initiatives, but he soon became ill and turned the entire delivery of the treatment center program over to her.

Then, in February 2005, *subiyay* passed away. Soon after, the grant application for the Cooperative Extension Education Department at the Northwest Indian College was funded, and Elise was invited to teach there. She agreed, and implemented a structure in which gatherings would take place in different Tribal communities, and local Tribal experts would share their own programs in health, traditional foods, and medicine making. By 2012, eighteen Tribes had hosted more than 65 community-based classes on such topics as addiction, language, family, cultural revitalization, preventing diabetes through traditional foods, and Tribal food sovereignty. Elise has been instrumental in collaboratively creating the curricula for these classes as well as in developing a program to train Indigenous teachers to teach them. By 2013, Elise had trained over forty teachers, most of whom are Indigenous.

According to Elise, these community-based classes have been developed as a result of community interest and need. They have been reformulated and improved over time as a result of listening to the people they are intended to serve. Elise explains that this kind of listening has been a challenging skill to learn, a skill that, I would propose, represents engaged relationship. As Elise puts it, “It’s all about relationship. Relationship is everything.” This program has been so successful that, on the basis of its representation as a digital story, it has received several national awards from the First Nations Development Institute.

Olympia Free Herbal Clinic

As described above, Julene Graves and her friend Emma Rose made a decision in 2008 to start a free herbal clinic. To do that, they needed to tackle many challenges, such as

finding (1) plant medicines for an apothecary, (2) a staff based entirely on volunteers, (3) a rent-free location, (4) a board of directors, (5) an umbrella organization, and (6) funding. This was no small order considering that Julene and Emma needed to work to support themselves at the same time they were seeking to implement their vision of *free* plant-based medicine, consultation, and education — community-based herbal healthcare — that would be accessible to everyone regardless of their financial situation. They were especially interested in serving those who were living on the street and had neither resources nor advocacy.

As it turned out, Mountain Rose Herb Company in Eugene, Oregon began to provide the clinic with bulk herbs and medicine-making supplies such as glycerine and capsules. Also a local garden was established (currently called Phoenix Farm) that provides plant materials for the clinic herbalists to use in preparing medicines, which helps keep the project economical. Local herbalists also make donations. As the Olympia Free Herbal Clinic's website describes:

The clinic offers one-on-one personalized health consultations, no-cost herbal medicines, and an in-house reference library [to which my students regularly contribute as part of their classwork]. The focus is on safe, carefully prepared, herbal remedies to provide a solid foundation for physical and mental health. We hope to offer whatever style of care an individual is seeking, including building therapeutic relationships over time. Our intent is to serve and support; to share information, supplies, and medicine; to listen, offer counsel free of judgment, and provide help however we can ... A significant population served by the Olympia Free Herbal Clinic is homeless adults and youth.

By 2013, the clinic had a nine-member board, non-profit status, and a large, wheelchair-accessible space with rooms for receiving patients, consultation, and storage. Currently, the clinic is open two hours per day, four days per week, and is staffed by a collective of five herbalists who donate their time. It maintains a full apothecary of salves, powders, creams, oils, and tinctures (alcohol, vinegar, and glycerin) as well as dried plants for teas. Commonly used species include skullcap (*Scutellaria lateriflora*) and oats (*Avena sativa*) for mental health issues; usnea (*Usnea* spp.) and Oregon grape (*Mahonia* spp.) for infections; cleavers (*Galium aparine*) for lymphatic support; and various adaptogens including medicinal mushrooms donated by Fungi Perfecti for immune and

other broad spectrum support. While the clinic is always happy to receive financial donations from clients who appreciate the services and have resources, contributions remain strictly voluntary.

In addition to providing resources to individuals, the clinic also cultivates relationships with other community organizations — such as CIELO (mentioned above) and the local women’s prison — by offering herbal educational workshops to those who may otherwise have little or no access to healthcare. With an emphasis on community-based *education*, the clinic seeks to empower people to take better care of *themselves*. Julene explains that clients sign an informed consent, which states clearly that the herbalists are not doctors and are not treating, curing, or preventing illness. Clinic herbalists are committed to open, transparent communication about the nature and scope of their own education, experience, and knowledge. Further, the clinic does not sell either products or services; it *shares* them in the spirit of community.

Dandelion Seed Conference: Herbs for Community and Social Healing

I entered through the back door of the Longhouse. The foyer was dimly lit and quiet. Participants had already settled into various workshops. In one room, a cross-cultural clinical herbalist was presenting on “Support for Service Providers,” in another, a naturopath discussed “Herbalism in Primary Care: Tales from a Latin American Public Hospital,” and outside in the *sayuyay* Sister Garden, Sean was introducing plants with medicinal roots such as burdock (*Arctium minus*), elecampane (*Inula helenium*), and yellow dock (*Rumex crispus*).

This was the second annual Dandelion Seed Conference organized by the Olympia Free Herbal Clinic. This year, the conference was being held in the Evergreen Longhouse. I greeted Ingrid Abbott, one of the conference organizers and a previous student. Then I slipped into a talk that my friend and highly respected herbalist Carol Trasatto was giving on the topic of “Natural Approaches to Vibrant Aging.”

Carol spoke about cultivating conditions conducive to life, simple practices for maintaining balance, and ways specific plants can help support us. Carol’s back was to the large, north-facing windows. Behind her was the *sayuyay* Medicinal Sister Garden, a portion of the Longhouse Ethnobotanical Garden (see Chapter 4, pp.71-75). When Carol

mentioned burdock, I commented that the cluster of large leaves visible in the raised bed behind her were burdock. At the same time, Laura, a student in the current Tend and Tell program, was also visible as she weeded the garden pathways and chatted with a conference attendee. That moment highlighted the connections that comprise Community-Based Herbalism, connections between people, plants, and place that comprise and between education and practice. The Dandelion Seed Conference as a whole reflected these connections through at once *teaching* people how to practice community herbalism and *practicing* it. The plants were present both outside and inside, available for purchase or to be identified or even harvested. The people were together in non-hierarchical arrangements sharing their experience, their passion, their knowledge, and their skills.

Concurrent sessions continued over the course of three days. Muckleshoot Native Foods Educator, Valerie Segrest, and Muckleshoot community gardener, Miguel Hernandez, introduced native edible berries. Community herbalist, scholar, and previous student, Renee Davis, introduced medicinal trees. Elise and June O'Brien, Nansemond writer, psychologist, and past director of the Northwest Indian College, addressed culturally appropriate recovery programs for trauma and addiction, while later June O'Brien joined Joyce Netishen to reflect on working in the invisible world of plants. Other topics included sexual and transgender health, making herbal preparations, harm reduction in herbalism, and a cross-cultural exploration of decolonization. Simultaneously, plant and medicinal mushroom walks were taking place each day.

Two keynote talks were presented during the conference — one by herbalist Heron Brae and another by Jacoby Ballard, who self-identifies as a transgender male and teaches herbal education at Third Root Community Health Center in Brooklyn. In his talk “Healing for All: Beyond the Bandaid to a Change in Values” Jacoby addressed the need for changing values with regard to *accessible healthcare*.

First, to be truly *accessible*, Jacoby asserted, the actual diversity in communities must be represented among healthcare providers. In other words, herbalists and other providers must include among them those who are queer, differently abled, people of color, all sizes, and all ages in order for a full spectrum of community members to feel welcomed into healing relationships. Facilities also must provide convenient locations,

scheduling, and building structure — *logistical accessibility* — along with beauty, plants, and art so that people feel good and want to return — *aesthetic accessibility*.

Jacoby pointed out that the mainstream concept of *health* is illusory and based on commercialized, internalized images of normalcy along with fear and judgment regarding difference and disability. It is imperative, Jacoby urged, to critically examine, challenge, and reframe what has been historically problematized and treated as unhealthy. Fatness has been stereotyped, runaway slaves have been labeled as mentally ill, queers have been lobotomized, transgender lifestyles have been pathologized, and female bodies have been characterized as dirty — models of ill health that promote blame and shame. Health, suggested Jacoby, is (1) individualized and unique, (2) characterized by adaptability and balance; and (3) occurs within a larger cultural context that includes environmental and cultural racism. “We must reframe what we conceive of as healthy,” Jacoby asserted, “[because] healing exists structurally and culturally” (Ballard 2013:on-line).

Jacoby also suggested that true *care* involves shifting mainstream cultural values away from competitive, profit-driven healthcare — and a one-size-fits-all vision of health — toward collaboration and individualization, which have been the norm, not the exception, through most of human history.

All in all, about 160 participants and presenters (about twice as many as the previous year) either paid to attend part or all of the three-day event or traded their time, knowledge, skills, and perhaps homemade treats in exchange for participation. The Dandelion Seed Conference *was* Community-Based Herbalism, actively cultivating engaged relationships.

Sambandh – A Tribal Project in India

In December 2006, I was a guest at a Tribal village gathering in the eastern Indian state of Orissa (now Odisha). The village of Berena is in the Cuttack District, which is located about 60 kilometers from the capital of Odisha, Bhubaneshwar. The director of the organization, Sambandh, had invited and transported me to the gathering. During the drive, Dr. Bibhu Kalyan Mohanty described the work of his organization, which included

among its many projects teaching school-aged children medicinal-ethnobotanical plant knowledge and supporting the development of “kitchen medicine gardens.” I soon realized that, while it is located in India, the *Sambandh* project model is relevant to fostering Community-Based Herbalism in the United States.

Beginning in 2001, *Sambandh* established five school projects focused on teaching ethnobotanical knowledge to children with the hope that they would share their knowledge with the adults in their lives. The initial five projects met with such a positive response that the Central Government of India became involved and soon expanded to total 64 school projects throughout the country. A primer for the students and a training manual for the teachers were collaboratively created by the Board, which included both botanists and Ayurvedic doctors, among others. Part of the motivation for teaching, and encouraging the sharing of medicinal knowledge, grew from the recognition that globally, at the time, 5.6 million children were dying each day from malnutrition due to an incomplete diet, not insufficient food. Further, in India alone, 55 percent (55%) of adolescent girls and 87 percent (87%) of pregnant women suffered from anemia (Sahoo 2014, personal communication). The goal of the program was to increase education about health, nutrition, and traditional medicinal knowledge in such a way that it would be implemented at the community and family levels, and actually effect change in a way that would be long lasting and sustainable. This was particularly important because many of the Tribal villages consisted of marginalized communities, with limited means of livelihood, virtually no affordable access to healthcare, and little health security.

The goal of the “Green Health Clubs” program is to increase education about health, nutrition, and traditional medicinal knowledge so that it can positively affect health outcomes at family and community levels. This is particularly important since many of the Tribal villages, explained Dr. Mohanty, consist of marginalized communities with limited means of livelihood, virtually no affordable access to healthcare, and little health security.

Before attending the Berena village meeting, Dr. Mohanty took me to visit one of the school projects called “Green Health Clubs.” It was located in nearby Kantania village. About two dozen children between the ages of about eight and twelve greeted me warmly. They led me around to the back of the school building where I discovered an

array of medicinal plants. I was informed that each child learned about, cared for, and even went by the nickname of his or her medicinal plant. One by one, speaking in their native language, the children introduced to me their plants. I have supplemented through additional research what they taught me about their plant's local name and usage.

First, a young boy named Salil introduced what he called *ayapana* (*Eupatorium triplinerve*, aka *Ayapana triplinervis*, Asteraceae). Native to South America, the juice of the leaves of *ayapana* are used locally as a topical treatment to heal cuts and wounds, and to remove black spots from the skin. Internally, it is also used to subdue bleeding as well as for its mild sedative, anxiolytic, and antidepressant effects (Melo et al. 2013).

Shubashri showed me *runkuna* (*Coleus amboinicus* aka *Plectranthus amboinicus*, Lamiaceae). Native to south and east Africa, *runkuna* is known by many names throughout the world, such as Indian borage, Mexican thyme, and Cuban oregano. Shubashri explained how she had learned to combine five leaves with black pepper and take it two or three times a day for diarrhea and dysentery. It is also used locally for coughs, sore throats, and nasal congestion due to its antimicrobial activity (Malathi et al. 2011).

Punjabi's plant was *brudhadarak* (*Argyreia nervosa*, Convolvulaceae). A native of India, *brudhadarak* occurs in various parts of the world with such common names as Hawaiian baby woodrose, and elephant creeper. Punjabi explained that five grams of powdered seed could be put into milk twice a day to revitalize the nerves. Indeed, *brudhadrak* is classified as an adaptogen and psychotropic with a broad range of other uses including HIV AIDS support as well as treatment for boils, anemia, and generalized weakness (Joseph et al. 2011).

Next came Kitibihara who introduced *vasango* (*Justicia adhatoda*, aka *Adhatoda vasica*, Acanthaceae). Also known as *vasa* or Malabar nut, he explained that five leaves would be juiced, added to honey, and taken twice a day for seven days to allay coughs, cold, and asthma (Soni et al. 2008).

Others species included *Bacopa monneiri*, Convolvulaceae, used to support mental functions including memory as well as to treat diarrhea and indigestion (twenty mililiters of the plant taken once a day in one cup of milk on an empty stomach); and *Eclipta alba* aka *E. prostrate*, Asteraceae, used locally for hair loss, graying hair, black

hair dye, and tattooing, along with athlete's foot, eczema, dermatitis, among other indications. A widely distributed species, occurring throughout not only India but also China, Thailand, and Brazil, it goes by many names, including *bringraj*, false daisy, and *yerba de tango* (Saggoo et al. 2010).

After introducing all of their plants, the children walked back around to the front of the school building where they sang, in charmingly spirited disharmony, India's national anthem. Their voices, smiles, confidence, and knowledge were inspiring.

Dr. Mohanty and I set off again. Soon we came to another village where we stopped and he invited me into a building that was dark and cool. Many people had congregated specifically in order to share with me the work they had been doing for the last three years in developing and maintaining what they called "kitchen medicine gardens." The village was Berena, also in the Cuttack District, where Santahal- Kolha Tribal Peoples who had migrated from the State of Jharkand lived and spoke the Santhali language.

When I asked how many of the villagers did not want to have a garden because of the intensive labor involved, they emphatically said almost no one. Nearly everyone wanted a kitchen-medicine garden because their health was better, and they saved money. People used the plants often. One man shared that he had used *runkuna* (*Coleus amboinicus*) that very day to help with a cold and cough; a woman mentioned that the week prior she had used it for diarrhea; and the woman's sister, also during the prior week, had used *ayapana* (*Eupatorium triplinerve*) for bleeding.

The process by which the gardens were established offered an inspiring model of fostering Community-Based Herbalism. Representatives from *Sambandh* would meet with community members and identify the major and most common diseases that called for primary healthcare. Then identified suitable medicinal plants that were specific to the immediate area, native and non-native species alike. *Sambandh* then came in and established a central plant nursery that contained these species.

Next, *Sambandh* would select a Village Resource Person (VRP) – usually a woman – who was provided with plants and training in identify, growing, and harvesting them. The VRP was also trained in recognizing and identifying symptoms, methods of preparing medicine, and detailed information regarding safe and effective use of the

plants, including administration and dosage. The training emphasized local Indigenous knowledge grounded in the belief that every ecosystem contains a plant for every illness. This also addressed concerns that traditional Indigenous knowledge was being forgotten. The VRP would then take her knowledge and ten plant starts to each village woman in search of additional VRPs whom she would, in turn train, just as she had been trained by a Sambandh representative. Some of these women would become additional VRPs, while some would simply maintain their own gardens. The goal was to have one VRP for every ten households. This way, fifty VRPs could reach 500 households, and the outreach would come from local community members rather than outsiders.

Ultimately, every interested household would be provided with plant starts, after which they would propagate their own plants. They would then also have the means for both a range of preventative and curative healthcare measures as well as the opportunity to sell any additional plants they propagated and thus generate income. Campaigns to spread the word about the program incorporated posters and street theatre, reflecting a larger effort to reclaim and protect traditional medicinal plant knowledge. At the time of my visit in 2006, *Sambandh* was working with 17 different villages containing 1800 households. Of these, 83 percent (83%), or approximately 1500 households, had active kitchen-medicine gardens. In the Cuttack District alone, some 75 households had gardens.

I visited the garden of a young woman named Meena. She willingly but shyly told me about some of the different plants she was growing as she touched each one gently. For example, Meena explained how she removed the midrib from *Justicia adhatoda* leaves and, from the rest of the leaf, made a decoction when she had a cold or cough; how she made a paste of *Ecliptia alba*, to stop her hair from sometimes falling out and boiled the paste with coconut oil for others to prevent graying; and how she used *Eupatorium triplinerve* when black spots appeared on her skin. Meena seemed as proud of her kitchen-medicine garden as the children had been of their individual medicinal plants.

Through the Biodiversity Act of 2002, traditional knowledge began to be placed into the public domain in India by means of establishing a Community Knowledge Register (CKR) designed to protect against patenting of longstanding community-based and traditional knowledge (biopiracy) (National Biodiversity Authority 2008). By 2006, a

national group called the Health Traditions Planning Commission was formed. It consisted of 10 members from throughout India, of which Sambandh was one. The commission formally recognized traditional plant knowledge as a valuable and legitimate resource for healthcare and, among other actions, established licensing for good management practices (United Nations University 2012; Kala et al. 2006)

Over time, the *Sambandh* kitchen-medicine garden program gained government support for production of relevant publications as well as a established locally-based cottage industry that consisted of local healers, plant growers, and manufacturers who together developed, produced, and marketed seventeen different medicinal products. Proceeds from the sale of these products went entirely to local participants in the program and local healers.

The program had several components. In 2000, twelve acres of land were purchased. An educational garden containing nearly sixty medicinal plant species was created in the form of a human body with plants placed in the locations of the organs and indications they supported. A medicinal plant trail was started. A production facility was built in which the medicinal products were made. Local healers and youth were offered year round educational opportunities by over fifty trainers. A crucial resource and training center was started but had not been completed at the time of my visit, due to a shortage of funds. Additionally, twelve varieties of mango trees were being cultivated in order to sell samplings. At the time of my visit, there were well over 500 trees.

As of 2009, the description of Dr. Mohanty's work on the project formally reads:

Bibhu Kalyan Mohanty is establishing an industry with small farmers, healers and government to create a healthy and sustainable industry of Indian natural herbal and plant-based medicine and remedies. The "Healing Heritage Producers Company" owned by local producers, organic farmers, medicinal plant collectors, and women's Self Help Groups, is increasing the availability of remedies, preserving oral tradition and knowledge threatened with extinction, and capturing the economic benefits of high demand for natural remedies in the global market. His Home Herbal Garden concept alone has spread to 22,000 households in 3 districts and over 2,000 local healers are part of his local network (Ashoka 2009).

Together, *Sambandh's Arogyam* projects are described as a program of revival focusing on "promotion of Indian Medical Heritage systems and practices [and] of growing herbs for green treatment" (Ashoka 2009). This is conceived as a strategy for

promoting health, livelihood security, folk healers, and climate change prevention. The *Sambandh* program provides a comprehensive model for establishing an extensive network of community herbalism. Interestingly, *Sambandh* means *relationship* in Hindi.

Each of the previous examples of Community-Based Herbalism sheds light on components of Community-Based Herbalism. The Northwest Indian College emphasizes the empowering value of drawing upon traditional food and medicinal plant knowledge, and creating a forum for sharing it among local Indigenous communities. The Olympia Free Herbal Clinic shows the role a clinic can play in providing herbal education and plant-based medicines to low-income and homeless community members, most of whom have no other access to healthcare. The Dandelion Seed Conferences foster dialogue and sharing of knowledge, experience, and plants. Finally, the *Sambandh* program in India demonstrates the role community members — children and adults alike — can play in improving health outcomes for themselves and others by growing and using medicinal plants, and by organizing to share both plants and knowledge. In the following section, I draw upon these examples in order to illustrate key concepts related to Community-Based Herbalism.

Extended Analysis Linking Key Concepts with Cases

The remaining portion of this chapter presents an analysis of the cases presented above as they contribute to illuminating the central thesis of the dissertation, namely that Community-Based Herbalism can support reduction of harm in healthcare because it: (1) engages elements within and across the Specificity, Systemic, and Structural paradigms; (2) models a Relational Paradigm; and (3) reduces harm on multiple levels through the engaged relationships it generates.

1) Community-Based Herbalism Fosters Engagement Across Paradigms

Throughout this dissertation, I have proposed that Community-Based Herbalism fosters engagement across the Specificity, Systemic, and Structural Paradigms. It is of course not

the only way such engagement can be accomplished, but its capacity to do so is one of its central attributes. It does so, first, by engaging elements *within each of the three paradigms*, and, second, by engaging these elements *with each other across the paradigms*, which results in a Relational Paradigm. In this section, I give examples of how Community-Based Herbalism engages elements within each of the three paradigms. In the next section, I review characteristics of a Relational Paradigm and show how Community-Based Herbalism engages elements *across* paradigms. The chapter concludes with a section that explores how this relational engagement across paradigms can reduce harms in healthcare on the multiple levels introduced in Chapters 2 and 3.

Specificity Paradigm

Community-Based Herbalism engages elements of the Specificity Paradigm in several ways. For example, Community-Based Herbalism requires attention to many *specifics*, such as (1) positive identification of individual plant species, (2) detailed knowledge about the use of each species, and (3) recognition of particular individual health needs. In the four examples of Community-Based Herbalism above, individual participants develop specific knowledge of individual plant species, such as the knowledge shared by the children participating in the Green School Club, and by the women caring for their kitchen-medicine gardens as part of the *Sambandh* program in India. At the Olympia Free Herbal Clinic, herbal practitioners not only develop specific knowledge of medicinal plants, they also share this knowledge with those visiting the clinic. Further, the herbalists develop – and share – specific knowledge about the most common health needs presented by those visiting the clinic, many of whom are homeless and have no other means of accessing healthcare.

It is important to note that the herbalists at the Olympia Free Herbal Clinic practice transparency regarding their training, experience, and scope of knowledge. This approach helps to maintain clarity about the range of their knowledge and skill, and it underscores the idea that basic health knowledge — for example, basic biomedical knowledge of specific physiological functions, conditions, and symptoms — can be beneficially useful in the absence of extensive medical training and expertise. This proposition is important because Community-Based Herbalism presupposes that most

individuals are capable of accessing and understanding specific health information at levels sufficient for them to recognize and address common self-limiting conditions and also for discerning when conditions call for consultation with a healthcare provider. I suggest that acknowledgment of this kind of ability and discernment results in individual and community empowerment. It also requires knowledge acquisition and sharing. The ethnographic data presented in Chapter 10 (p.243) suggest that individuals who use *and* make plant-based medicines are most inclined to access health-related knowledge independently through books and the Internet, and then share it with friends.

Other aspects of the Specificity Paradigm were revealed through consideration of ethnobiology's Phase 1 in Chapter 6 (pp.122-124), which I characterize by a focus on collection, observation, evidence, effectiveness, improvement, documentation, replication, ownership, and profit. Community-Based Herbalism can engage these interests through, for example, *collection* of plants for making medicine; *observation* of whether the medicines made and used result in sufficient experiential *evidence of effectiveness*; and *documentation* of medicine-making techniques, formulas, and effects to allow for *improvement* if needed in the future (*replication*). Additionally, interest in *ownership* can focus on what genuinely belongs to all people, such as the right to and the experience of good health, along with the right to and use of medicinal plants. Finally, interest in profit can be reconceived as *wealth* as described by Nancy J. Turner in *The Earth's Blanket*:

I believe that wealth — real wealth — is found among people who have a sound sense of their place in the world, who link their actions and thoughts with those of others and who are strong, vigorous and co-operative actors in their communities and ecosystems. Rich are those people who balance the benefits they receive in life with the responsibilities they assume for themselves, their families and communities and their environment. Wealth dwells in people who know about, appreciate and respect the other life forms around them and who understand the importance of habitats for people and all living things (2005:24-25).

In these and other ways, Community-Based Herbalism engages elements of the Specificity Paradigm in local, situated community contexts.

Systemic Paradigm

Community-Based Herbalism inherently reflects the Systemic Paradigm because it can

only exist within the context of *community*, defined as an interacting group or population of individuals — potentially, both human and other-than-human — who live near and/or frequently interact with each other (Merriam-Webster: on-line). As such, a community is itself a *system*. Herbalism that does not function within a community (system) of local people and local plants is not *Community-Based Herbalism*.

Aspects of the Systemic Paradigm were revealed through consideration of ethnobiology's Phase 2 in Chapter 6 (pp.126-127), which I characterize by its recognition that diverse cultural contexts produce diverse and equally valuable patterns of thought, cognition, language, classification, behaviors, and social dynamics. This broadened the perceptual and conceptual fields of ethnobiology beyond attention to just the specific units of primary interest in Phase 1 to the social and systemic contexts of these units. Community-Based Herbalism provides such “social and systemic contexts” in which the use of specific plant medicines takes place. Further, Community-Based Herbalism varies in each instance (such as an Indian college in the Pacific Northwest, a free herbal clinic, herbal conferences, and Tribal villages in India) because each *community* in which it is situated is unique. As such, Community-Based Herbalism provides opportunities for both expression and exploration of the varying cognitive, behavioral, social, and cultural dynamics (systems) that can manifest in the presence of using plants as medicine. Which plants does each community choose to grow and harvest? How do community members choose to prepare the plants? How does each community name the plants? How do they teach each other about the plants? How do they share the plants? And why? These illustrate some of the “social and systemic contexts” for medicinal plant use that reflect the range of diversity embraced by the Systemic Paradigm.

Structural Paradigm

In the Structural Paradigm, as explained in Chapter 6 (pp.136-138), perception is tuned to fundamental social and environmental structures that both support and limit the systems that emerge within them as well as the specific elements that comprise them. The Structural Paradigm focuses attention on the role these fundamental structures play in shaping the systems and specifics they contain as well as the power the structures have to allow or prevent human needs to be met. Motivations for action within the Structural

Paradigm include, on one hand, removing barriers and violence often present in social structures, and, on the other hand, harmonizing human behavior with the requirements of environmental structures. Community-Based Herbalism engages elements of the Structural Paradigm through its potential to (1) circumvent barriers to healthcare, (2) avoid structural violence in mainstream healthcare, (3) educate community members about the existence and nature of structural violence in healthcare and beyond, and (4) harmonize health-related behaviors with environmental dynamics. Since all of these types of structural engagements can lead to reduction in healthcare harm, I elaborate upon them more fully below when I discuss the ways in which Community-Based Herbalism can reduce healthcare harms on multiple levels.

2) Community-Based Herbalism Models a Relational Paradigm

Throughout this dissertation, I have proposed that Community-Based Herbalism models a Relational Paradigm. As has been discussed, a Relational Paradigm creates dynamic interactions between elements of different paradigms and, in doing so, allows elements of one paradigm to be influenced in a positive way by elements of another. This constitutes engaged relationship and was illustrated in Chapter 8 (pp.182-184) by the concept of *ecotone* from landscape ecology. Here, the fundamental components of two adjacent habitats are mutually influenced by the other, resulting in an *edge effect* that is similar to but different from the interior of each. The forest does not *become* the meadow, nor does the meadow *become* the forest, in the ecotone of landscape ecology. In other words, the forest ecotone is modified by the meadow, it remains forest; and, while the meadow ecotone is modified by the forest, it remains meadow. Likewise, in a Relational Paradigm, the Specific, Systemic, and Structural Paradigms remain functionally active, conceiving and guiding their own fundamental components. However, each paradigm is also influenced and changed, becoming inclusive of the other(s).

This idea of *mutual influence* is central to the concept of a Relational Paradigm. Therefore, to constitute a Relational Paradigm, it is not sufficient for one agent to influence another *uni-directionally*, nor is it sufficient for two agents to only casually interact. Likewise, the influence must be characterized by *respect* (see Chapter 8, p.192).

In other words, a Relational Paradigm is not expressed in the instance of two people mutually engaged in shooting each other. Rather, in a Relational Paradigm, agents engage with each other in meaningful ways that change them *constructively*. Several examples of this emerge from the cases discussed earlier. For example, Julene told about the way she felt the plants were communicating with her and how that encouraged her to follow a path that felt authentic and meaningful. On one hand, Julene observed, carefully harvested, and respectfully used the plants — changing *them* (see Chapter 8, pp.200-202). On the other hand, Julene felt herself dramatically changed through what she perceived as communications the plants were offering to *her*. Similar examples can be found in the stories of both Heidi and Sean.

When one or more of the agents is human, the most powerful types of relational engagement evoke emotions such as attention, interest, care, compassion, empathy, vulnerability, responsiveness, and trust. Further, it is this type of felt experience that both fosters and represents the capacity to be changed by another (Avramchuk et al. 2013). I have proposed that the concept of attachment represents the deepest and most profound form of engaged relationship (see Chapter 7, pp.149-156). In attachment between an infant and mother figure, the emotions include, for the baby, the deepest possible trust that one's most basic needs will be met and, on for the mother, a willingness to care so deeply that one will take on responsibility for another's very life; this, in turn, can result in a profound sense of meaning and purpose for both.

Attachment theory, relational-cultural theory (RCT), relational psychology, and neuroscience all hold that (1) humans grow through and toward connection or *belonging* — what I am calling engaged relationship; (2) humans need connections to flourish, even to stay alive, and (3) isolation is a major source of suffering at both personal and social levels that can result in physical, psychological, and behavioral pathologies (Perry and Szalavitz 2011; Robbs 2007; Baumeister and Leary 1995; Bowlby 1951). Further, empathy and even love appear to be human *potentials* — not *givens* — requiring for their development frequent, enjoyable contact with another person, along with mutual perception that the relationship is caring and stable. Thus, attachment and belonging appear to be central to the capacity to form engaged relationships. Importantly, ecopsychology argues that concepts of attachment and belonging also apply to

relationships between humans and the natural world. This view suggests that nurturant connections with the natural world — including with plants — may also be central to human development and health as well as to sustainable behavioral choices (more on this below).

Of course, Community-Based Herbalism engages both humans and plants. For example, *humans interact frequently with medicinal plants* — gathering, processing, and using them — and typically employ methods that maintain and often enhance the integrity and stability of the plant communities and habitats. For example, generative harvest practices and sustainable stewardship practices are followed, while herbicides and pesticides, which disrupt natural processes (Cycon 2013; Kohler and Triebkorn 2013; Geiger et al. 2010) are avoided. In this way, both humans and plants can experience mutual benefit. Further, in Community-Based Herbalism, humans *interact frequently with one another* in countless ways that constitute mutual enjoyment and benefit.

Lastly, I propose that a Relational Paradigm can manifest among other agents such as concepts, disciplines, and paradigms. For example, in Chapter 8 (pp.182-191), the idea of an *ethnobiological ecotone* illustrates the way ethnobiology, as an interdisciplinary, can itself represent a Relational Paradigm. In a Relational Paradigm, regardless of the agents, the links move beyond simple interaction, as I illustrate in Chapter 7 (pp.146-147). As such, engaged relationship is not superficial. Nor is it measurable. It is recognizable by the presence of mutual positive influence and change on the part of each agent at the same time the inherent qualities of each agent remain intact.

3) Community-Based Herbalism Reduces Harm Through Relational Engagement *Within Levels of Iatrogenesis*

Throughout this dissertation, I have proposed that engaged relationship is both the *nature* and the *result* of a Relational Paradigm, and that engaged relationship can reduce harm because of the attention, care, and responsiveness it fosters. So far in this chapter, I have analyzed the relational engagement of Community-Based Herbalism in terms of its capacity to engage elements within and across *paradigms*. Here, I address its capacity to engage and reduce elements of healthcare harm within the levels of iatrogenesis

introduced in Chapters 2 and 3 — specific, systemic, structural, environmental, and pharmaceutical — as well as within the herbal industry. A summarizing overview follows with particular ways Community-Based Herbalism can address healthcare harms.

Reduced Harm to Individuals — Specific Level of Iatrogenesis

Through the prevention and treatment of minor health conditions, Community-Based Herbalism reduces the need to enter into the mainstream healthcare system where medical mistakes and other forms of specific iatrogenesis have been described as one of the leading causes of death in the United States (see Chapter 2, p.18). For example, Sean illustrated how he was able to move away from dependence on a pharmaceutical drug for control of his asthma and instead utilize a medicinal plant he had harvested, processed, and prepared himself.

Specifically, causes for harm to individuals have been shown to result from several factors, many of which are addressed by the contextual and practical orientations of Community-Based Herbalism. For example, by gaining greater awareness of one's own health conditions and treating symptoms at their earliest onset with gentle, food-like medicinal plants, the risks of medical mistakes can be reduced because many minor conditions can be addressed through the pro-active and preventative approach of Community-Based Herbalism. If conditions persist and worsen, Community-Based Herbalism would also support consultation with a healthcare provider. Still, many minor conditions can be improved and many major conditions prevented without the intervention of a professional healthcare provider.

Additionally, specific knowledge of individual plant species reveals that many species, such as those with anti-microbial action, can be utilized within the specificity model — or germ theory — of disease etiology. For example, laboratory assays have demonstrated the antimicrobial activity of many of the species that contain volatile oils such as eucalyptus (*Eucalyptus* spp.), oregano (*Origanum vulgare*), rosemary (*Rosmarinus officinalis*), and thyme (*Thymus vulgaris*) (Selim 2011; Skrinjar and Nemet 2009). Herbal antimicrobials are valuable also because they tend not to produce resistance in pathogens as readily as pharmaceutical antibiotics (Savoia 2012). These types of specific botanical and biomedical knowledge are an important part of how

Community-Based Herbalism can reduce biomedical harm to individuals on the specific level of iatrogenesis.

Reduced Harm to Society — Systemic Level of Iatrogenesis

As noted in Chapter 2, the *World Health Report 2010* indicated that, due to financial constraints, one-third (33%) of adults in the United States went without recommended care, did not see a doctor when sick, or failed to fill prescriptions (World Health Organization 2010). Community-Based Herbalism can affect systemic/socioeconomic deterrents to *healthcare access* in such areas as finance and logistics as well as culturally relevant healthcare practices. For example, living medicinal plants are readily accessible in most regions and most developed environments (rural, suburban, and urban) in the United States, even if predominately in the sidewalk cracks of urban food “deserts.” Growing, and especially wild harvesting, medicinal plants can be carried out with minimal expense. Many plants can be utilized as tea, which requires no specialized equipment or materials beyond a heat source, cooking pot, and water. Often, too, family or childhood experiences can be drawn upon such as use of common species including chamomile (*Anthemis nobilis*, Asteraceae) for calming or, as Julene described above, garlic (*Allium sativum*) for colds and peppermint (*Mentha x piperita*) for digestive support.

In the context of Community-Based Herbalism, not only are medicinal plants readily accessible but also knowledge of how to prepare and use them. When Heidi, for example, lost her medical insurance, she was able to maintain her health through herbal applications based on seasonally available plants, along with an understanding of health through the seasons based on the Classical Chinese Five-Element philosophy. Further, through seeking and sharing plants and information, community members become aware of the condition of others in their community. I witnessed this in the community meeting in Serena, in Odisha, India, when community members shared their most recent health issues that had prompted them to use the plants in their kitchen-medicine gardens. Factors such as these make it possible for individuals to access healthcare within their community, often within their own garden and home, especially for conditions that are minor and self-limiting. This results in a significant reduction in cost to individuals as well as in

healthcare expenditures across society.

Further, Community-Based Herbalism is not “one-size-fits-all.” There are many paths and approaches to using plants as medicine. Community-Based Herbalism supports improved health outcomes through some or all of these activities, from growing, harvesting, processing, and preparing, to sharing plant medicines. This opens the door to diverse family and cultural traditions and, as such, embraces a diversity of languages, beliefs about disease etiology, healing practices, and social dynamics. Individuals need not reject healthcare services and resources as strange and foreign because, in Community-Based Herbalism, such services and resources can be drawn from and reflective of one’s own values and traditions. Jacoby Ballard emphasized these aspects of healthcare *access* in his keynote address at the 2013 Dandelion Seed Conference.

Cultural traditions can also be supported through Community-Based Herbalism. As Heidi observed during her travels in Ecuador and discovered again from her students at CIELO, herbal use is common within the Latino community. In a study of urban Latinos in Indianapolis (Howell et al. 2006), eighty percent of those seeking healthcare reported independent use of medicinal herbs. Another study showed that Mexican-American women in New Mexico were three times more likely to use herbs than the general population (Waldstein 2006). This may be associated with the “Latino health paradoxes” discussed in Chapter 2 (pp.28-30).

Community-Based Herbalism supports the option of including culturally significant plant species in one’s family or community pharmacopeia, as was illustrated in the work of the Northwest Indian College and the *Sambandh* program. These might include traditional Latin American species such as damiana (*Turnera diffusa*), valuable for diarrhea, colds, and libido enhancement (Estrada et al. 2009; Juckett 2005; Hernandez et al. 2003; Stuart 2000); or traditional African species such as *Aloe vera* for arthritis, burns, and ulcers (Van Wyk 2013; Grace et al. 2009), and rose geranium (*Pelargonium graveolens*) for healing wounds (Charles 2012). These and many other species can be grown in most regions of the United States in a pot on a windowsill or porch, or in a small garden space.

Additionally, Community-Based Herbalism supports utilization of gentle medicinal plants that, unlike pharmaceutical drugs, which have targeted narrow effects on

specific symptoms, engage the body's inherent healing mechanisms in a broader sense, encouraging balance and functionality from the perspective of a body *ecosystem*. The Northwest Indian College, the *Sambandh* Project, and the Olympia Free Herbal Clinic all emphasize learning about and using such gentle medicinal plants. These constitute some of the ways in which Community-Based Herbalism addresses healthcare harms at the systemic level.

Reduced Structural Violence — Structural Level of Iatrogenesis

Community-Based Herbalism can influence structural conditions that impair the ability of individuals and groups to meet their basic needs, maintain positive health outcomes, and thrive. It can do so in several ways, such as reducing dependence upon hierarchical and often hegemonic, mainstream healthcare that has not historically succeeded in accomplishing these goals. The *Sambandh* kitchen-garden project empowers participants to improve their own health outcomes and economic conditions, while the Northwest Indian College introduces local, culturally integrated foods and medicinal plants to local Indigenous communities, and the Olympia Free Herbal Clinic offers health-related resources to homeless and low-income individuals. In all of these instances, the programs model restructuring of underlying conditions that hinder individuals' and groups' abilities to meet basic needs. These examples demonstrate how Community-Based Herbalism can foster greater health-related knowledge, practices, and resilience, thus moving the locus of power away from mainstream healthcare to self, family, neighborhood, and community.

Additionally, Community-Based Herbalism welcomes participants, practitioners, and educators in all forms, sizes, ages, and orientations. As Jacoby Ballard explained in his keynote address at the 2013 Dandelion Seed Conference, Community-Based Herbalism contains the potential to (1) challenge the problematization of life experiences such as grief, (2) circumvent blame for conditions such as diabetes and poverty, and (3) invite conversation about the realities and health impacts of colonization, marginalization, racism, and homophobia, among other manifestations of structural violence (Ballard 2013). I witnessed these conversations at the conference, and have participated in them many times with my students.

Likewise, Community-Based Herbalism's emphasis on the ability for *anyone* to access medicinal plants reflects assertions that "choice of preferred system of healthcare [could be considered] a human right" (Burford 2010:1). Gemma Burford, co-director of Global Initiative for Traditional Systems (GIFTS) of Health, argues that this idea enlarges upon the United Nations Declaration on the Rights of Indigenous People, which states that "indigenous people have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants" (United Nations General Assembly 2007). The Olympia Free Herbal Clinic's emphasis on integrating education with healthcare delivery as well as providing medicines and knowledge free of charge illustrate the idea that access to plant medicine is a basic right.

Community-Based Herbalism can also provide opportunities for discussion and greater understanding of such structural violence as European-American (and, in the case of India, British) colonization of the land upon which the medicinal plants grow as well as colonization of the Indigenous people who have long tended the land and the plants. Further, as attention turns to the ecological conditions of the particular local sites that are available for individuals and communities to garden and wildcraft, an opportunity also arises to examine the concepts of *environmental racism* and *environmental justice*.

Reduced Harm to Humans and the Environment —

Structural and Environmental Level of Iatrogenesis

Environmental Racism

The concept of *environmental racism* holds that environmental hazards disproportionately affect low-income people and people of color. Environmental processes represent the underlying structural dynamic of the earth upon which all humans must ultimately rely. When environmental processes are impaired *by* humans through pollution or climate disruption, these processes, in turn, cause harm *to* humans. Privileged individuals and groups — particularly highly educated, able-bodied, heterosexual European-American males in the United States (Turnipseed et al. 2013) — have a greater ability to avoid these harms through a greater ability to choose (1) where they live, (2) what contaminants enter their neighborhoods, (3) what land they garden, (4) what foods they eat, and (5) even the type of water they drink as well as to seek healthcare if afflicted

by environmental harms. In contrast, marginalized individuals and groups, such as people of color and homeless families, may find their ability to meet basic needs and hopes for clean water, pure air, nourishing food, a livable temperature, and medicinal plants to grow or wildcraft impaired through the disproportionate effects of environmental hazards. These in turn reduce the ability to maintain good health and achieve the markers of strong socioeconomic status, illustrating the type of conditions referred to as *environmental racism*.

Environmental Justice

The concept and social movement referred to as *environmental justice* seeks to remedy environmental racism and other environmental injustices by assuring “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (U.S. Environmental Protection Agency 2014). If safe and suitable ecological conditions are not accessible for gardening and wildcrafting in efforts to establish Community-Based Herbalism, motivation could rise to address the underlying reasons for this. Even when suitable conditions are accessible *for oneself*, recognition that many do not experience a similar privilege of access could motivate action to better understand and help effect change *for others*. Further, the concept of environmental justice sheds light on the how structural iatrogenesis includes both social and environmental structures, and how they are connected. As environmental lawyers Luke Cole and Sheila Foster state:

Understanding environmental racism and injustice requires a broader, *structural* perspective. This broader perspective, which we call the ‘political economy’ of environmental racism, is crucial both to framing the issue and to addressing the injustice so many communities experience. This perspective examines the relationship among economic, political/legal, and social forces as they influence environmental decision-making processes and environmental outcomes [emphasis added] (2001: Kindle Edition).

These ideas suggest that environmental structures can be agents of structural violence (mentioned in Chapter 2, pp.34-35), just as social structures can be agents of environmental violence and generate environmental harm through both environmental

and social policies that, for example, relocate marginalized groups to polluted sites (Lacerenza 1988) or remove traditional Indigenous territories from public protection (see Chapter 7, pp.161-173). Thus environmental iatrogenesis *is* structural iatrogenesis.

Furthermore, impaired environmental processes can reach such a level that they become less and less avoidable regardless of one's status of power. Still, despite decades of growing awareness of environmental destruction, and public calls for sustainability, human practices have not radically changed in response. This has prompted efforts aimed at increasing a felt sense of connection to and responsibility for the earth, hence such notions as “ecology of the heart” (Anderson 1996). These efforts can be understood as attempts to address environmental aspects of structural iatrogenesis.

Environmental Sustainability

I suggest that engaged relationship is at the root of environmental sustainability because sustainable choices are based on *attention, care, and responsiveness* to environmental needs over the long-term. Such responsiveness may require immediate sacrifice for long-term benefit (see definition of conservation in Smith and Wishnie (2000)), which is similar to the caring roles of parents or primary caregivers in attachment relationships as well as between two mutually engaged adults (see Chapter 7, pp.146-158). Here, selfish shortsightedness can cause harm. Trust can be broken and relationship — including the *capacity* for relationship — can be curtailed. I argue that both types of engaged relationship — environmental and human — involve a willingness to be affected, needed, and potentially responsible to an *other*, that is, to *attach*. Although it may sometimes feel like a burden, such attachment has been described as the context necessary for human capacity to emerge and, I now add, for environmental balance (structures, systems, and specific elements) to persist. This dissertation proposes that engaged relationship is essential to reducing harm in healthcare, including the encompassing and sustaining environmental elements, systems, and structures in which human health is embedded. As Howard Clinebell (1996:1) puts it,

The most serious, most dangerous health challenge all of us in the human family face is to reverse the planet's continuing ecological deterioration. It is the most profound health issue of *all* times, from a historical perspective. Why? For the

first time in the long human story, our species faces a health challenge that if not resolved will foreclose opportunities to solve humankind's countless other problems, including a multiplicity of health problems ... [that] transcend national, ethnic, cultural, religious, linguistic, and racial boundaries... Now, as never before in history, the whole human family has the most urgent demand to cooperate across the plethora of social, cultural, political, and language barriers that divide us.

This dissertation proposes that Community-Based Herbalism fosters the type of engaged relationship that integrates environmental and human structures and needs. It also proposes that Community-Based Herbalism can reduce environmental iatrogenesis directly. Several examples follow.

Reduction of Pharmaceuticals in Water

As pointed out in Chapter 3 (pp.40-42), pharmaceutical drugs are being found in increasing amounts in waterways and are affecting aquatic organisms as well as human drinking water. In contrast, most plant-based medicines, by virtue of being “whole plant” medicines — that is to say, not consisting of isolated constituents — break down more readily in water and produce few if any of these ill effects (Buchan and Gustaitis 2008). Community-Based Herbalism focuses on local, whole plant medicines, thus potentially reducing the amount of pharmaceutical drugs that are excreted or disposed of in waterways.

Reduction of Drug-resistant Bacteria

As further discussed in Chapter 3 (pp.42-43), overuse of antibiotics is resulting in ongoing discoveries of and grave concern about “super bugs” that survive the antibiotics and produce ever stronger organisms. Numerous plants, many of which contain aromatic/essential oils, also exhibit strong antimicrobial action which are more broad spectrum and diverse in their activity, thus being less likely to result in microbes that are resistant to one particular strain of antibiotic. Community-Based Herbalism focuses on plant-based antimicrobials (such as antibacterials, anti-virals, anti-fungals) thus reducing the use of pharmaceutical antibiotics.

Sense of Place

Local growing and mindful wild harvesting medicinal plants can benefit environmental structures and functions when the gardener/harvester becomes a participant in seasonal cycles, gaining direct awareness of local ecosystem components and potentially cultivating care for environmental wellbeing. The children in *Sambandh*'s Green Garden Clubs are taught this principle. Those who grow and harvest plants for the Olympia Free Herbal Clinic apply this principle. The approaches shared by Indigenous participants at the Northwest Indian College embrace this principle.

Further, by gaining knowledge of local plants, climate, weather, seasons, soil conditions, and animals, as is consistent with Community-Based Herbalism, individuals often cultivate a sense of place. *Sense of place* has been defined as the attribution of meaning, values, and connection to a geographical location such that it characterizes engaged relationship and can potentially evoke a desire and willingness to engage in environmentally sustainable practices (Rogers and Bragg 2012; Sullivan et al. 2009; Hart 1999). All of the students introduced earlier cultivated and experienced a sense of place in the Longhouse Ethnobotanical Garden. When Heidi sat in a willow thicket in her area by the creek, she felt she was in the presence of the lungs of the earth, which gave her a feeling of connection to the plants — the same connection she found later in a quite different place. Sean experienced the garden area he tended as a “safe place.” And it was here that yarrow (*Achillea millefolium*) inspired Julene to follow an herbal path. A sense of place also became important to the work related to Community-Based Herbalism that these students later undertook.

Further, a sense of and commitment to *local* place is also central to each of the examples of existing Community-Based Herbalism. The Northwest Indian College supports *local* Indigenous people by facilitating the sharing of traditions among *local* Tribal members. *Sambandh* is committed to fostering the knowledge, growth, and use of *locally* suited medicinal plants. The Olympia Free Herbal Clinic is committed to serving *local* low-income and underserved populations. In fact, Community-Based Herbalism is by its very nature committed to *localism* with regard to both plants and people, and inherently fosters a sense of belonging to place.

Reduced Potential Harm Associated with the Herbal Industry

Community-Based Herbalism can also reduce the potential harm associated with the herbal industry in several ways including reduction in the potential use of contaminated and adulterated herbal products, reduction in ecological impacts of industrial-scale harvest, and reduction in biopiracy. Examples follow.

Reduction in Potential Use of Contaminated and Adulterated Herbal Products

Community-Based Herbalism can reduce the risk of ingesting herbal products that have been contaminated or adulterated. This can occur by (1) developing strong plant identification skills; (2) using low potency, high dosage, gentle, and food-like plants (see herb-drug continuum model in Chapter 3, pp.44-46); (3) using plant-based medicines that are locally produced, perhaps even in one's own kitchen; and (4) utilizing simple medicine-making techniques that expand upon cooking. Also, knowing the individuals who are harvesting and processing herbal products that one purchases allows opportunities for conversations about harvest techniques and processing methods, and even the potential to see where and how the medicines are made. Sean is an active provider of such local medicines through his business Understory Apothecary, which maintains a presence at the local Farmer's Market, as is Julene through her business, Breathe Beauty Botanicals.

Reduction in Ecological Impacts of Industrial-Scale Harvest

Community-Based Herbalism emphasizes small-scale growing of one's own medicinal plants. This is often accompanied by conscientious, limited harvesting of local non-cultivated plants (wildcrafting) based on careful observation, documentation of harvest impacts, and guidelines that could potentially restrict future harvest activity given evidence of depletion (Tilford 1993). Also many invasive, medicinal weedy species occur in disturbed sites and can be harvested with minimal ramification on either populations or habitats (Scott 2010). Through the implementation of these relational practices, the environmental harms associated with widespread, market-oriented overharvest of such sensitive species as American ginseng (*Panax quinquefolius*), echinacea (*Echinacea* spp.), and goldenseal (*Hydrastis canadensis*), can be reduced (United Plant Savers 2012).

Reduction in Biopiracy

While it is true that most of the knowledge of local, especially endemic, medicinal plant species emerged from the traditional knowledge base of local Indigenous people, the scale of any potential profit generated from sale of products drawn from that knowledge within Community-Based Herbalism is low. Likewise, the risk of patenting such products, or means by which they are processed, is even smaller. There are several reasons for this, all of which are rooted in the inherent relationality of Community-Based Herbalism. First, Community-Based Herbalism occurs, by definition, at the scale of local *community*. This limits the potential size of a market for manufactured herbal products. As described in Chapter 3 (p.38), millions of dollars are required to bring a drug through the pipeline of research and development and finally into the marketplace. This requires the financial backing of large pharmaceutical companies. It also supposes a level of profit that could only be achieved through massive marketing and sales at a national, or perhaps international, scale. In contrast, Community-Based Herbalism consists of individuals, families, and neighborhoods creating medicines to support themselves and one another. When individuals create herbal businesses, such as Sean and Julene have done, they are at the scale of individual proprietorships or perhaps partnerships. In the case of the Olympia Free Herbal Clinic, the organizers' motivations are the opposite of generating profit. In fact, they struggle to maintain a means of providing plant-based medicines to low-income individuals *for free*.

4) Community-Based Herbalism Reduces Harm *Across* Levels of Iatrogenesis

Above, I have shown ways in which Community-Based Herbalism can help reduce harms within each level of iatrogenesis. Many other approaches exist that can offer similar benefits at one of the levels, some of which have been discussed. For example, evidence-based healthcare (EBH) (The Cochrane Collaboration 2013) helps to reduce harm at the *specific* biomedical level. Culturally competent healthcare helps reduce health disparities at the *systemic* social level (Anderson et al. 2003; Brach and Fraserictor 2000). Recognition of the epigenetic effects of racism (Kuzawa and Sweet 2009) helps expand understanding of health determinants at the *structural* level. Finally, efforts to reduce

pharmaceutical use and consequent elimination and disposal in waterways can help reduce harms at the *environmental* level (Gorman 2010). What distinguishes Community-Based Herbalism, by nature and definition, is what draws upon elements of *all* of these types of approaches — in unison — and reduce harms *across* the levels of iatrogenesis. Namely, it is the *relational engagement* — the fundamental relational aspect — of Community-Based Herbalism that makes this possible. In fact, it is the localized, community, *relational* orientation that makes Community-Based Herbalism what it is.

In Summary: A Sampling of Important Ways Community-Based Herbalism Creates Relational Engagement and Reduces Harm in Healthcare

To draw this chapter to a close, I offer a succinct sampling of some of the important ways in which Community-Based Herbalism creates relational engagement and reduces harms in healthcare on multiple levels.

- Community-Based Herbalism incorporates *relational engagement with plants* by learning which species to use, being able to identify them properly, knowing which part(s) to use, knowing how to harvest them properly, and doing all of this in support of positive health outcomes for one's self and others. This reduces harm in healthcare by reducing reliance on pharmaceutical drugs as well as on the herbal industry. It fosters outdoor activities in the context of health promotion and community involvement.
- Community-Based Herbalism incorporates *relational engagement with one's own health* through increasing awareness of personal health functions and conditions along with herbal approaches to preventing and treating many common conditions. This reduces harm in healthcare by reducing the need to participate in mainstream healthcare and thus being exposed to its associated risks. It empowers individuals and communities, and reduces healthcare costs.
- Community-Based Herbalism incorporates *relational engagement among people* in family and community through people working together and collaboratively sharing culturally relevant knowledge, plants, and medicines. People often directly teach each other in non-hierarchical exchanges. This reduces harm in healthcare by increasing resilience, access to appropriate health-related knowledge, and a sense of value and belonging.

- Community-Based Herbalism incorporates *relational engagement with the environment* through cultivating knowledge of local plant communities, climate, seasonal change, and habitats as a result of gardening and responsible wildcrafting, which can help develop a intimate sense of place and belonging. This reduces harm in healthcare by reducing environmental racism and fostering environmental justice and sustainability.
- Community-Based Herbalism incorporates *relational engagement by expanding the concept of medicine* to include food, food-like medicinal plants, relationships and activities between people, and relationships and activities involving local places and plants. This reduces harm in healthcare by supporting an integrated, multi-dimensional approach to health-related prevention and treatment.
- Community-Based Herbalism *incorporates relational engagement by recognizing and acknowledging connections between environmental and human health*, thus acting upon the fundamental relationality of life's structures.

Simply stated, Community-Based Herbalism fosters harm reduction in healthcare because its elements form engaged relationships both within *and* across (1) dimensions of human experience, (2) levels of healthcare and resulting iatrogenesis, and (3) paradigmatic frameworks. In the following final chapter, I consider some of the factors by which Community-Based Herbalism can be encouraged, some of the barriers to its implementation, and some of the pathways that can provide points of entry.

Chapter 10. Reducing Harm in Healthcare Through Community-Based Herbalism: Barriers and Pathways

The cases and analyses in the previous chapter illustrate and explain how Community-Based Herbalism engages across paradigms, models a Relational Paradigm, and can reduce harm in healthcare on multiple levels. Now Chapter 10 turns to a discussion of how Community-Based Herbalism might be implemented more broadly. It begins with ethnographic data that help to understand attitudes and practices related to using plants as medicine. In closure, this final chapter addresses barriers to Community-Based Herbalism along with pathways for addressing these barriers and cultivating Community-Based Herbalism.

Introduction to Student Inquiry: Methods and Analysis

The ethnographic data that follow were generated through student inquiry at The Evergreen State College. Two sets of data were acquired through use of survey and interview tools I created that included demographic, multiple-choice, rank order, and open-ended questions. The first set of data resulted from pairs of students in two of my Medicinal Botany courses using the survey/interview tool as an informal guide to gaining acquaintance with each other. The second, more extensive set of data involved a different group of students who first participated in a Human Subjects Review training process and then utilized a series of revised survey/interview tools to interview individuals outside of the classroom about their attitudes and practices related to using plants as medicine.

Student Inquiry, Part 1: Who Studies Community-Based Herbalism and Why?

Getting Acquainted #1

The four- to six-credit Medicinal Botany courses were usually filled to capacity, averaging 25-32 students. Students would range in age from eighteen to over sixty with some being fulltime students who were combining several part-time courses, and others

being working adults who were attending school part-time. As part of their overall learning experience, I wanted the students to gain a better understanding of beliefs and practices regarding medicinal plants as well as begin to establish community with one another.

The first “getting acquainted” activity was undertaken during 2010. Utilizing the survey/interview tool for ideas, students partnered and informally selected the questions they wished to ask one another. Brief written summaries that only contained identifying information at the interviewee’s discretion were posted on the password-protected course website. Through this, students got to know each other better and gained insight into the characteristics of individuals who choose to learn about plant-based medicine in a college environment such as Evergreen. This small pool consisted of fifteen percent male-identified students and 85 percent female-identified students, all of whom were enrolled in a six-credit Evening Weekend Studies (EWS) college course. They ranged in age from 18 to 42 and “older,” with over half (60%) being between the ages of twenty and thirty. Their answers indicated the following.

Gardening Experience. Every respondent had some kind of gardening experience, with over 75 percent (77%) having grown up around family members who gardened. More than half (54%) currently gardened, while nearly one-third (31%) had gardened previously.

Health Status. Nearly two-thirds (62%) indicated they had “generally good health” and more than one-third (38%) indicated they had a “specific health issue that they hoped plant-based medicine could help address.” These included allergies, digestive disturbances, migraine headaches, and previous spinal surgery.

Health Insurance. Slightly less than two-thirds (62%) currently had health insurance.

Previous Experience Using Plant-based Medicine. Unlike the general population (see Chapter 3), nearly all the students (over 90%) had used botanical medicine prior to entering the course. Nearly two-thirds (62%) had used both medicinal teas and medicinal tinctures, and over half (54%) had used botanical medicine as a preventative measure.

Previous Access to Plant-based Medicine. Over three-quarters (77%) had purchased botanical medicine, while nearly two-thirds (62%) had received botanical

medicine as gifts from friends, and more than one-third (38%) had harvested and prepared their own medicines.

Previous Medicine-Making Experience. A large number of students (85%) had had some degree of previous experience making medicine. Just under half (46%) had prepared medicinal teas, just under one-third (31%) had made both medicinal tinctures and infused oils, and just under one-quarter (23%) had made topical salves. Over three-quarters (77%) indicated they would like to do more medicine-making in the future.

Summary. This first round of interviews indicated the following trends: The majority of students (1) identified as female, (2) had previous exposure to gardening, (3) indicated having generally good health as well as health insurance, (4) had previous exposure to plant-based medicine, and (5) had previously used plant medicine that they had purchased or received as gifts.

Getting Acquainted #2

Over the course of the following academic year, 2011-12, 46 additional “getting acquainted” activities were undertaken and submitted. While the interview tool had been simplified, the discussions that were part of these unstructured interviews, and the written summaries that followed, remained robust, and they corroborated some of the trends shown in the first set of “getting acquainted” activities. Once again, the majority of the students identified as women, some being mothers. Again, most of the students had previous gardening experiences. The interviews revealed that some students became interested in plants as medicine as a result of broader interests in health, others because of personal qualities or character traits. One student made the following observation after her interview: “Those who are interested in herbal medicine are self-empowered individuals seeking to take the healing process into their own hands as they do with most other aspects of their life.” Finally, most of the students had plans to continue their learning about plant-based medicine into the future, both while at Evergreen and after their college career.

Student Inquiry, Part 2: Who Uses Plant-Based Medicine and Why?

After carrying out their “getting acquainted” assignment, one group of students went on to engage in a series of ethnographic interviews outside of the classroom. The underlying question was: What would it take for more people in the United States to engage with plants as medicine? The idea behind this question was that, if we could better understand why some people make the choice to use plants as medicine, we could also better understand why others do not, along with what might encourage them to do so.

Working first with Evergreen’s Human Subjects Review Committee, students were able to learn the reasons for ensuring human subject protection in carrying out ethnographic research and the means for doing so. Then, each student was expected to identify three individuals outside of Evergreen who met the following criteria: (1) one person who had never used botanical medicine, (2) one person who had used botanical medicine but had never made it, and (3) one person who had both used *and* made botanical medicine. Students were to interview these individuals using specific interview tools that had been tailored to each of these three circumstances. Seventeen students completed and submitted their entire interviews. This created a total pool of 52 respondents. I supervised teams of students in extracting the data from different respondent sets. As a group we analyzed the results and discussed the implications. Selected summaries follow. Tables are provided in Appendix 1.

Individuals who have never used plant-based medicine (Group 1)

The first group of seventeen respondents consisted of those who had never used plant-based medicine. They ranged in age from nineteen to sixty. Just under half were 18-25, almost a third were 26-49, and almost the same number were over fifty. Nearly two-thirds identified as male, just under one-third identified as female, and two identified as gender neutral.

Summary. Among this group of seventeen individuals who had never used plants as medicine, most identified as male, did not currently garden or had never gardened, and most saw their health as good. All had health insurance. About half had never had the chance to use plant-based medicine and most of these individuals felt they wouldn’t use it

even if they had the opportunity. The other half felt they would consider using plant-based medicine, but only if they had more knowledge, mentoring, their physician's approval, and "solid" evidence of its effectiveness. Scientific credibility influenced their choices of medicine, and most of their knowledge related to medicine came from their healthcare providers and the Internet.

Individuals who have used but not made plant-based medicine (Group 2)

Unlike the first group of respondents who had never used plants as medicine, the second group of seventeen respondents had used plant-based medicine but, unlike the following group, had never made it. They ranged in age from twenty to sixty, which was almost identical to the first group. This time the age groups were reversed, however, with just under half being fifty or over and about one quarter being 20-29. Just over half identified as female, fewer than half identified as male, and one identified as gender neutral.

Summary. Just over half of this group of seventeen respondents who had used (but not made) plant-based medicine identified as female. Most currently gardened or used to garden, had good health and health insurance, and were currently using plant-based medicines. Most had purchased their herbal medicines, which they used to treat conditions ranging from minor to major and acute to chronic (though not preventatively), and they most commonly used them because they perceived them to be more natural and have fewer side effects than pharmaceutical drugs. Other reasons for choosing and being able to use plant-based medicines related to accessibility, affordability, types of effects, experience, existing knowledge, and support. These choices were rooted in larger philosophical views that, among nearly half of the group, related to the importance of sustainable practices. In contrast with the group that did not use plant-based medicine, most of the respondents in this group acquired their knowledge from friends and books.

With regard to *making* plant-based medicine, only a small number of respondents had even considered it, although most had heard about the possibility, and most had used medicines that someone they *knew* had made. The most common reasons given for not making plant-based medicines were limited knowledge and lack of time, while other reasons included the perceived difficulty involved, and lack of materials and confidence. Conversely, in order to make these medicines, this group felt they would

need sufficient knowledge, guidance, materials, supplies, time, and confidence. In terms of knowledge, they felt they needed to be able to identify plants, how to make plant applications, felt they would need the knowledge to identify plants and know how to make plant applications, along with a greater understanding of safety issues and herbal/pharmaceutical interactions. This group most commonly acquired their knowledge from books and the Internet, and they felt they could potentially access plant materials from a number of sources including local stores, their own or friends' gardens, wildcrafting, and/or gifts.

Comparison: Groups 1 and 2. While both groups were similar in that most or all reported having good health and health insurance, notable distinctions were that more of those who had not used plant-based medicine were males who had never gardened, while more of those who had used it were females who *had* gardened.

Individuals who have both used and made plant-based medicine (Group 3)

The third group consisted of respondents who had both used *and* made their own plant-based medicines. This group consisted of eighteen participants who also ranged in age from twenty to sixty. Again the largest segment, at just over one-third, was 20-29 years of age, but the second largest group, at about one-quarter was, for the first time 40-49, with the 50-60 year old group almost the same as the previous groups. Again, over half identified as female, and just under half identified as male.

Summary. Just over half of the eighteen respondents who had used *and* made plant-based medicine identified as female. Nearly everyone in this group currently gardened (many “intensively”), all indicated they had good health, and most had health insurance. Half of the group was currently using plant-based medicine for the same types of conditions indicated by the group that used but did not make plant medicine. Interestingly, almost everyone in this group also used it preventatively. As with the previous group, this group's choice of medicine was rooted in larger philosophical views but these focused more on health and spiritual or religious beliefs. This group used plant-based medicine primarily because it was effective, inexpensive, and available, and because they had the support of friends, from whom they also acquired much of their knowledge, along with books and the Internet.

Comparison: Groups 1, 2 and 3. Once again, those who had used *and* made plant medicine also reported having good health and health insurance as had those in the previous groups. Further, those who had both used *and* made plant medicine were similar to those who had only used it in so far as they consisted of slightly more women than men and the majority had gardened. The notable distinction was that significantly more of those who also *made* plant medicine gardened, many “intensively.”

Combined Factors Associated with Use of Plants as Medicine

Taken as a whole, several patterns emerge from both the student “getting acquainted” activities and the non-student interviews. This section explores patterns related to (1) gender, (2) the role of gardening, (3) health status, (4) sources of knowledge about health matters including plant medicine, and (5) type of use of plant medicine.

Gender

Among the groups that had used plant-based medicines in the past and were learning about them in the present, more individuals were female-identified (53-85%) whereas, among those who had never used plant medicine, a slightly larger number were male-identified (59%).

How Many Garden

Not surprisingly, the group that both used *and* made plant medicines contained the largest number of individuals who currently were gardening (89%). Likely those individuals were accustomed to growing, harvesting, and using plants for food and other purposes; therefore, it may have been a natural step to expand these activities to include making plant medicines. The smallest number of current gardeners was found among those who had never used plant medicine (18%).

Health Status

Among the non-student interviewees, the group of those who both used *and* made plant medicines contained the largest number (100%) indicating they had good health; and the

group with the smallest number (71%) were those who had never used plant medicine. Conversely, the group that contained the largest number (100%) of individuals who had health insurance coverage was the group that had never made plant medicine and the group with the smallest number of individuals who had health insurance (72%) consisted of those who used *and* made plant medicine. It is difficult to determine cause and effect in these instances. For example, it is impossible to determine from the data obtained in these interviews if good health tends to precede use of herbal medicine or follow it, or if having insurance coverage tends to foster a sense that herbal medicine is either unnecessary or undesirable — since pharmaceutical drugs are typically covered and herbal medicines are not — or whether those who use *and* make plant medicines feel more empowered to take care of their own health and, therefore, less need to have insurance. Additionally, economic status could play a role here, which cannot be determined since this line of inquiry was also not pursued.

Sources of Knowledge about Health Matters Including Plant Medicine

A significant majority (65%) of those who had not used plant medicines turned to healthcare providers for health-related information, while roughly the same percentage or more of those who had used *and* made plant medicine (67%) and those who had only used plant medicine (71%) turned to friends as sources of knowledge. Conversely, only a few of those who had not used plant medicine turned to friends. Additionally, the greatest number of those who turned to books (89%) was found among those who used *and* made plant medicine, with fewest found among those who had never used plant medicine (29%). Members of both of groups who had used plant medicine also gained information through participation in classes, and individuals who both used and made plant medicine also had family members they relied upon. No one in the group that had not used plant medicine accessed information from either classes or family members.

These patterns suggest that those who do not use plants as medicine rely more heavily on healthcare providers for health-related knowledge, while those who do use plants as medicine, especially those who also make it, rely more on books, community, and family members for information, suggesting greater confidence in and engagement with self-care and community-based healthcare. One might suggest that aggressive

marketing on the part of pharmaceutical companies (described in Chapter 3, pp.38-39), both to physicians and directly to consumers — might result in an inclination in mainstream healthcare toward pharmaceutical drugs and away from a consideration of plant-based medicine.

Type of Use of Plant Medicine

When looking at the two groups that used plant medicine — those who used but did not make the medicines and those who used and also made it — a few marked differences appear. Specifically, those who used *and* made plant medicine were much more inclined to use it for illness prevention (83%) than those who used it without making it (26%), while about three-quarters of both groups were inclined to use it for treatment. Also, the group that used *and* made plant medicine was more inclined to use it to treat conditions that were acute (72% versus 47%) and minor (61% versus 24%), while the group that did not make their own plant medicine was more inclined to use it to treat conditions that were considered major (47% versus 33%) and chronic (41% versus 0%).

Three Significant Factors

Three factors stand out from the previous analysis. They relate to *gender*, *gardening experience*, and *community support*. First, in every group except one (those who had never used plant-based medicine), the majority (if sometimes slight) were female-identified, suggesting that *women* may be slightly more inclined to be interested in and/or participate in using plant-based medicine. Second, *gardening experience* tends to precede or be coupled with an interest in plants as medicine. Third, the factor that perhaps has the most impact is having friends, family, and/or other acquaintances who use and possibly made plant medicines or, stated differently, having a knowledgeable and supportive *community*.

It is note-worthy that two of these factors emphasize relationship. One focuses on relationships with the natural world — plants; the other focuses on relationships with community — people. In other words, two commonly occurring conditions that preceded individuals choosing to both make and use plants as medicine involved *existing relationships with plants through gardening*, and *exposure to relationships with plants as*

medicine through people who already had established these relationships. This suggests that it may be within the context of existing relationships that new relationships are best built. It is also noteworthy that the courses and programs I have been teaching at Evergreen have emphasized both of these elements: (1) the opportunity to work directly with plants in gardens (specifically, Tend and Tell and Medicinal Botany, as described in Chapter 5); and (2) development of community within the program, designed in such a way as to be easily continued, along with exposure to and involvement with elements of the local community beyond Evergreen. Importantly, the interviews, as a body, indicated that access to experienced people within one's community helped address many of the factors cited as existing or potential barriers to utilizing plants as medicine, particularly access to knowledge, plants, materials, and confidence.

Why People Do and Do Not Use Plants as Medicine: Predictions

Finally, the third group of respondents, those who both used and made plant medicines, was asked to speculate about the reasons that people do and do not use plants as medicine, along with what might encourage more people to do so. Additionally, the second group of students who carried out "getting acquainted" activities was asked the same questions and they were also requested to ask for their student colleague's views. The responses from both combined sets follow.

Proposed Reasons for Not Using Plants as Medicine

1. Lack of knowledge/awareness/familiarity
2. Physicians are skeptical/Lack of mainstream healthcare acceptance
3. Lack of insurance coverage
4. Plant medicines are viewed as ineffective
5. Plant medicines are viewed as unsafe
6. Difficulty accessing plant-based medicines
7. Time: Do not want to take the time to learn which plants to use
8. Time: Do not want to take the time to learn how to prepare medicines
9. Inconvenient/Too much effort
10. Lack of connection to the earth
11. Lack of mainstream cultural acceptance

12. Modern society's orientation toward technology/away from nature
13. Plant medicines are viewed as "primitive"
14. Do not want to seem gullible
15. Fear

Three sets of predicted reasons that people do not use plants as medicine emerge from this list of student and non-student responses. One set focuses on the *plants* themselves, one on the *people* who do not use them, and one on *social and cultural factors*. First, plant medicines are perceived by these individuals to be ineffective, inconvenient, difficult to access, unsafe, and primitive. Second, it is suggested that people who do not use plant medicine lack knowledge, awareness, and familiarity as well the time to learn, they do not want to seem gullible, they are afraid, and they lack some type of relevant or necessary "connection to the earth." Third, various social and cultural factors are seen as deterrents, such as lack of insurance coverage, lack of mainstream cultural acceptance, lack of mainstream healthcare acceptance including physician skepticism, and a general social orientation toward technology and away from nature.

Proposed Reasons for Using Plants as Medicine

1. Desire to take greater responsibility for their health
2. Desire to decrease dependency on the marketplace
3. Desire to draw upon traditional and more natural ways of healing
4. Plant medicines are viewed as more effective than pharmaceuticals
5. Plant medicines are viewed as safer than pharmaceuticals
6. Plant medicines can work on the whole body to support health
7. Plant medicines can help support the body's own healing mechanisms rather than simply suppress symptoms
8. The experience of using plant medicines is often pleasant or fun to use than pharmaceutical drugs
9. Plant medicines are often easily accessible (including just outside the door)
10. Plant medicines are low cost/economical
11. Many people are disillusioned with the Western healthcare system
12. Many people want more natural approaches to healing

As with the proposed reasons that people do not use plants as medicine, three sets of reasons that people *do* use plants as medicine emerge from this list of student and non-student responses. Again, one set focuses on the *plants* themselves, one on the *people*

who use them, and one on *a particular social factor*. First, plant medicines are perceived by these individuals to be safer and more effective than pharmaceuticals, economical, accessible, supportive to health by affecting the body's healing mechanisms rather than simply suppressing symptoms, and pleasant — even fun — to use. Second, it is suggested that people who use plant medicine desire to take greater personal responsibility for their health, reduce dependency on the marketplace, and draw upon more natural ways of healing. Third, one primary social factor is seen as motivational to people choosing to use plant-based medicine, namely disillusionment with the mainstream healthcare system.

Correlating Predicted Reasons with Actual Reasons Given

Several factors emerge with regard to why people do *not* use plants as medicine. Among those who had never used plant medicine, over half (53%) had never had the opportunity to do so, and about one-third (35%) indicated they never would. However, among those who indicated they might consider using plant medicine, several factors were mentioned as necessary for them to make that choice, including more knowledge, mentoring, physician approval, and “solid evidence” of effectiveness. These factors were consistent with several of the reasons predicted for why people do not use plant medicines. Specifically, a need for more knowledge and mentoring (65%) aligns with the predicted barriers of unfamiliarity, time involved in self-education, and lack of awareness. The need for physician approval (18%) aligns with the predicted barrier of physician skepticism. The need for proof of effectiveness (18%) aligns with the predicted barrier of perceived ineffectiveness. Likewise, these also align directly with some of the factors listed as enabling use of plant medicines by those who do, especially knowledge (42%), experience/familiarity (29%), and friends who provide support (24% among those who use plant medicines and 61% among students).

Reasons given for why people *do* use plant medicines — and which were also predicted — include that they are effective (33%), inexpensive/affordable (28%), available/accessible (28%), and safer than pharmaceuticals (18%). An additional reason given for use of plant medicines among those who also made the medicines — and which was also predicted — is accessibility (48%).

With these ideas in mind, the following are proposed factors that might encourage

more people to use plants as medicine. These will be considered, and many will appear within the pathways proposed as potential entry points for individuals and groups with various interests and circumstances to explore and implement Community-Based Herbalism.

Proposed Factors That Would Encourage Greater Use of Plants as Medicine

1. Greater support
2. More opportunities for informal conversation and sharing
3. More opportunities for education such as community workshops
4. Clear understanding of dangers
5. More common acceptance
6. More available time
7. Greater access to the plants themselves
8. Greater access to inexpensive supplies
9. Insurance coverage of botanical medicines
10. Recognition of negative impacts of contemporary lifestyles on the earth
11. Developing a whole systems approach to looking at the world
12. Creating communities based on permaculture
13. Being living examples of community herbalists

This time four sets of proposed factors that students and non-students suggested might encourage people to use plants as medicine emerge from the list. One set consisting of only one suggestion focuses on the *plants* themselves, another on the *people* who might potentially use them, and one on *social and cultural factors* that could be contributory. An *additional suggestion* will be mentioned at the end. First, respondents noted that greater access to the plants would help people use plants as medicine; this was the only suggestion related to the plants themselves. Second, respondents suggested that it would be helpful if people had more time, clearer understanding of potential dangers, more opportunities for education such as community workshops and informal sharing, and greater access to inexpensive supplies. Third, respondents proposed that various social and cultural factors could support increased implementation of Community-Based Herbalism, including more common acceptance, greater support, insurance coverage of herbal medicines, communities based on permaculture, greater recognition of negative

environmental impacts of contemporary lifestyles. Finally, several students suggested a fourth factor, namely that *individuals who currently practice Community-Based Herbalism present themselves as living examples of its benefits.*

Some of the students' elaborations on these ideas are worthy of consideration. For example, one commonly held view among students about why people do not use plant-based medicine was a perceived, widespread disdain for practices seen to have emerged from groups marginalized by the West's march toward modernism. One woman illustrated this view in saying, "I believe that our society has seen [allopathic] Western Medicine as the 'right' and 'civilized' choice for our health. Plant medicine was used by many who didn't have education or money and therefore it was stigmatized as our society 'evolved'." Another barrier related to perceived interconnections related to education, knowledge, and awareness, and was described by one man as follows:

I believe one of the main reasons that people don't use plants as medicine is due to a lack of awareness, of not even knowing that they can be used medicinally. One may have grown herbs in their garden for years because they smelled or tasted good, not even knowing that those plants may have also served them well for any number of conditions. It is often not until one is brought literally face-to-face with medicinal plants that one becomes "aware" of their existence, let alone potential use, or at least has their curiosity aroused enough to "give it a try."

Yet another body of views focused on severed relationships with nature, both in terms of "the Earth" and in terms of our bodies. Two students illustrated these views:

First Student: Making plant medicine also requires a connection with the land. We as a society have lost much of our connection. We have also lost much of our connections with our elders which is who used to teach this to subsequent generations. I also notice that much of the practice of plant medicine requires us to be in tune with our bodies. We, as a society, seem to be losing this as well. We go to the doctor when something is REALLY wrong and expect a quick fix so that we can get back to our lives. We are moving so fast that we lose touch with ourselves and our earth.

Second Student: One concept we agreed upon was a lack of connection to earth and source. Rather than be open to the idea that humans have a spiritual connection to all other life, modern Americans have taken a path away from nature and towards technology. I spoke of my childhood

sensation of communicating with plants and animals and the frustration I felt when trying to talk to my family and friends about the experience. I have often felt a great deal of frustration when trying to understand why common understanding turns away from a connection to the natural world. One idea that my classmate pointed out was that it is difficult for people to be aware and awakened. If people could see that their lifestyle was hurting the earth and ultimately unsustainable, they would have to change. But, since change is frightening and uncertain, many people will take a path that prevents them from awakening. Being connected to the natural world in this time means seeing and feeling the painful challenge ahead.

Given these powerful societal influences, another student also said, “I don’t know what can be done to encourage others to use plant medicines except to be healthy, happy, and a living example.” Other students shared this view, which is significant because, as a model of relational healthcare, Community-Based Herbalism is built upon a foundation of mutual engagement that includes living examples that can inspire others to participate.

Barriers and Pathways for Teaching Relationship and Cultivating Community-Based Herbalism

Despite the potential of Community-Based Herbalism to reduce healthcare harm, numerous barriers hinder its widespread implementation. Some of these barriers are based in the paradigms introduced earlier, especially the Specificity Paradigm, which has been shown to historically express hegemonic tendencies in healthcare (see Chapter 3, pp.50-53). In fact, it can be asserted that community-based initiatives in general — which reflect the Systemic Paradigm — can meet with external, often corporate and governmental, resistance as exemplified by the “Occupy” Movement (Zeese and Flowers 2014, 2012; Calhoun 2011; Davis 2011). I recall being part of an effort in the early 1990s by a small elementary school in Marin County, California to curtail the use of the pesticide Roundup® on school property. I was surprised and dismayed when the product’s manufacturer, Monsanto, sent a company representative to block our tiny but clearly significant, community-based action. A corollary within healthcare to this type of resistance can be found in the pharmaceutical industry’s huge investment in marketing their products to both consumers and physicians. This significantly influences the

perception of both groups with regard to *efficacy* and *safety*, two major perceptual barriers to the use of plant-based medicines as noted in the sections discussing why people do *not* use plants as medicine. It also reduces *opportunities for education* and *acceptance*, factors that emerged repeatedly as preventing the use of plants as medicine as well as being needed to foster it.

Other barriers noted above include the *effort* and *time* involved in using plant-based medicines along with related issues of *access*. As with any new undertaking, there is more effort involved in getting started than after one has familiarity with the processes involved. For example, after medicine-making workshops, I frequently hear students remark about how much easier it is to make a vinegar tincture or a topical salve than they expected it would be. Still, even after the processes are understood, there is more effort and time involved than walking into a pharmacy and reaching for a bottle on the shelf. These factors can present barriers to *access* unless and until it is understood that Community-Based Herbalism does not dictate that each individual or family *must* grow, harvest, prepare, and use their own plant-based medicine, but rather supports the *possibility* of such activities for everyone and encourages community herbalists to share, trade, or sell their medicines, thus weaving a fabric of community relationships and local, affordable access to plant-based healthcare.

Nevertheless, as mentioned by many respondents, the capacity for undertaking activities associated with Community-Based Herbalism requires some level of knowledge, motivation, and confidence, even if just enough to begin. It may be difficult to find local sources of knowledge and support, and it may be difficult to access those that *do* exist. For example, the annual Dandelion Seed Conference described in Chapter 9 (pp.210-212), which takes place each fall, involves three full days and evenings of talks, plant walks, and workshops. Despite the level of interest one might have, not everyone is able to devote this much time to such an endeavor. After the second conference, some of my students commented that only those with privilege could attend the conference at all, in contrast with those who were perhaps working in order to make ends meet and unable to take time off, or those who did not have the resources to step away even briefly from parenting. Still, the conference organizers attempted to widen its accessibility as much as they could by allowing partial attendance, and providing work trade options and childcare.

Further, all of the cases of existing Community-Based Herbalism described in Chapter 9 make a point of addressing *issues of access* related to (1) plants (such as the plant starts provided by *Sambandh*, and Sean’s wildcrafting walks with local community members); (2) knowledge (for example, the Olympia Free Herbal Clinic practitioners who educate those who visit the clinic about how to use the plant medicines that are offered, and the annual Dandelion Seed Conference the clinic hosts, as described above); and (3) motivation (Heidi inspiring her Latino students by harvesting, making, and sharing her herbal teas and explaining them in Spanish).

Still other perceptual barriers to Community-Based Herbalism — and herbalism in general — exist because of and enduring stereotyped association with “hippies” advocating “back to nature” practices of all kinds (Hardin 2013). This and other expressions of non-conformism have sometimes helped prevent serious mainstream discourse regarding potential roles for plant-based medicine in healthcare and regarding potential connections between community herbalism and other forms of community advocacy (Hardin 2010).

In light of these and other barriers, for Community-Based Herbalism to foster sustainable healthcare in the ways proposed by this dissertation, it becomes imperative to identify and implement the means by which Community-Based Herbalism can become more widely understood, valued, and implemented. As a result of (1) observation, experience, and research related to teaching garden-based ethnobotany and medicinal botany, (2) listening to students, (3) examining existing examples of Community-Based Herbalism, and (4) analyzing the ethnographic interviews described above, I have identified several areas that seem to have high potential as points of entry for cultivating the engaged relationships between people and plants, people and place, and people and themselves that constitute Community-Based Herbalism.

The Power of Gardens

As we have seen, most of the Evergreen students who sought to learn about and utilize plants as medicine as well as most of those outside of Evergreen who used and made plant-based medicines had had some previous exposure to gardens and gardening. This suggests that it might be particularly effective to approach individuals who garden or

have gardened, and to integrate learning and experiential opportunities related to Community-Based Herbalism into gardening activities and projects. As an example, my own neighbors asked me if I would like to participate in establishing an urban food forest on our street. Some of these neighbors were going to dedicate a portion of their properties to planting edible fruit trees and shrubs — both native and non-native — that would be accessible to community members. I asked, in response, if we could work collectively to tend and improve a portion of the medicinal garden on *my* property in order to also make medicinal plants available to the community and, thus, expand the concept to an urban food *and medicine* forest. I proposed to provide not only plants but also to teach small informal workshops in my kitchen. The idea was well received and we all worked together to begin the project, which included tending my medicinal garden. These types of shared and community gardens provide many opportunities to incorporate medicinal plants as well: School gardens, friendship or “sister” gardens, intergenerational gardens, neighborhood and community gardens, herbalists’ educational or production gardens, horticultural or therapy gardens, gardens in Tribal communities, gardens in jails, garden programs for youth and low-income families, and family-based gardens that engage children, among others. Appendix 2, “Types of Gardens,” provides specific examples.

Pathway 1: Adopting a Garden: Cultivating Attachment

Through my students’ engagement with the Longhouse Ethnobotanical Garden and the Gifts of the First People Garden on the Skokomish Reservation, I have witnessed how a garden can serve as a vehicle for transformation by means of coming to feel both connected to something living and needed by it. Further, student-based ethnographic inquiry has suggested that individuals — both students and non-students — who have engaged in using and making plant-based medicine, or have chosen to educate themselves in these areas, have often also engaged in gardening. Thus, encouraging gardening or approaching individuals and groups who currently garden is proposed as the first point of entry, or pathway, for encouraging Community-Based Herbalism.

What activities could contribute to this pathway?

1) “Adopting” a garden or habitat area, or portion thereof, and committing to it for at least a season, is a beginning. While we often see elementary school gardens where

entire classes of students tend specific beds, the relational engagement I am describing is best cultivated by individuals or small groups (rarely more than three people) adopting a garden space for which they are personally responsible. By making it their own, they become needed.

2) It is valuable to take time to simply sit with one's garden rather than immediately beginning to work in it. Of course, some type of plan is usually needed, the development of which requires considering the space, such as its size and light conditions, along with the human needs and desires for it. However, the kind of observation I am suggesting goes further. It invites quiet time associated with looking, listening, smelling, and ideally, nature journaling about the qualities of the space and its surrounding environs. Learning these nuances supports learning the "personality" of one's garden. This knowledge and the actions it stimulates can generate a sense of intimacy, caring, and joy.

3) It is likewise valuable to learn the ecological elements — the character — of one's garden as well as the processes that do or could apply. If it is a habitat garden, it is helpful to visit examples of that habitat type. Regardless of the type of garden, it is valuable to visit other similar types of gardens and to read locally appropriate texts such as the following (these apply to the Pacific Northwest): *Food Not Lawns* (Flores 2006), *Homegrown Herbs* (Hartung 2011), *Landscaping for Wildlife in the Pacific Northwest* (Link 1999), and *Plants in the Coastal Garden* (Pettinger and Costanza 2003). These texts exemplify the kinds of resources available for learning about and applying regional ecological knowledge.

4) Sometimes we begin gardens from bare ground. Other times, we take over gardens that already exist. These gardens may or may not have been recently cared for. In either event, it is important to learn the plants that have already made the space their home. Whether so-called weeds or intentional plantings, the existing plants show us which ones are well suited for that particular place. If, however, we are new to working with plants, we may need help identifying the plants we find. While plant guides are readily available in nearly every bookstore — such as *Plants of the Pacific Northwest Coast* (Pojar and MacKinnon 2004) — we might also seek friends, neighbors, or teachers who know and would share the plants. In fact, by seeking out these individuals, we are

building community. Perhaps as we seek their help, we discover that these people also have gardens with foods or medicines to share. Related to this is determining the new plants that will be added to the garden. Numerous books, such as the aforementioned *Homegrown Herbs*, provide suggestions and information related to plant identification, propagation, and care.

5) Sometimes it is difficult to continue to pay attention to the garden when the weather changes and the plants die back in fall. By caring for the garden through the seasons, including winter, we become involved in the natural cycles of letting go of what has been accomplished previously, clearing out the past, resting, dreaming, planning for the future, and beginning anew. This can encourage us to consider where we want our lives to go just as we consider where we want our gardens to go in the next cycle of seasons. We might ask, what do we want to grow, both in ourselves and in our gardens? In the garden, this on-going attention shows when it is time to mulch, seed, transplant, weed, and harvest. We know that the garden needs attention in all of its stages of development, in all of its modes and “moods.” Through this on-going attention and care, we deepen our bonds with our garden. Over time, and sometimes through trial and error, we can also develop a strong sense of competency.

6) Another element that, while not directly practical, has revealed itself in the work of my students to be very important in cultivating engaged relationship is drawing and writing creatively and reflectively about one’s garden. By visioning, mapping, observing, drawing, and writing about the garden’s potential, insights are often generated that might relate to the garden, to nature, to one’s own life, and to life in general. I have witnessed this time and again. When pausing from working the soil, it is as if the gardener’s metaphorical fingers are sometimes able to work the *soul*. By writing reflectively about our joys, epiphanies, and disappointments in the garden, we can both listen to the garden and speak for it. We express our roles as both giver and receiver in the garden, both mother and child of the garden. One book that can be particularly helpful in this journey of reflective garden writing is *Writing as a Sacred Path* (Jepsen 2008). Another book that models insightful writing is Wendy Johnson’s *Gardening at the Dragon’s Gate* (2008). Just as we perhaps both need and are needed by the garden, we can potentially be transformed by our deepening connection.

8) Finally, the value of sharing our work, our garden, our creativity, and our passion cannot be overstated. This might include hosting a garden celebration, becoming a destination on a local garden tour, inviting local children to explore and learn from one's garden, posting pictures on a blog or on social media sites such as Facebook or Pinterest, and/or gifting or selling our abundance. The options are many. The sense of joy, pride, and gratitude that can result can also profoundly deepen our experience of engaged relationship, and fuel continued engagement.

In summary, current or previous interest in or engagement with gardening could provide a point of entry for and responsiveness to invitations to cultivate Community-Based Herbalism.

Food Security: A Role for Local Medicine

The World Food Summit in 1996 defined food security as “when all people at all times have access to sufficient, nutritious food to maintain a healthy and active life (Food and Agriculture Organization of the United Nations (FAO) 2006:1). However, the topic of food security is more complex than this suggests. The more recent “Feed the Future Guide,” (U.S. Agency for International Development (USAID) 2010) elaborates four components of food security as follows: (1) *availability*, or a reliably consistent source of quality food; (2) *access*, or sufficient resources to produce or purchase food; (3) *utilization*, or the knowledge and basic sanitary conditions needed to choose, prepare, and distribute food so that it results in good nutrition; and (4) *stability*, or access and utilization of food sustained over time.

Still, terms and descriptors such as sufficient, nutritious, healthy, reliable, quality, and stable can be defined in various ways in various contexts. Two examples of the complexity of these terms draw from Chapter 2, where it was shown that the loss of traditional foodways among the Pima instigated an epidemic of diabetes (pp.32-34), fueled by an abundance of high fat, high sugar commodity foods that ironically would have been described as nutritious, healthy, high quality, and stable by the USAID that provided them. Also in Chapter 2, the “Latino health paradoxes” (pp.28-30) showed that health outcomes were higher among recent Latino immigrants who tended to embrace

traditional foodways than among later generations that had reliable access to a range of foods that are produced by the U.S. food industry and are part of the U.S. mainstream. An additional example is India's National Food Security Act that was adopted in early 2013 (Ministry of Law and Justice, India 2013). This controversial bill did not so much attempt to change the quality or quantity of staple foods that were made available to the poor, as it attempted to change the conceptualization of food access from a welfare model to a model based on human rights (Lal 2013). In each of these cases, access, health, and nutrition would be described in different ways by the different parties involved, illustrating, yet again, divergent paradigms.

The important point here is that a close relationship exists between food and health and that food security cannot be fully and adequately addressed without consideration of health security, which relates directly to sustainable healthcare. In this respect, I argue that Community-Based Herbalism, by (1) providing local plant-based medicine on a continuum that emphasizes gentle food-like plants (that are often also edible) and by (2) recognizing that plant-based medicine has been legally classified as *dietary* supplementation, can support the goals of food security in terms of assuring quality, adequate nutrition and thereby supporting self-defined concepts of health and resilience. Thus, showing the way in which Community-Based Herbalism supports food security initiatives can potentially provide a point of entry into Community-Based Herbalism for food security advocates, which leads to Pathway 2.

Pathway 2: Local Food/Local Medicine

Unlike a model in which medicine is viewed as most fittingly manufactured in the laboratory (as was once asserted to me by an Evergreen Provost), Community-Based Herbalism prepares medicine in the kitchen, because it expands upon the cooking we already do to feed and nourish ourselves and each other. In other words, this perceptual model places medicine on a continuum with food. More specifically, I propose that Community-Based Herbalism creates a concept of *local medicine* and places it on a continuum with the existing concept of *local food*. It also shows that it can extend food security, sovereignty, and resilience into the realms of healthcare security, sovereignty, and resilience. Local food systems bring us into relationship with individuals, community,

culture, heritage, ecology, plants, and economy (Cornell University 2014b) (Peña 2011:8-9), and so can local medicine systems. In fact, Nancy and Michael Phillips (2205:xv), authors of *The Herbalist's Way: The Art and Practice of Healing with Plant Medicines*, support this idea by saying:

Taking responsibility for family health begins with a conversant herbalist in each home, someone who has learned the basics about eating right and tonic herbs and healing baths and poultices. The appeal of herbs for most people lies in this simple approach, one that embraces everyday health. We can fend off the flu, relieve a stress headache, and nurture vitality with herbs all on our own. Home herbalism is a basic life skill.

This pathway can foster Community-Based Herbalism from either a philosophical or practical point of view, or both. For example, “slow foods” movements encourage taking time to learn about healthy foods and prepare them. It is a relatively small step further to incorporate gentle, food-like medicinal plants into this thoughtful approach to cooking. Likewise, a commitment to locally accessed commodities, including food, can foster an interest in discovering which medicines might also be accessed locally, and how to acquire them. This also creates the potential of learning where the medicines have come from, how they have been processed, who and what has been involved in their processing, and the environmental, social, cultural, monetary, and health impacts of their creation, distribution, and use. This represents a “cradle to grave” understanding, and moves one closer to the possibility of an engaged relationship through awareness of and concern with the impacts on local systems with real people and places that we can see, know, and touch. Cornell University (2014b) describes a community food system as follows:

A community food system is a food system in which food production, processing, distribution and consumption are integrated to enhance the environmental, economic, social and nutritional health of a particular place. A community food system can refer to a relatively small area, such as a neighborhood, or progressively larger areas — towns, cities, counties, regions, or bioregions...By including the word “community” there is an emphasis on strengthening existing (or developing new) relationships between all components of the food system. This reflects a prescriptive approach to building a food system, one that holds sustainability — economic, environmental and social — as a long-term goal toward which a community strives.

To show the way in which Community-Based Herbalism can integrate with a community food system, I will restate the paragraph above, changing it only by adding terms that make it also apply to a plant-based system of *medicine* and thus broaden the scope to an inclusive community health system:

A community food and medicine system is a health system in which food and plant-based medicine production, processing, distribution and consumption are integrated to enhance the environmental, economic, social and nutritional health of a particular place. A community food and medicine system can refer to a relatively small area, such as a neighborhood, or progressively larger areas – towns, cities, counties, regions, or bioregions... By including the word “community” there is an emphasis on strengthening existing (or developing new) relationships between all components of the food and medicine system. This reflects a prescriptive approach to building a health system, one that holds sustainability – economic, environmental and social – as a long-term goal toward which a community strives.

The work of Elise Krohn among Tribal communities in the Pacific Northwest and of Sambandh with Tribal communities in India (see Chapter 9, p.208 and pp.212-218), seamlessly integrates medicine with food in the context of schools and kitchen gardens. Others who work with issues related to food systems and security, and whose work provides a strong foundation for similar integration, include the scholarly work of ethnobotanist Gary Nabhan and the popular work of writer Michael Pollan.

Nabhan has been a pioneering force in the local foods movement and, through his seminal work with diabetes prevention through native foods among the Tohono O’odam of the Sonoran Desert, has moved toward the cusp of conceptualizing food as medicine and medicine as food. Nabhan has authored numerous books and essays (2013a, 2008a, 2008b, 2002) including *Growing Food in a Hotter, Drier Land*; “Rooting Out the Causes of Disease: Why Diabetes is So Common Among Desert Dwellers”; *Where Our Food Comes From*; and *Coming Home to Eat*.

Michael Pollan, author of several popular books related to food (2013a, 2009, 2008c, 2006) including *Omnivore’s Dilemma*, *In Defense of Food*, *Food Rules*, and, most recently, *Cooked*, sets the stage for incorporating medicinal foods into cooking as well. Part of the ease with which these steps can be taken draw from Pollan’s interest in “trying to undo a kind of forgetting” that food comes from nature. “Nothing comes from a

factory,” he says. “It’s a relationship. Part of the relationship is with nature... [and] part is a relationship with people... Cooking is what makes us human” (2013b). I would add that, in our kitchens, we can “cook” medicine, too.

Nutritional anthropology offers other contextualizing considerations of relationships between food and medicine, as are found in (1) *Edible Medicine: An Ethnopharmacology of Food* by anthropologist and biologist Nina Etkin (2006), (2) *Everyone Eats: Understanding Food and Culture* by ethnobiologist Eugene N. Anderson (2005), and (3) *Food Fight: The Citizen’s Guide to the Next Farm Bill*, in which author David Imhoff (2012:16) states, “a *diverse* and well developed agriculture is regarded as food security [emphasis added].”

In conclusion, not only can Community-Based Herbalism support efforts to foster food security, but also those engaged in efforts to foster food security may be interested in and receptive to invitations to engage in Community-Based Herbalism because they both are local movements that share similar values and goals. I propose that a strong alliance between the two is possible.

Pathway 3: Direct Engagement with Plants — People’s Botany

It is easy to think of botany as an academic subject, which begins and ends in school. However, even outside of school, one can engage with and learn about plants in their many dimensions. A similar sequence to that described above with regard to gardens can apply here. I outline this sequence more briefly.

We can begin by learning to identify the plants around us. Many of these are native plants, many are introduced and naturalized, many are garden cultivars, and many are medicinal. As noted above, books and friends can help us in this process.

We can sit quietly with the plants, observing them, “listening” to them, and nature journaling about them. This can generate a sense of familiarity as well as the experience of being gifted with meaningful insights. The text *Keeping a Nature Journal* (Leslie and Roth 2003) is very helpful in this area.

We can attempt to understand the plants as living organisms, including basic knowledge about their morphology, ecology, growth needs, taxonomic relationships, and changes through the seasons, while we engage in their hands-on care. Books such as

Botany for Gardeners (Capon 2010), *Botany in a Day* (Elpel 2013), and *The Botany Coloring Book* (Young and Giuffre 1982) can support this work. More in-depth study, while sometimes challenging to carry out independently, could be undertaken in study teams utilizing such texts as the comprehensive *Biology of Plants* (Raven 2009) and *The Cambridge Illustrated Glossary of Botanical Terms* (Hickey and King 2000). A plethora of other resources are offered in the article “To see...Heaven in a Wild Flower...”: Teaching botany in the 21st century” (Richards and Lee 2002).

Further, we can engage creatively with plants. That is to say, we can draw, reflect upon, and imaginatively write about them, and we can learn and tell stories about them, all of which we can share with others. We can harvest, process, and create medicinal applications, which we can use and share freely with our family and friends.

In summary, through these kinds of activities, I have witnessed plants becoming a vehicle for transformation through the students’ engagement with them as living beings. This constitutes what I call *people’s botany*, which can help foster *green literacy* (Williams 2012). This further constitutes another potential point of entry for Community-Based Herbalism.

Pathway 4: Exploring Local Indigenous Knowledge

Through participation in an ethnobotanical garden situated around a semi-traditional Longhouse, my students at Evergreen have had the opportunity to explore local Indigenous knowledge. The intention to make this kind of exploration possible is contained in the statements of purpose I drafted for the garden: (1) To acknowledge and better appreciate the relationship between the Indigenous people and the native plants of the Pacific Northwest; (2) to provide opportunities for learning related to Pacific Northwest native plants and people-plant relationships; and (3) to provide opportunities for interdisciplinary, inter-community, and inter-cultural collaboration. The garden’s mission statement goes on to say:

While a cultivated garden of this type would not have been traditional in this region, nor would many of the plants present in the garden have occurred at a traditional Longhouse site, the location of the garden draws attention to how deeply and fully Indigenous people have understood their plant relatives and with

what great care they have interacted with them. This supports the type of learning that situates understanding of traditional plant use within larger cultural contexts.

Student exposure to local Indigenous knowledge can come in many forms. As an educator, I facilitate a variety of learning opportunities, such as: (1) dialogue with the Longhouse Indigenous staff; (2) visits to the Skokomish Indian Reservation and interaction with Skokomish community members, and continuing care for the original *sayuyay* Garden; (3) visiting the extensive Squaxin Island Museum on the Squaxin Island reservation; (4) inviting Indigenous guests to class such as Harvest Moon, Quinault basketweaver and storyteller, and my friend George Amiotte, Lakota healer and Nurse Practitioner at the Skokomish Health Clinic; (5) organizing student participation in basket weaving classes offered by the family of the late Chehalis basketweaver Hazel Pete; and (6) viewing films about the origins of the Longhouse (“sgwigwia?ltxw” House of Welcome 2005), *Teachings of the Tree People* (Jennings 2006) about the life of *subiyay*, and *Gifts of the First People* (Small 2003) about the garden project at Skokomish.

Until relatively recently, I found it difficult to locate literature written by Northwest Coast Indigenous authors, so I tended to draw upon literature written by non-Indigenous ethnobotanists such as Nancy J. Turner. Turner has worked collaboratively for decades with her Indigenous colleagues and, with them, has co-authored texts, articles, and professional presentations such as “‘It’s so different today’: Climate Change and Indigenous Life in British Columbia, Canada,” a presentation co-authored with Helen Clifton of the Gitga’at Nation.

In recent years, published work by Northwest Coast Indigenous authors has been increasing. Examples include (1) *Tsawalk: A Nuu-chah-nulth Worldview* by E. Richard Atleo (*Umeek*) (2005), hereditary chief, teacher, and co-chair of the Scientific Panel for Sustainable Forest Practices in Claoquot Sound; (2) *Spirits of our Whaling Ancestors: Capell Family Book* by Charlotte Cote (2010), Tseshah/Nuu-chah-nulth professor of American Indian Studies; and (3) *Traditional Ecological Knowledge and Natural Resource Management* by Charles Menzies (2011, 2006), Gitxaala/Tlingit/Haida professor of anthropology at the University of British Columbia.

The fact that non-Indigenous scholars are representing Indigenous knowledge is both limited and problematic (Ardill 2012; Stirrup 2012; Mihesuah 2005, 2003;

Mihesuah and Wilson 2004; Tuhiwai Smith 1999), and is echoed in the fact that I, too, am a non-Indigenous ethnobotanist facilitating exposure of mostly non-Indigenous students to Indigenous knowledge. One approach I have taken to being a non-Indigenous teacher of ethnobotany has been to introduce my students to Indigenous communities through service. I initiated the original student involvement at Skokomish by asking *subiyay* what we could do to give back to the living community for the plant knowledge we had received from books such as *Ethnobotany of Western Washington* (Gunther 1973). I also frequently talk with my students about viewing their work in both the Longhouse Garden and at Skokomish as an *offering* without expectation of specific reward.

Outside of a facilitated environment, opportunities for the kind of engagement I have described may be fewer, and the risks of appropriation may be greater. Still, developing a *sense of place* draws upon both Indigenous people and non-Indigenous people in learning both the natural and cultural history. Indigenous history tells the first and deepest story, and traditional Indigenous knowledge holds the deepest understandings. An interest in these Indigenous understandings can provide a point of entry into Community-Based Herbalism. This is so because Community-Based Herbalism involves engagement with plants, place, and community in ways that have the potential of cultivating understanding of *principles* of Indigenous knowledge without appropriating specific *elements* of Indigenous knowledge, and it does so through one's own lived experience or *relational engagement*.

Pathway 5: Attachment, Access, and Sustainability

Interest in *attachment* can provide another point of entry into Community-Based Herbalism since, I propose, the relational engagement with plants that characterizes Community-Based Herbalism — especially through gardens as noted above — can foster qualities associated with (1) secure attachment, (2) a sense of belonging, and (3) empathy (Cornell University 2014a; Sneed 2000).

While these qualities are psychological in nature, providing benefits to the human agents involved, they are also relational in nature, providing reciprocal benefits for the non-human agents (plants) as well. This is similar to ideas associated with companion animals (pets), which are seen to cultivate both a sense of being needed *by* them and a

sense of responsibility *to* them (Walsh 2009a, 2009b; Brown 2007; Melson 2003). Authors Clinebell (1996) and Louv (2009), in the contexts of ecopsychology and *nature-deficit-disorder*, point to the importance of cultivating a sense of responsibility to the earth based on the *experiences* of attachment, belonging, and empathy. This places attachment theory within the broader position that human health and wellbeing are fundamentally connected to environmental health and wellbeing (Conn 2004; Brown 1999; Macy and Brown 1998; Naess 1994), and posits that this connection is rooted in a felt sense of care, or in engaged relationship. In other words, these ideas suggest that human attachment to the earth supports human health on one hand, and environmental health or sustainability, on the other (Suzuki 2012). This can be further understood through the concept of *access*.

At different points of this dissertation, I have spoken about issues of *access* in several relational respects: (1) *access* to quality, affordable, and appropriate healthcare, (2) *access* to culturally significant plants among Indigenous people, (3) an infant's *access* to a supportive human being with whom to form an attachment, and (4) a need for humans to *access* a healthy supportive earth environment with which to also form an attachment. In all of these cases, we are looking at *access to that which meets needs*.

For example, as we have seen in Chapter 7 (pp.151-158), we can think of the *early process of attachment to a caregiver* in a young child as *access* to the kind of relationship that provides the fundamental ground upon which future relationships become able to grow (Robbs 2007; Gray 2002; Bowlby 1988, 1951, 1940; Salter 1940), along with the capacity to find healthy fulfillment *through* them. Conversely, a broken early attachment can diminish the capacity for the growth and deepening of future relationships, much like a “J-rooted” tree in which a careless transplant forces the root upward instead of down, preventing the tree from ever being able to fully mature and thrive in its environment.

Likewise, cultural knowledge can dim without access to the living materials through which that knowledge is expressed and, conversely, preservation of culturally significant materials can wane without cultural expression. In other words, using the language of ethnobotanist Wade Davis, the *ethnosphere* and the *biosphere* depend upon each other (Davis 2007); they must remain in *engaged relationship*. Further, cultural

knowledge is part of one's birthright (Cajete 2000). When it is lost, identity can be weakened, along with the social and intergenerational relationships that are held together through the sharing of cultural knowledge. In this way, children, and later adults, can become susceptible to shallow and short-term satisfactions because their "roots" and "stems" are weak. I propose that when the cultural knowledge that is lost pertains to medicinal plants, individuals and communities that have relied upon plants as a primary source of healthcare can experience diminished health due to loss of access or *broken relationship*; further, communities that have never had such access may never have had had the opportunity to experience its potential health benefits.

I propose that all of these *examples of access* can be seen as *forms of attachment* that can foster identity, fulfillment, and positive health outcomes through the means of relationship. Further, this pathway offers a framework that allows interest in *either* issues of attachment *or* issues of access — as well as sustainability — to become a point of entry for Community-Based Herbalism because it provides access to that which meets one's needs — including healthcare — through relational engagement with plants, place, and people.

It was my original intention to take this dissertation a step further and propose that sustainability could be defined by the absence of harm, thereby making a link between relational engagement and healthcare sustainability by way of the harm reduction engaged relationship can foster. However, in the interests of narrowing, at least slightly, the very broad considerations of this work, I omitted the additional link. Nevertheless, I propose and encourage future work to examine the thesis that the relational engagement Community-Based Herbalism fosters with other-than-human nature is essential to achieving genuine sustainability in all areas of life, including healthcare.

Pathway 6: Climate Resilience and Environmental Justice

As evidence mounts of rapidly intensifying climate disruption, so do assertions of both correlative and causative roles of human agency (Climate Science Watch 2013; Johnston 2013; Dumanoski 2012, 2011; Presidents' Climate Commitment 2007). Those interested in supporting climate resilience may be inclined to explore Community-Based Herbalism because it supports the use of local medicinal plants, including wild plants that are

adapted to local environmental conditions and climate regimes as well as those that tolerate a range of conditions. In fact, many wild edible and medicinal plants thrive in conditions of environmental disturbance (Phillips and Phillips 2005). Through a familiarity with plants that are native or introduced to an area (and in many cases invasive), we discover the potential value of wild plants as food and medicine (Kallas 2010; Thayer 2010; Tilford 1997; Turner 1995; Kuhnlein and Turner 1991). Particularly relevant to this topic is the text *Invasive Plant Medicine: The Ecological Benefits and Healing Abilities of Invasives* (Scott 2010).

Further, as regional climate characteristics change (which biogeography has demonstrated to have taken place for non-anthropogenic reasons over geological time, especially after the most recent period of circumboreal glaciation and the ensuing hypsithermal (Cox and Moore 2010; Richardson 2000; Boyd 1999; Kruckeberg 1991)), wild plant species may shift location, if they are able, in order to survive (Cavaliere 2009). Warmer weather species may gradually move into currently cooler areas, while lower elevation species may be found moving into higher elevations. Willingness and skill to engage with wild plants, supported by knowledge of taxonomically related species that were present prior to climate alterations, can support food and health security by allowing continuity of access (as discussed above) to nutritional foods and affordable community-based medicines. Ethnobotanist Gary Nabhan (2013a) explores this pathway with regard to agroecosystems in *Growing Food in a Hotter, Drier Land — Lessons from Desert Farmers on Adapting to Climate Uncertainty*.

Additionally, this pathway addresses issues of *environmental justice* (see Chapter 9), particularly as recognition grows that environmental conditions are directly related to the capacity for humans to achieve and maintain positive health outcomes (National Children's Bureau 2012; Agyeman 2005; Patz et al. 2005). The issue of environmental justice also relates directly to this dissertation's concept of structural iatrogenesis insofar as structural violence (see Chapter 2) impacts healthcare (Peña 2011). Professor of urban and environmental policy Julian Agyeman (2005) offers a relevant analysis in *Sustainable Communities and the Challenge of Environmental Justice* when he explores the often conflicting agendas of sustainability and justice, and shows how discourse related to food sovereignty can contribute to developing a concept of *just sustainability*. I

propose that Community-Based Herbalism can make similar contributions as well as connect intersecting issues of poverty and vulnerability to climate change (Eriksen and Obrien 2007). Thus, those who are interested in supporting climate resilience and environmental justice may be interested in exploring Community-Based Herbalism as part of their existing activist agenda. An example of this type of integration can be found in a 2103 article, “Urban Forest Justice and the Rights to Wild Foods, Medicines, and Materials in the City” (Poe et al. 2013), which focuses on multifunctional socio-ecological landscapes in Seattle, Washington.

Pathway 7: Community

Another pathway for encouraging the implementation of Community-Based Herbalism draws upon community itself and movements that focus on, for example, democratic revitalization and coalition politics (Longo 2007; Warren 2001), structures of belonging (Block 2009); democratization of education (Graves 2011); popular resistance such as the “occupy” movement (Zeese and Flowers 2014, 2012); permaculture and bioregionalism (Burtner 2014; Lockyer and Veteto 2013; Hemenway 2009); and the *sharing economy*.

In the sharing economy, owners share items and services on a rental basis. For example, on any given night in early 2013, 40,000 people may have rented private accommodations through Airbnb, a San Francisco based company that offers 250,000 rooms in nearly 200 countries (The Economist 2013). Small-scale, local, peer-to-peer rentals may include empty offices, car hire, taxi services, camping spaces, equipment, bicycles, instruments, pet sitting, and cooking services, among many others. Rachel Botsman (2010), author of *What is Mine is Yours: How Collaborative Consumption is Changing the Way We Live*, argues that today’s peer-to-peer rental market may be worth \$26 billion. This socioeconomic system is based on *access* rather than ownership. Similarly, a model of access to intellectual property, especially in connection to Internet-based music, has emerged. This model is aligned with the concept of *creatocracy*, which is understood broadly as an autonomic system of governance and exchange, which functions as a self-organizing and self-regulating network. As defined by Creatocracy.U.S., “Creatocracy, the amalgamation of two words: ‘Creation’ and ‘Democracy,’ refers to the power and passion of people to come together to individually and collectively work

towards and achieve a common purpose and endeavor” (Creatocracy.Us 2008:on-line). Both examples, a sharing economy and a creatocracy, decentralize means of access and reframe the value of small-scale and local goods and services. It makes sense that this could also potentially include local plants and community-generated, plant-based medicines. Activist and urban gardener Heather Flores (2006) exemplifies this idea in *Food Not Lawns: How to Turn Your Yard into a Garden and Your Neighborhood into a Community*. Flores asserts that gardening can be a political act in which home gardens can motivate community building in association with a broader awareness of social, economic, environmental, and health inequities.

Pathway 8: Passion, Power, and Health

Over the years, I have watched as my students at Evergreen engaged in activities that have cultivated more satisfying ways of life and approaches to health (see student cases in Chapter 9, pp.198-206). As they engaged in these activities, some of them have unexpectedly discovered passionate, caring, and committed relationships — attachment — in the often unexpected setting of a garden (see student contributions to the 2010 Society of Ethnobiology conference presentation described in Chapter 5, pp.101-102). Time and again, I have seen students’ feelings of satisfaction and joy — their *relational engagement* — serve as a vehicle for transformation. In addition, through lectures, readings, research, and self-observation, many students have gained greater cognitive awareness of physical health dynamics, thus contributing to a greater sense of empowerment with regard to their own healthcare.

Many individuals outside of the college setting are similarly drawn to finding sources of genuine fulfillment, cultivating a passionate and inspired life, and empowering themselves to have greater awareness of and agency with regard to their health processes and needs. Reliable text sources for developing this type of knowledge abound (Campbell and Jacobson 2014; Chopra 2013; Amen 2009; Sarno 2006; Weil 2004). Internet sources are also abundant, such as WebMD (accredited by URAC/ Utilization Review Accreditation Commission), The University of Maryland Medical Center, and the University of New Hampshire’s Health Literacy Guide. Likewise, local healthcare providers frequently offer information about health conditions, physical processes, minor

injuries, and self-limiting conditions. These are not intended to replace healthcare providers for diagnosis and treatment of serious and, of course, life-threatening conditions, but individuals with interested in learning about health, healthcare, and prevention — as well as cultivating joy and fulfillment — may well be responsive to the active, often fun, people-to-people and people-to-plants engagement that characterizes Community-Based Herbalism.

Pathway 9: Herbalism Itself

Perhaps the most direct pathway for cultivating Community-Based Herbalism is through an existing interest in herbalism in general, which can lead to greater interest in the actual living plants behind the names, descriptions, pictures, dried plant material, and bottles described in herbals and prevalent in industrialized herbalism. Herbalist David Hoffmann (2003) encourages such a transition in *Medical Herbalism* when he states that “market forces and healing are mutually exclusive.” Numerous resources for exploring and deepening one’s own herbal understandings and skills can be found, including some of the websites, schools, and books listed in Appendix 2.

In Summary: Pathways toward Community-Based Herbalism

Any of the aforementioned pathways could potentially foster and support an interest in Community-Based Herbalism. It is especially effective when two or more pathways are explored together, which how I teach at Evergreen. I provide a “smorgasbord” of seasonally grounded, discipline-based experiences and knowledge that combine to support cultivation of Community-Based Herbalism and which are, in fact, the elements of such practice. In other words, Community-Based Herbalism is characterized by many of the very components I have described as pathways. Therefore, many of these pathways can at once *lead* toward Community-Based Herbalism and, in part or in sum, *define* it.

Chapter 11. Conclusion

This conclusion provides a review of the ideas presented through the previous chapters, summarizing the potential contributions of Community-Based Herbalism to reduction of healthcare harms. It also provides recommendations for future activities and research, and restates the purpose of the dissertation.

Community-Based Herbalism: Definition Restated

As stated in Chapter 1, Community-Based Herbalism is the practice of (1) engaging the medicinal attributes of living plants at the family and community levels, including (2) accessing, processing, and preparing the plants, along with (3) sharing plants, applications, and knowledge. In contrast with the herbal industry, Community-Based Herbalism places the locus of activity in the community, and emphasizes the kinds of relationships it generates. Further, Community-Based Herbalism recognizes individual, social, cultural, and environmental health as fundamentally intertwined. This recognition is based on the experience of being in relationship with plants, with place, with self, and with one other. Thus, relational engagement is fundamental to Community-Based Herbalism, which offers means and opportunities for meeting health needs and preventing health harms on *specific* biomedical, *systemic* social, and *structural* levels. It also illustrates a *paradigm* of relational engagement across these levels. This dissertation proposes that Community-Based Herbalism can help reduce harm in healthcare due to its *relational engagement* with plants, place, self, and others.

Chapters Reviewed

Mainstream healthcare in the United States clearly has room for improvement. It has fallen short of fulfilling its mission to maintain or restore a state of health, which has been defined as “physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization 1946:100). It also has fallen short of

meeting the expectation to avoid causing harm — *iatrogenesis* — in doing so. Various approaches for improving healthcare and reducing iatrogenesis have been discussed in this dissertation, which seeks to participate in the broader dialogue by proposing that Community-Based Herbalism offers one approach that is worthy of consideration.

Glimpses of Community-Based Herbalism have appeared throughout the dissertation: My young daughter and I gathering flowers and weeds from a neighborhood yard to mend her scraped knee. Julene working to ensure that anyone in her local community can have access to plant-based medicine even if they have no money or home. Sean teaching community members to identify and harvest wild medicinal plants in exchange for helping him gather material for his Understory Apothecary herbal business. Punjabi introducing the medicinal plant *brudhadarak*, which he planted and tends (and after which, he is also nicknamed). On the face of it, simple activities like these might seem unlikely contributors to the complex and enormous task of improving a gigantic national system that spends \$2.6 trillion annually. Yet, throughout the dissertation, I have argued that Community-Based Herbalism contains features that can allow it to make just such a contribution, the most important of which is its inherent *relational engagement*.

Healthcare harms occur on multiple levels. *First*, specific biomedical mistakes have multiple causes (including insufficient patient contact, neglect, faulty observations, misdiagnoses, incorrect treatments, unnecessary invasive procedures, adverse reactions to prescriptions, and nosocomial infections), which have been responsible for an estimated annual death rate of 100,000 to 200,000 people or more for over a decade (Grisanti 2013; James 2013; World Health Organization 2005). I have referred to this as the *specific level of iatrogenesis*, since it emphasizes specific biomedical outcomes for individuals. *Second*, low socioeconomic status and cultural factors impede entire groups from accessing healthcare due to financial, logistical, and cultural limitations of the healthcare system, which affect groups at the societal level. Since both mainstream healthcare and society at large constitute systems, I have called this the *systemic level of iatrogenesis*. *Third*, structural violence impairs people's ability to meet their basic needs, resulting in oppression, exploitation, and health disparities. I refer to this as the *structural level of iatrogenesis*. *Finally*, environmental harms can reflect how humans harm the environment and how the environment harms humans. These harms can include how

environmental decline is partially due to the practices of mainstream healthcare. They can also include the ways in which a damaged environment can be used as a tool of environmental racism. Together, I refer to these harms as the *environmental level of iatrogenesis*.

It is important to differentiate among these levels of iatrogenesis. It is not possible to understand how a single approach to healthcare could address them all the levels without understanding their different, though interwoven, natures and causes. Chapter 2 surveys the levels of iatrogenesis, giving examples and background information, emphasizing how structural violence can function as a health determinant through racism and colonization.

Chapter 3 focuses on the particular kinds of iatrogenesis associated with pharmaceutical drugs. There are many, including harmful side effects of both single drugs and polypharmacy, unnecessary prescriptions, pharmaceutical toxins in waterways, and the development of antibiotic-resistant bacteria due to overuse of antibiotics. Some argue that the use of herbal medicines instead of pharmaceutical drugs can reduce these harms. To understand this claim, it is necessary to understand the differences and similarities between pharmaceutical drugs and herbal medicine, which I suggest are better differentiated by using a continuum rather than a binary comparison. This continuum of distinctions ranges from (1) single-chemical drugs that are fully synthesized in the laboratory to (2) drugs that are modeled after or drawn from plant constituents to (3) herbal products that isolate and standardize a selected constituent to (4) herbal products that contain the full spectrum of constituents occurring naturally in a plant. Full-spectrum herbal medicines may be produced within a framework of large-scale industrial herbalism or created in kitchens from living plants that are locally harvested and shared with family and friends. Such kitchen-based plant medicines characterize Community-Based Herbalism.

Further examination of herbalism reveals some of the limitations of the herbal industry. These are based on such issues as historical hegemony in healing, classification conundrums, contamination and adulteration in some herbal products, models for measuring efficacy, ecological and cultural harms. These factors reveal that, at the root of what distinguishes Community-Based Herbalism from industrialized herbalism is the

type of relationships it fosters with self, community, plants, and place.

In order to understand the type of *relationships* Community-Based Herbalism fosters, it is necessary to have a strong understanding of *relationality*. Before undertaking this, however, I choose to situate the work that has led to the concerns of this dissertation and the proposals it contains. Toward that end, Chapter 4 situates my work culturally and geographically in Washington State as well as professionally at The Evergreen State College, where I have taught since 1988 with an emphasis on ethnobotany. Using an autoethnographic lens, this chapter describes the establishment of two ethnobotanical and medicinal garden projects — one on a college campus and one in a Tribal community — and contextualizes being a non-Indigenous representative of a Western academic institution engaging in collaborative projects in an Indigenous community. Autoethnography — an approach to research and writing that incorporates the researcher's own experience as an ethnographic component — is important to this dissertation because the understandings upon which the work is based have evolved over the course of twenty years of both professional and personal experiences. Its importance also rests in the idea that the inherent value of Community-Based Herbalism exists in the lived and situated experience it engenders, especially its capacity for relational engagement.

Continuing to use autoethnographic and ethnographic methodology, Chapter 5 describes how I came to recognize, understand, and teach Community-Based Herbalism at The Evergreen State College. This first involved teaching a pivotal program entitled Tend and Tell: Developing and Interpreting an Ethnobotanical Garden, which I taught in the 2009-10 school year. In this program, as in others, I witnessed transformative experiences on the part of my students through their work with plants as medicine, ethnobotanical/ medicinal gardens, Northwest Coast Indigenous communities, and the Chinese Five-Element philosophy. Here it became evident that *relationship* was at the center of the work that fostered significant change in students. I came to realize that the changes I observed — as well as the paths some of the students followed after their plant- and garden-based studies at Evergreen — had implications for health and healthcare.

Following Tend and Tell, seasonal courses in medicinal botany provided for me opportunities to explore and refine curricular elements associated with plant-based

medicine. In the process, I came to recognize that a variety of disciplines, topics, and experiences coalesced naturally to both foster an interest in and teach a community-oriented herbalism course that emphasized relationships with self, plants, place, and people. These included a focus on living plants, a body-system approach to teaching concepts in botanical medicine, and exposure to diverse cultural orientations to health and healing including the Classical Chinese Five-Element philosophy among others. During this period, I also began to discover that my work was not alone, that others were looking in similar directions. In 2013, for example, a 75-minute documentary film *Numen: The Nature of Plants* was released by anthropologist and herbalist Ann Armbrrecht and filmmaker Terrance Youk. It vividly articulates these emerging and spreading practices. A related website *Numen: The Healing Power of Plants* offers description and advocacy:

Herbalists are transformers, working in their communities to create locally based systems of healing using the plants and resources from their area. Herbal medicine, backyard medicine, kitchen medicine, whatever you choose to call it, is the basic knowledge everyone once needed about how to care for themselves and their families, with plants, food, herbs, and spices they used daily. This is the kind of care and knowledge we hope to promote. In emergencies, nothing beats having the ability to use the plants growing out your back door or dried in your spice cupboard to keep those you love well. This is community healthcare resilience at its finest. [Here] are some questions to begin conversations about how a sustainable system of healthcare might look in your community: What locally based sources of medicine already exist in your community? How can you strengthen those systems and educate more people about how to use these remedies? What are some simple health and wellness tools for improving individual health and therefore decreasing pressure on a community's existing healthcare systems? ... [The film] inspires us all to deepen our relationship with the natural world and reminds us of the healing made possible by re-embracing our place in the wider web of life. (Youk and Armbrrecht 2013b).

Here, again, relationship is revealed to be central to both fostering and practicing Community-Based Herbalism. Continuing with that theme, the work of this dissertation turns next to the examination of relationality from several perspectives including (1) the history of *ethnobiology*, (2) the concept of *paradigm* and its potential to generate both paradigmatic conflict and paradigmatic relationality, (3) other discipline-based understandings of relationship, and (4) several case studies.

Since ethnobiology provides an academic framework for my teaching and for many of the understandings relevant to this work, the exploration of relationality begins using the history, inherent interdisciplinarity, and relational dynamics of ethnobiology as a framework. Chapter 6 proposes that the historical phases of ethnobiology reveal changing perspectives that illustrate different paradigms. Specifically, it suggests that three phases of ethnobiology rest in historical eras that are characterized by three distinct paradigms that I refer to as Specific, Systemic, and Structural. I also suggest that the three levels of iatrogenesis discussed previously align with these paradigms. Finally, I suggest the possibility of an emergent, relational phase of ethnobiology rooted in a Relational Paradigm that has the capacity to foster relational engagement across the other three paradigms.

Chapter 7 continues to explore the concept of relationality in other disciplinary contexts, focusing on what it is and why it matters, both in general and with regard to reducing harm in healthcare. The principal components of relationship are the *agents* (individuals or entities) and the *links* (connections) that exist between the agents (2009). Various disciplines such as physics, biology, and sociology have historically tended to focus on agents more than links in relationships, presumably because the concreteness of the agents makes them easier to examine and discuss than the links. However, other disciplines and subdisciplines — including landscape ecology, relational biology, cultural psychology, and network theory — have placed greater emphasis on the links. Of greatest interest is a type of link I refer to as *relational engagement* or *engaged relationship*, which goes beyond both unidirectional and passive influences. In humans, *relational engagement* involves paying attention *to one other* and allowing oneself to be seeable and seen. Depending upon circumstances, this might involve revealing hopes, needs, desires, vulnerability, history, and other aspects of self to another person, which presupposes a level of awareness of self as well as trust in the other. From this comes a respectful and supportive response on the part of both individuals that generates positive change in each.

In order to better understand relational engagement, Chapter 7 turns to a primary model of engaged relationality: the attachment between infant and primary caregiver. Attachment theory holds that successful early attachment not only enables patterns to

develop that make future relationships possible, but also is critical in the development of a person's mental, emotional, social, and even physical potential and wellbeing as a human. Further, the concepts and implications of attachment theory can extend into the realm of human attachment to nature and point to the central role that relationship with the natural world can play in both human development and cultivation of environmental sustainability.

Chapter 7 also considers the destructive implications of broken relationship, which can manifest itself in various ways including objectification and isolation, shown to be a major source of suffering at both personal and social levels that can result in physical, psychological, and behavioral pathologies, and paradigm conflicts. To explore the idea of paradigm conflicts, I present a case study involving negotiations between the U.S. Forest Service and a Pacific Northwest Tribe over the cultural impacts of specific environmental management strategies. This case also serves to illuminate paradigm conflicts found within mainstream healthcare, examples of which relate to theories of disease etiology, evidence of effective healing practices, and protocols for measuring efficacy of plant medicines.

Chapter 8 continues the exploration of relationality through consideration in terms of how paradigm conflicts can be resolved. In this chapter, I suggest that the concept of *ecotone*, drawn from landscape ecology, models relational engagement. In this case, two agents — human or other-than-human — interact such that they both retain their essential qualities *and* are beneficially modified by the other agent. I describe ethnobotany as a form of ecotone because of its capacity for integration and generating relationship, although I show that relational engagement is not always successfully achieved. Additionally, Chapter 8 gives examples of relational engagement within Indigenous land stewardship practices, sciences, and approaches to research, and proposes that four conceptual tools can help achieve relational engagement. The tools consist of (1) recognition that multiple dimensions (levels) exist simultaneously; (2) basic respect; (3) prioritizing effectiveness over rationale; and (4) situating oneself. It further proposes that these tools can help generate a *Relational Paradigm*.

Following this extended exploration of engaged relationality, Chapter 9 turns to several cases that are intended to illustrate the ideas previously put forth. Based on

ethnographic interviews, I introduce four students from The Evergreen State College and describe their experience of studying emergent elements of Community-Based Herbalism and how these studies have influenced them since leaving college. The cases exemplify, among other things, the four approaches to the creation of a Relational Paradigm mentioned above. They also provide examples of how Community-Based Herbalism can reduce healthcare harm. This is followed by four examples of Community-Based Herbalism that exist outside of academia. These include (1) a Northwest Indian herbal education program, (2) a free herbal clinic in Washington State, (3) an herbal education conference, and (4) a kitchen-medicine-education project in a tribal community in India. I then draw upon the cases to analyze and illustrate my primary argument that Community-Based Herbalism can reduce harm in healthcare by (1) engaging within *and* across the Specificity, Systemic, and Structural paradigms, (2) modeling a Relational Paradigm, and (3) reducing health-related harms on multiple levels through engaged relationships.

Finally, Chapter 10 discusses both barriers and pathways to wider acceptance and implementation of Community-Based Herbalism. I begin by considering data from a series of ethnographic inquiries undertaken by students that help shed light on the characteristics of individuals who choose to learn about plant-based medicine in a college environment such as Evergreen as well as the characteristics of individuals outside of a college who use plants as medicine and who do not, along with the reasons for both. These data reveal that (1) women, (2) people who garden, and (3) people who feel supported by community are more likely to explore, use, and make plant-based medicines than (1) men (a slight difference), (2) people who do not and have not gardened (a large difference), and (3) people who feel isolated in their efforts (a moderate difference). The chapter concludes with several pathways for cultivating Community-Based herbalism. The pathways are drawn from these ethnographic data, along with my experience teaching, and the cases of students and existing Community-Based Herbalism presented in Chapter 9. They seek to provide natural entry points that build upon topics and interests connected with Community-Based Herbalism, such as gardens and gardening, local food, plant studies, local Indigenous knowledge, issues of attachment and access, sustainability, climate resilience and environmental justice, community and the commons, health broadly defined, and herbalism itself. Chapter 10 concludes with the point that in

many ways these pathways both lead toward Community-Based Herbalism and are elements of its practice.

Community-Based Herbalism Reduces Harm Through Relationship: Central Argument Revisited

After an examination that incorporates literature review, ethnographic and authoethnographic components, and my own analysis, I return to the underlying assertion of this dissertation: Community-Based Herbalism provides a model of relational engagement involving plants as medicine within the context of community and, in so doing, models a relational approach to healthcare that has the capacity for reducing healthcare harms.

Furthermore, being fundamentally relational, Community-Based Herbalism provides a model of a Relational Paradigm in action. It is not simply *herbalism*, that is, the use of herbal medicine in any form. It is a context for and approach to using medicinal *plants*. In Community-Based Herbalism, the use of plants as medicine is not separate from the situation of their use, which is, as the name states, based in community. It is situated within all that community represents. In other words, it is an approach to using herbal medicine that is situated among the people around us, in the place we live, and with the plants that become our medicine. This puts us *in relationship* with these people, places, and plants. In this way, our medicine does not become “anonymous,” retaining instead its vitality and character as organisms living among other living organisms including us. *We* are local too. This shift from a plastic pill bottle to a living plant that has texture, form, odor, and phenology (a life cycle), is akin to the shift from a book to the spoken word, where the same story is told slightly differently every time and is heard uniquely by each individual within a given moment. Working with living plants keeps flesh and bones on medicine, as it has been through most of human history.

Turning to plants as medicine reduces the prevalence of pharmaceuticals. This reduces specific biomedical harm or iatrogenesis related to erroneous prescriptions, unintended side effects of appropriate prescriptions and over-the-counter (OTC) products, unnecessary prescriptions and OTC products, and unnecessary costs and financial burden

due to the fact that pharmaceuticals are used less frequently.

Turning to plants as medicine also reduces environmental iatrogenesis, or harm to the environment, due to reduction in the amount — and therefore the effects, many of which are not yet fully known or understood — of pharmaceutical drugs in the environment. This reduces risks to aquatic life and drinking water through human excretion and disposal of pharmaceuticals. Further, reducing the use of pharmaceutical antibiotics, and replacing them in many cases with botanical antimicrobials, slows the environmental pressure for bacteria to develop drug resistance.

It is true that both of these aspects of harm reduction related to pharmaceuticals through the use of plant-based medicines could be achieved outside the context of Community-Based Herbalism through the purchase of industry-based herbal products. As a model of a Relational Paradigm, though, Community-Based Herbalism does more than shift the nature of our *medicine*. It shifts *us*, and it does so in several ways.

First, our relationship with our medicine is active. If we buy a bottle of lemon balm tincture (*Melissa officinalis*) from a neighbor at a farmer's market, there is a high probability that a story awaits us about the aromatic experience of harvesting and preparing that tincture one warm summer day not so long ago, if only we ask. More vivid still is the experience if we ourselves are the ones to feel the sun and warmth and fragrance as we clip and tincture the lemon balm. Even if it was only at some point in the past that we touched and smelled and perhaps sipped a fresh lemon balm infusion, we carry a sensory perception in our memories that can revivify an un-storied, store-bought product.

By way of a food analogy, eating corn on the cob that was picked and shucked on a hot afternoon just moments before dropping it into the steamer is a different experience from eating corn on the cob purchased from a supermarket produce section the day before, which is also a vastly different experience from eating corn kernels from a can — especially if one has never planted those seeds barefoot in warm powdery soil, or hidden inside a corn patch that is taller than you are.

Medicinal herbs are classified as dietary supplements, just an arm's length away from food. Community-Based Herbalism resituates our relationship with medicine, in part, by returning it to the kitchen — where it used to be. This makes food analogies

even more relevant. This proximity to food makes the sensory components and lived engagement with our medicine more approachable. It helps us shed indoctrination to the idea that medicine must be a drug or drug-like substance that is as free as possible from nuance, variation, and character. This dissertation is not alone in proposing that *medicine* is a culturally constructed concept and can have many facets (Kleinman and Van der Geest 2009; Kleinman 1981, 1978). Medicine — and therefore healthcare — can incorporate healthy food, regular exercise, family support, a hearty laugh, quiet meditation, loving pets, friendly hugs, good sex, gardening, and, I propose, plant-based medicine in the context of community; that is, Community-Based Herbalism. What this dissertation seeks to contribute to the conversation is that the essence of each of these forms of medicine is *relationship*: relationship with self, with others, and with environment. This dissertation proposes that relationship itself is medicine, that relationality is healing, that harm is rooted in broken relationship, and that *all* harm reduction is relational. Community-Based Herbalism is an important relational way to help reduce the harm that is occurring in mainstream U.S. healthcare every day. It should not be underestimated or overlooked.

Recommendations for Future Activities and Research

To follow up on the work of this dissertation, and to take continued steps to actively foster Community-Based Herbalism, I intend to engage in a number of the following activities. I also recommend — and hope — that others carry out similar types of work in their own communities, and I intend to offer assistance in doing so. The following are examples of such activities.

Continue Studying Who Is and Is Not Using Plants As Medicine

Continued research of this kind can provide valuable insight from the perspective of behavioral medicine that would help to better understand how individuals establish and change healthcare behaviors and make healthcare choices, including the choice to grow, harvest, use, and share plant-based medicine in community.

Encourage the Creation of Herbal Community Supported Agriculture (CSA) Programs

My mentor, teacher, and friend, Joyce Netishen, has offered an herbal CSA through Fire Rose Farm in McCleary, Washington, that would provide a “basket” of herbal products, foods, and related materials on a periodic basis for a membership fee. Julene Graves has also established an herbal CSA through her herbal company, Breathe Beauty Botanicals. This type of program supports local community herbalists, emphasizes locally produced products, and provides educational materials for creating similar products independently.

Create Cultural Food and Medicine Collectives

Similar to a book group, a cultural food and medicine collective selects books that inspire cooking or medicine-making activities to be undertaken at the gatherings of the group. Ancestors, family members, and cultural themes are explored as a meaningful backdrop to the act of creating a particular dish or medicine. I plan to organize such a group.

Create Web-Based Networking Forums

A social media page (such as Facebook) or other collectively accessible website can be utilized to post local workshops, plant walks, harvest gatherings, medicine-making events, and seasonal observations as well as for networking and promoting community-based services and products. I hope to establish such a local networking forum.

Medicine Mapping

This involves surveying and, using Web-based mapping software, mapping the location of medicinal plants growing within a selected area, such within as a neighborhood or town. One could add other data such as plant condition, ownership, seasonal abundance, and known harvest activity. One could also add mapping of community-based herbal activities such as those listed above under networking. I have already begun to informally implement this type of activity, and am particularly excited about developing it more fully. I hope it will serve as a model to others.

“Grow Your Own Medicine” Kits and Neighborhood Mentoring

A “Grow Your Own Medicine” kit would contain everything needed to grow three or

four plant species that focus on a specific indication. A kit might incorporate plant starts that address, for example, topical first aid needs such as scrapes and cuts (calendula, *Calendula officinalis*; yarrow, *Achillea millefolium*; and plantain, *Plantago* spp.), along with bumps and bruises (arnica, *Arnica chamissonis*; St. John's wort, *Hypericum perforatum*; and comfrey, *Symphytum officinale*). Various kits could contain species designed to help alleviate any number of typical, self-limiting conditions including colds, flu, headache, digestive distress, anxiety, insomnia, and cystitis. The text *Herbal Remedies in Pots* (Romain and Hawkey 1996) provides other excellent examples. The kit would ideally include all the materials needed for planting, along with instructions for growing, harvesting, and using the plants.

At least as important as the kit itself would be the contact — the relationships — it would foster. Kits could be distributed to individuals, community and school gardens, and other organizations. The goal would be to find people who are willing to not only plant and grow their own kits but to offer them to other community members and potentially assist in planting the kit while mentoring the recipient in its use. This is the kind of networking that was so effective in the *Sambandh* project in India where highly motivated individuals identified and mentored other individuals who then did the same for others. Perhaps an incentive could take the form of a new kit being offered for every month of maintaining and using the plants in a previous kit or for distributing a kit and mentoring another in its use. Kits could be of various kinds that would address various interests, ages, abilities, cultural orientations, and space needs, such as special kits for indoor planting, for portability, for children, and for elders as well as kits that emphasize butterflies and bees, sensory issues and other therapeutic needs, and even art. Sources of funding would need to be pursued, such as local community grants. I intend to explore various types of neighborhood mentoring.

Urban Food and Medicine Forest Gardens

Living on a half-acre property in town has given me the privilege of being able to establish various medicinal gardens, food gardens, theme gardens, and a forested habitat area. As mentioned previously, I have offered my principal medicinal garden — which I call Muladhara Garden, meaning “the abode of the Mother” in Sanskrit — to my

neighborhood Urban Food Forest, transforming it into an Urban Food *and Medicine* Forest, and making medicinal plants readily available to my neighbors and friends. Also, in embellishing the medicinal garden, I have established small garden areas that, drawing from Classical Chinese Five-element philosophy, honor the elements and directions with their plantings, along with other areas containing plants that reflect the heritage elements of my culturally diverse family. These different types of gardens demonstrate a variety of meaningful gardening approaches that could also inspire others.

Purpose Restated

Finally, my purpose in undertaking this dissertation, and doing so in the way I have done, has been to explore and demonstrate how Community-Based Herbalism can reduce healthcare-related harm in the United States. Another goal has been to describe ways in which this can take place. I have done this through my own experiences and relationships (autoethnographic data); through experiences, perceptions, and relationships of others (ethnographic data); through topical discourse particularly regarding healthcare, ethnobiology, relationality, attachment theory, and ecopsychology (literature review); and through original theoretical contributions pertaining to iatrogenesis, relational engagement, paradigm analysis, and harm prevention.

Whatever form it takes, the key to accomplishing this is cultivating engaged relationship, and doing so by drawing upon what is joyful and relevant to the individuals involved. I have learned this time and again through both my teaching and my parenting, and this dissertation proposes that it is at the core of how harm reduction can develop and be maintained.

Individuals who use but have not made plant-based medicine (Table 2)

Age 20-60	Gardening Experience
24% 20-29	53% currently garden
35% 26-49	24% used to garden
41% Over 50	12% have never gardened
Gender	Characteristics of Home
53% female identified	41% suburban
41% male identified	24% urban and rural
1 gender neutral	75% yard
Condition of Health	Use of Allopathic Medicine
82% reporting good health	35% rarely
12% reporting a health challenge	18% sometimes
	18% frequently
Health Insurance	
75% had some type of health insurance	
Use of and Access to Plant Medicine	
71% currently use	
51% purchased	
37% received as gifts	
24% anti-inflammatories	
Type of Use	
74% treatment	47% conditions considered major
26% prevention	24% minor self-limiting conditions
47% "acute" conditions	
41% "chronic" conditions	
Reasons for Using Plant Medicine	
18% fewer side effects than pharmaceutical drugs	
18% prefer to "heal naturally" without use of pharmaceutical drugs	
12% belief that plant medicines are "healthy"	
12% effects are "subtle"	
Single answers: little/no risk, accessible, affordable, support "balance,"	
doctor recommended, offer relief, and "make sense"	
Factors Enabling Use of Plant Medicine	
48% accessibility	29% experience
42% knowledge and learning	24% help from a friend
Concomitant Healthcare Services	
47% used additional healthcare services, including	
35% M.D., medical physicians	
18% N.D., naturopathic physicians	
18% herbalists	
12% massage therapists	
12% acupuncturists	
12% chiropractors	
Role of philosophical Views	
82% Choices related to broad philosophical views related to health	
47% Choices related to views on sustainability	
41% Choices related to other topics including rarely sick, scientific credibility, and	
spiritual/religious considerations	
Sources of Knowledge	
71% friends	47% Internet
59% books	35% articles
53% healthcare practitioners	24% classes

***Individuals who use but have not made plant-based medicine:
Considerations related to making/not making plant medicine***

Consideration of Making Plant Medicine

35% had considered
18% had not considered
47% did not respond

Reasons for Not Making Plant Medicine

35% never heard of making plant medicine
65% heard of making plant medicine but had not done so because:
29% access to plant medicine by someone they knew
18% limited knowledge
18% lack of time
Other: too much trouble, lack of materials, lack of confidence in ability

What Would Be Needed To Make Plant Medicine (open-ended)

35% knowledge
32% guidance
29% equipment
24% plant materials
12% time
1: confidence

What Would MOST Increase Likelihood of Making Plant Medicine (multiple choice)

64% supplies and other materials
47% plant materials
41% ability to identify plants
41% better understanding of safety issues
35% knowledge of which plants to use
35% knowledge of how to make different applications
24% knowledge of herb/drug interactions
12% kitchen space
1: someone to work with

How Knowledge Might Be Acquired

59% books
53% Internet
24% classes
24% friends
24% healthcare practitioners
24% articles

How Plant Materials Might Be Acquired

41% local store
35% grow them in one's garden
35% wildcraft (wild harvest) them
24% gather them from gardens of friends and acquaintances
24% obtain them as gifts

Individuals who have both used and made plant medicine (Table 3)

Age 20-60		Gardening Experience	
39% 20-29		89% currently garden	
15% 30-39		39% grew up around gardening	
24% 40-49		0% have never gardened	
22% Over 50			
Gender		Characteristics of Home	
56% female identified		50% suburban	22% rural
44% male identified		28% urban	72% yard
Condition of Health		Use of Allopathic Medicine	
100% reporting good health		56% rarely	
12% reporting a health challenge		28% sometimes	
		1 never	
Health Insurance			
72% had some type of health insurance			
Use of and Access to Plant Medicine			
50% currently use			
83% purchased			
61% made themselves			
50% received as gifts			
Type of Use of Plant Medicine			
83% prevention		33% conditions considered major	
76% treatment		61% minor self-limiting conditions	
72% "acute" conditions			
Reasons for Using Plant Medicine			
33% effective			
28% each: inexpensive and available			
22% fewer risks and side effects than pharmaceutical drugs			
11% more natural			
Additional single answers: long historical use, bring comfort, and are fun			
Particular Conditions Treated with Plant Medicines			
44% upset stomach			
33% respiratory/throat problems			
22% each: stress and skin care			
17% each: cuts/sores and pain			
11% each: "blood conditions," "cleansing," depression, immune support, and lack of libido			
Additional single answers: back pain, liver support, hormone regulation, urinary tract infection, and food poisoning			
Favorite Plant Species and Applications			
Burdock, <i>Arctium</i> spp.		Rosemary, <i>Rosmarinus maritimus</i>	
Comfrey, <i>Symphytum officinale</i>		Sage, <i>Salvia officinalis</i>	
Dandelion, <i>Taraxacum officinale</i>		Stinging nettle, <i>Urtica dioica</i>	
Mint, <i>Mentha</i> spp.			
Favorite Applications: medicinal teas and essential oils			
Factors Enabling Use of Plant Medicine			
61% friends			
Additional single answers: doctors, family, reading, and nature			
Words Used to Describe Experiences with Plant Medicines			
Very good. Cancer in remission. Community support. Availability. Positive.			
Stamina. Endurance. Relaxation. Stress Reduction.			
Concomitant Healthcare Services			
61% used additional healthcare services, including			
22% M.D., medical physicians			
22% N.D., naturopathic physicians			
17% chiropractors			

Appendix 2. The Power of Gardens: Examples

The first pathway listed in Chapter 10 for fostering wider acceptance and implementation of Community-Based Herbalism is “Adopting a Garden: Cultivating Attachment.” To help facilitate that important pathway, Appendix 2 describes various types of gardens where individuals might be receptive to incorporating and sharing medicinal plants in the context Community-Based Herbalism. These include school gardens, friendship or “sister” gardens, intergenerational gardens, neighborhood and community gardens, herbalists’ educational or production gardens, horticultural or therapy gardens, gardens in Tribal communities, gardens in jails, garden programs for youth and low-income families, and family-based gardens that include children.

School gardens are often established in conjunction with food banks and seed exchanges (Oregon Food Bank 2014; KidsGardening 2012). In my community, several elementary schools engage teachers, young students, parents, and volunteers in planning, planting, caring for, harvesting, sharing, and enjoying the bounty of their gardens (Lincoln Options Elementary School 2014; Slow Food Greater Olympia 2012). These gardens typically focus on food within the context of broader social, environmental, and health benefits (Greenheart Education 2014; Whole Kids Foundation 2013; Murphy 2003). As with urban food forests, I propose that many food-oriented school gardens – and their associated curricula – could be expanded to incorporate gentle, benign, food-like medicinal plants.

While some “friendship gardens” exist in one or both of the cities involved in a formal “sister city” relationship (Roseburg Sister Cities 2013; City of Olympia 2010), propose that *sister gardens*, established between gardens in two regions or even countries, can encourage cultural and horticultural exchange and projects. For example, a sister garden relationship could be established between one of the “Green Garden Club” schools in Odisha, India, and Evergreen’s Longhouse Ethnobotanical Garden or a local school garden.

Intergenerational gardens established through senior centers and daycare or preschool facilities can foster connections between the very young and the elderly (Jubenvill 2009; Queens Botanical Garden 2006). These could incorporate age-appropriate medicinal plants and activities (Tierra 2010).

Neighborhood and community gardens involve community members in a variety of ways. One local example is the Wendell Berry Community Garden (Sustainable South Sound 2012) in which a limited number of families “own shares” in the garden, participate in consensus-based planning, care for the garden on a regular scheduled basis, and receive a portion of the harvest, which consists primarily of food. The members of this community garden have already expressed interest in adding medicinal plants if someone were available and willing to teach them about their use. Another very different community garden is Demeter’s Garden at The Evergreen State College’s Organic Farm (The Evergreen State College 2014) where community members commit to caring for individual plots. This follows the model of “P-Patch Gardens,” such as are found in Seattle (Seattle Department of Neighborhoods 2014). Here also there would likely exist a ready audience for instructional activities related to medicinal plants.

Herbalists’ educational and/or production gardens provide a means for interested community members to learn to identify medicinal and food plants, see the way in which they are being grown, and learn more about how to use them. The herbalists who own or manage the gardens also, of course, use their medicinal plants to prepare applications. For example, Fire Rose Farm in rural McCleary, Washington (Netishen 2014), has offered an herbal CSA (Community-supported Agriculture) program in which subscribers receive periodic “baskets” containing medicinal, cosmetic and culinary products that are seasonally tuned. I have been a member of this herbal CSA in the past, and have always delighted when each basket arrived.

Horticultural therapy gardens provide offer a therapeutic emphasis, such as the now defunct Left Food Organics (Left Foot Organics 2013) in Tumwater, Washington, which aimed to “promote the self-sufficiency, inclusion and independence of people with

developmental disabilities through involvement in environmentally sustainable agriculture.” Other types of horticultural therapy gardens focus on veterans (American Horticultural Therapy Association 2013), health benefits for hospital patients (Ulrich 2002), and a broad spectrum of psychological and physiological support for all (Chicago Botanic Garden 2013).

Gardens in jails illustrate a means of bringing gardens to those who may have no interest or motivation to learn about medicinal plants or gardening, and perhaps even an aversion to it. For example, the pioneering work of Catherine Sneed (Sneed 2000), who co-founded The Horticulture Project at the San Francisco County Jail, grew out of a desire to find therapeutic opportunities for prisoners. In this jail-based garden project, prisoners, many of whom were addicts, responded enthusiastically to growing vegetables that were donated to local soup kitchens, seeing it as a metaphor to their own life struggles. Over time, however, it became clear that, while prisoners were making personal progress through participation in the project, when they returned to the environments that had contributed to their incarceration in the first place – conditions such as addiction, poverty, homelessness, and lack of skills and employment – they often relapsed. As a result, the Horticulture Project expanded into a post-release Garden Project that offered job training in gardening, counseling, and assistance in education with a focus on keeping people out of jail. As the project website (The Garden Project 2013) explains, “The Garden Project model is a community-based response to crime, unemployment and underemployment, that links the stewardship of the environment to the stewardship of the community. The United States Department of Agriculture hailed The Garden Project as ‘one of the most innovative and successful community-based crime prevention programs in the country.’” Again, it would likely be both feasible and welcomed to introduce gentle medicinal plants into the project and others like it (Barclay 2014).

Gardens in Tribal communities often already integrate medicinal plants into their mission. For example, the Northwest Indian Treatment Center in Elma, Washington, where Elise has worked since 2005, offers a 45-day program in which weekly hands-on

classes address both traditional foods and traditional medicines, including techniques for growing, harvesting, processing, and preparing them. This learning is placed within the context of Indigenous cultural traditions where “tribal elders, storytellers, and cultural specialists speak as part of the program.” This is important because, as explained the previous director, June O’Brien on the Squaxin Island Tribe’s website:

Patients must be able to see themselves in their recovery. Their culture is their medicine. Native plants, singing, drumming, a sweat lodge, beading, and support from local native spiritual communities are part of the program. These act like pillars to hold patients up during their recovery. When patients' traditions are honored in the healing process, re-traumatization is less likely to occur.

A number of other gardens have been implemented in Tribal communities throughout Western Washington in recent years. These include the Makah Ethnobotanical Garden, Muckleshoot Tribal College Berry Garden, Skokomish People of the River Garden at the *tuwaduq* Family Services Center, Bernie Whitebear Daybreak Star Garden, Nisqually Community Garden, Snoqualmie Gardens, and the Suquamish Gardens, among others (Northwest Indian College 2014).

Garden programs for youth and low-income families are exemplified by Olympia’s GRuB, or Garden Raised Bounty, the mission of which is to “inspire positive personal and community change by bringing people together around food and agriculture...partner with youth and people with low-incomes to create empowering individual and community food solutions...and offer tools and trainings to help build a just and sustainable food system” (GRuB 2014). Programs offered by GRuB include a Schools Initiative in which disengaged and low-income students can earn credits while through focusing on such themes as “Farming Self (personal development), Farming Land (sustainable land stewardship), and Farming Community (civic engagement and community service).” Through hands-on field trips to the farm, school-aged youth are also invited to explore the sources of their food. It would not be such a big step to add to exploration of the sources of their medicines.

Finally, as simple as it might seem, *family-based gardens that include children*, can involve family members, friends, neighbors, and students of all ages in the simple task of growing both food and medicine and, in doing so, becoming actively engaged in their healthcare without necessarily even realizing it. As stated in *The Family Kitchen Garden*, “The opportunity for urban children everywhere to witness and partake in the pleasures of planting, nurturing, tending, and harvesting food for the table cannot be underestimated” (Liebreich et al. 2009:7). These activities put into place the elements of engaged relationship with self, others, and the earth (Cornell University 2014a). Probably the majority of garden initiatives are taking place at small-scale, home-based gardens.

Appendix 3. Resources for Cultivating Community-Based Herbalism

Many resources provide valuable information, skills, materials, and support for cultivating Community-Based Herbalism. They include national, regional, and international organizations, websites, on-site coursework in schools, home study courses, and publications, along with local herbalists, stores, and workshops. A few are listed here:

The American Botanical Council

Organization with informational website

This medicinal plant organization maintains a website that includes a glossary of herbal medicine terminology, excerpts from *The Complete German Commission E Monographs - Therapeutic Guide to Herbal Medicine*, an introduction to common herbs, and an herb reference guide and publications information (www.herbalgram.org).

American Herbalists Guild

Organization with informational website

This non-profit organization of professional medical herbalists provides information on education in herbalism, an online practitioner search, publications listing, and links to member pages (www.americanherbalistsguild.com).

American Herbal Products Association

Organization with informational website

A national trade association of the herbal products industry, the mission of AHPA is "to serve its members while promoting the responsible commerce of products which contain herbs and which are used to enhance health and quality of life." The site includes member links, publications information, and industry news (www.ahpa.org).

Bastyr University, Kenmore, Washington (near Seattle)

On-site school

For many years, the only courses in botanical medicine that Bastyr University offered were part of its Doctor of Naturopathy (ND) degree, and it was one of only three U.S. schools that offered such a degree. This was true in 1996 when I sought to study botanical medicine in support of my original doctoral intentions. These intentions focused on developing the ability to make informed interpretations of ethnographic documentation related to medicine plants among Northwest Indigenous people, such as Erna Gunther's *Ethnobotany of Western Washington*. Initially, I was not allowed to take

the botanical medicine courses without being enrolled in the ND program. Ultimately, I received permission to do so, and completed the courses offered.

Today, Bastyr offers a two-year Bachelor of Science degree with a Major in Herbal Sciences. This program “does not lead to a clinical license and therefore does not qualify graduates to treat patients without further training in clinical diagnostic skills, such as a medical graduate program.” It does, however, prepare graduates to work in the herbal industry as consultants, manufacturers, formulators, quality assurance specialists, researchers, herb cultivators, wildcrafters, and herb school instructors. The program also supports readiness to work in the health, wellness, and cosmetics industries, and it offers preparation for graduate studies in medicine, nursing, nutrition, ethnobotany, phytotherapy, botany, horticulture or pharmacology. (www.bastyr.edu)

California School of Herbal Studies, Forestville, California

On-site school

Founded in 1978, the California School of Herbal Studies is one of the oldest herb schools in the United States. Started by renowned herbalist Rosemary Gladstar, the school’s mission is to “help create sustainable communities by providing Earth centered, community based herbal education. CSHS works to empower individuals with the skills, experience and confidence needed by the community herbalist.” This is acquired through participation in a full-time 8-month intensive program although short-term workshops and classes are also offered (www.cshs.com). Core faculty includes noted British herbalist, David Hoffmann, author of *The New Holistic Herbal*, *The Herbal Handbook: A User’s Guide to Medical Herbalism*, and *Medical Herbalism: The Science and Practices of Herbal Medicine* among others. Julene attended this school.

Cedar Mountain Herb School, Mt. Vernon, Washington

On-site school

For over twenty years, Cedar Mountain has provided “hands-on integrated botanical programs focusing on wild medicinal plants and their applications for healing and nourishment [to] students with a wide range of experiential levels... from naturopaths, MDs, acupuncturists, and nurses to those who wish to keep their families healthy with nourishing herbs and remedies. Our students share a desire for valuable, practical herbal knowledge.” CMHS also provides practicum supervision for herbal science students at Bastyr (www.cedarmountainherbs.com).

David Winston’s Center for Herbal Studies, Washington, New Jersey

On-site school and home study option

This two-year program, with both an on-site and distance learning option, is offered by **David Winston**, a prominent figure in Western herbalism for nearly three decades, author of *The Ten Tastes* and *Adaptogens: Herbs For Strength, Stamina, and Stress*

Relief, founder of the herbal company, The Herbalist & Alchemist, and one of the founders of the American Herbalists' Guild. The program's philosophy is that "good herbalists treat people, not diseases, and in our program we strive to teach the skills necessary so that each student can accomplish that goal. We focus on differential diagnosis skills, materia medica and therapeutics which are essential to individualize treatment and help patients to not only resolve symptoms, but create constitutional change needed for physical, emotional and spiritual wellness (www.herbalstudies.net)."

One of my previous students has been working with David Winston for many years.

Dominion Herbal College, Burnaby, British Columbia, Canada

Home study

Established in 1926, Dominion can boast that it is truly the oldest school of herbal medicine in North America. It offers a one-year, home-study Chartered Herbalist Diploma Program, through which such well-known herbal figures as John Christopher and Jethro Kloss began their work, along with a four year Clinical Herbal Therapy Diploma Program, which requires completion of a over 500 hours of supervised clinical training at an approved clinic (www.dominionherbalcollege.com).

East West School of Planetary Herbology, Ben Lomond, California

Home study

Beginning in 1980, this 36-lesson, home-study Professional Herbalist Course established by **Michael and Lesley Tierra** teaches a materia medica of over 500 medicinal plants from around the globe within in an eclectic orientation drawn from Western herbalism, Traditional Chinese Medicine (TCM), and Traditional Ayurvedic Medicine (TAM) (www.planetherbs.com). Long known for their contributions to herbal literature, Michael's books include *The Way of Herbs*, *Planetary Herbology*, and *Treating Cancer with Herbs*; Lesley's books include *Healing with the Herbs of Life* and *A Kid's Herb Book*; and together they have written *Chinese Traditional Herbal Medicine*. The Tierra's were also co-founders of the American Herbalists' Guild.

Henriette's Herbal Homepage

Informational website

Established in 1995, Henriette's Herbal Homepage is described as "one of the oldest and largest herbal information sites on the web." In addition to an enormous amount of herbal information, **Henriette Kress**, who is based in Finland, describes the work of an herbalist by asking,

What does a herbalist do? I correct imbalances, using herbs in combination with diet and lifestyle changes. An herbalist can probably help you if you're feeling tired all the time, have digestive or sinus troubles, if you have recurring infections (like, for instance, cystitis), if your period's too long, short, crampy or just too much, if you can't sleep, and even if you get the flu too often to suit you.

Small uncomfortable things like that, which doctors usually can't do much about. However, I don't do this over email. You'll probably find somebody in your neck of the woods if you look hard enough. Bulletin boards at health food stores, co-ops and vegetarian restaurants are a good place to start. You might be helped by this tidbit from the Medicinal Herb FAQ: 5.6 How to find an herbalist / ND. And in Helsinki? There's me.

Henriette Kress has also published one book in English, *Practical Herbs* (www.henriettesherbal.com).

Herb Pharm's Herbaculture Internship Program, Williams, Oregon

On-site training

For over 30 years, Herb Pharm, producer of quality botanical tinctures, has also offered hands-on internships in the cultivation and use of medicine plants on their 85-acre organic herb farm and in the United Plant Savers Botanical Sanctuary in the Siskiyou Mountains. Offered three seasons of the year, these internships express HerbPharm's "deep commitment to education and to growing the herbalists and herb growers of the future." In addition to hands-on work on the farm, classes focus on plant identification, ethical wildcrafting, ethnobotany, plant spirit medicine, clinical/therapeutic herbalism, medicine making, medicinal plant chemistry, eco-pharmacology and nutrition among others (www.herb-pharm.com). Herb Pharm was founded by "**Herbal Ed Smith,**" who was another co-founder of the American Herbalists' Guild in 1989. Sean participated in this program.

Northeast School of Botanical Medicine, Ithaca, New York

On-site school

The Northeast School of Botanical Medicine was established by respected herbalist, **7Song**, in 2000 and offers a six-month Community Herbalism Intensive (which another student of mine took), along with a Weekend Herbalism Program. 7Song also works at the Ithaca Free Clinic, where he serves on the Operations Committee, as Director of Holistic Medicine, and as a clinical herbalist, and where his students have the opportunity for clinical practicum. His philosophy is very much aligned with Community-Based Herbalism, as revealed in this statement:

I see being an herbalist as a political path, meaning a way to encourage community, and change some of the status quo, especially the ways medicine is currently practiced. I feel that being herbalists we can be a great boon to our communities, whether just among our friends, the towns we live in, or wherever we are and whomever we are talking to. The art of being able to assess people's health difficulties, and to then help them with plants we have gathered or better yet, plants they have gathered and processed into medicine, is a beautiful thing. I feel this knowledge helps with healing in ways beyond just the gross physical healing process. Knowing that we can help ourselves and those around us with at least some of our physical tribulations can increase our connection to the world

of people and nature. And this is knowledge and skill we can pass on freely to the people we meet (www.7song.com).

Plants for a Future Database

On-site research facility and Web database

Plants for a Future began in 1989 on the ground in Cornwall, England. Originally established as a 28-acre demonstration site for edible and medicinal plant uses – referred to as “The Field” – it was run by a small group of volunteers. Ultimately 1500 species were planted in The Field. About ten years ago, one of the founders, Ken Fern, began to compile a database of medicinal and edible plant information that now includes roughly 7000 species (www.pfaf.org). I have noted that this highly reputable site is one of the mostly frequently quoted (and sometimes simply copied) sources of plant use information on the Internet.

Sage Mountain Retreat Center & Botanical Sanctuary, East Barre, Vermont

On-site school and home study

One of the most respected herbalists in North America, **Rosemary Gladstar** has been called the “godmother” of American Herbalism. As noted above, Gladstar, now with more than forty years of herbal experience, founded the California School of Herbal Studies in 1978. Then she went on to establish Sage Mountain Retreat Center and Botanical Sanctuary, with 500 acres of botanical preserve, where she and other herbalists continue to host many on-site learning opportunities as well as to offer a home study course called The Science and Art of Herbalism, which through offering “a comprehensive overview of herbalism [that] prepares the student to competently and effectively use herbs for home health” is “considered by many to be one of the finest home study courses available in this country.” In addition to her work at Sage Mountain, Gladstar co-founded Traditional Medicinal Tea Company as well as United Plant Savers, a non-profit organization established in 1994, which is “dedicated to the conservation and cultivation of at-risk North American medicinal plants and to preserving botanical sanctuaries across the U.S. to help preserve the land that these precious native species thrive on.” Gladstar has also written numerous books on herbal medicine, some of which I have used in my teaching. Her books include *Herbal Recipes for Vibrant Health*, *Medicinal Herbs: A Beginner’s Guide*, *Herbal Healing for Women*, *Herbs for Reducing Stress and Anxiety*, and *Herbs for the Home Medicine Chest* (www.sagemountain.com).

Society for Economic Botany

International organization, informational website, annual conference, and publication

The purpose of this organization is to “foster and encourage scientific research, education, and related activities on the past, present, and future uses of plants, and the relationship between plants and people, and to make the results of such research available to the scientific community and the general public through meetings and publications.” The site

includes tables of contents for the society's journal, *Economic Botany*, and newsletter. An Educational Resources section includes links and online publications (www.econbot.org).

Southwest School of Botanical Medicine, Bisbee, Arizona

Informational website and home study lecture series

Established by the late **Michael Moore**, another one of the most prominent figures in U.S. herbalism, the Southwest School of Botanical Medicine originally offered an onsite program. Since Moore's passing in 2009, two video series of his lectures from 2006 are available for purchase. Moore is legendary for his clinical and field knowledge embedded in tremendous humor and storytelling prowess (www.swsbm.com). As mentioned above, he is also author of several unique and valuable books about regional medicinal plants.

Originally the portal for Michael Moore's Southwest School of Botanical Medicine, the website offers a plethora of botanical information of all kinds, including over 2500 medicinal plant photographs, over 250 video clips of medicinal plants, nearly 2000 illustrations, Fenner's Complete Formulary and Handbook from 1888, the complete Dispensary of the USA, 20th Edition from 1918, various British herb manuals, classic texts and journals in historical Eclectic and Thomsonian Medicine, classic texts in herbology and herb growing including *Herbal Pharmacology in the People's Republic of China*, classic texts in ethnobotany and traditional plant uses, various research in plant constituents, distribution maps, and bioregional herb resources, along with Moore's own herb manuals, herb folios, and lectures in botanical material medica – all of which are freely accessible (<http://www.swsbm.com>).

Additionally, Michael Moore has written several guides to regional medicinal plants. I have frequently used *Medicinal Plants of the Pacific Coast* in teaching since it contains descriptions, drawings, photographs, and use information based on the many years of Moore's clinical experience with medicinal plant species that occur in the Pacific Coast region. When I first began to teach ethnobotany, there were no books whatsoever that focused on the medicinal plants of the Pacific Northwest. Thus, this book was a real treasure when it was first published in 1993, and remains especially helpful today.

United Plant Savers

Organization with informational website and internship options

This is a non-profit medicinal plant conservation association founded by herbalist, Rosemary Gladstar (more below). The website includes an online newsletter, lists of at-risk plants, and information about publications and the UPS Botanical Sanctuary Network (www.unitedplantsavers.org).

Wise Woman Center, Woodstock, New York***On-site school***

Yet another very prominent figure in U.S. Herbalism is **Susun Weed**. Author of numerous books including *Healing Wise*, *Wise Woman Herbal for the Childbearing Year*, *Menopausal Years the Wise Woman Way*, Weed presides over the Wise Woman Center, the purpose of which is “to re-weave the healing cloak of the Ancients. This land is sacred. It is a safe space for women, and a place for teachings of the Wise Woman way. The Goddess lives here, as do goats, fairies, green witches, and elders.” Weed offers classes on Spring Tonics, Spring Treasures, Hands-on Herbal Medicine, First Aid, and The Best Herbs for Women; shamanic herbal apprenticeships; and work-learning days, among other events (<http://www.susunweed.com>).

Examples of Local Classes, Workshops, Apprenticeships and Resources.

Local learning opportunities such as these provide a natural means for developing and maintaining community after the events are finished. Similar learning opportunities can be found in most regions of the United States.

Radiance Herbs and Massage, Olympia, Washington

This local shop offers regular workshops on such topics as Opening to the Green World: An Introduction to Herbal Medicine, and Changing Woman: Menopause as Transformation, both offered by resident and widely respected herbalist, Carol Trasatto; as well as Plant Medicine and Body Systems, taught by my former student, Corinne Boyer. Additionally, Radiance provides dried plant material, supplies for medicine making, prepared medicinal and body care products, books, experienced herbalists, and a large reference library available for browsing.

Corinne Boyer, Opal’s Apothecary, Shelton, Washington

Corinne also offers Opal’s Apothecary where “the intention and purpose is to bring inspiration, education, and healing to the local Puget Sound community by connecting people with plants.” Specifically, Corinne offers weekly, hands-on classes focusing on wild-crafting plants and using them for medicine making. Some of the class themes include “Springtime Forest Medicine,” “The Farmstead Kitchen,” and “Herbcraft Techniques in the winter months.” A number of my students have participated in Corinne’s offerings.

Joyce Netishen, Firerose Farm, McCleary, WA

Often Joyce periodically offers a transformative two-year apprenticeship in the “spirit of plants” as mentioned in Chapter 5. Many of my students have participated in this program, as have I.

Olympia Food Coops (Eastside and Westside), Olympia, WA

These local, cooperatively-owned food stores offer both materials and supplies for medicine making as well as workshops on such topics as Edible Weeds, All About Summer Salads, Urban Foraging, Nutrition for Pregnancy and Healthy Baby and Children, and Creating a Thriving Body Ecology among many others.

Olympia Free Herbal Clinic Workshops and Conferences, Olympia, WA

As described earlier, the Olympia Free Herbal Clinic offers workshops on medicine making as well as an annual conference.

Additional Resources: Topics, Authors, and Books

Over the years of my teaching at Evergreen, I have used several books as texts and several more as references. In addition to those listed above, a few others that I have found to be particularly helpful are listed here:

On Community-Based Herbalism***The Herbalist's Way*, Nancy and Michael Phillips**

Used in my teaching more than any other, this book offers support and practical knowledge for becoming a Community-Based Herbalist. With chapter titles such as “The Medicine of the People,” “The Gamut of Herbal Possibility,” “Learning Your Path,” “Considering Your Niche,” “The Offering of Herbal Medicine,” “Growing and Drying Medicinal Herbs,” “Making Earth Medicines,” “Spreading the Word,” and “Healing Visions for Today,” it covers such diverse and relevant subjects as intersections of folkloric and Western scientific knowledge, resources for learning, issues of legality, and basic skills for growing and making medicine. It also introduces many of the well-respected herbalists and teachers throughout the country (2005).

“Community-Based Herbalism.” A Guide by 7Song.

(7song.com/files/Community%20Based%20Herbalism.pdf)

On Medicine-Making

One highly readable and very thorough text that focuses on kitchen-based, medicine-making skills is **James Green's** *The Herbal Medicine-Maker's Handbook*. Green also authored *The Male Herbal* and was yet another founder of the American Herbalists Guild in 1989. An additional text on the subject of medicine-making is *Making Plant Medicine* by **Richo Cech**, who founded Horizon Herb Company.

On Radical Herbalism as Social Justice

Herbalists Without Borders is an international network of herbalists, healers, practitioners, botanical medicine product makers, herb growers, ecologists, students, humanitarian aid workers and others who share the vision of “a global community where all people have access to affordable natural and botanical medicine. To bring that vision into reality, we create educational, clinical, advocacy and grassroots model projects to fill the gaps in health care social justice internationally.” (www.herbalistswithoutborders.com)

Radical Herbalists Gatherings such RadHerb2014 in the Southwest (radherbsw.wordpress.com) and, annually, in the United Kingdom (www.wildheartpermaculture.co.uk)

RadHerb is a group of family herbalists, healthcare educators and providers, medicine makers, and others in the Northeast who are committed to social justice within herbalism. The group has created a training focused on *health justice* and sponsors gatherings such as the “2014 RADHERB Convergence” (www.radherb.blogspot.com).

Articles and Websites

- “Beyond the Bounds of Comfort – Radical Herbalism.” Darcey Blue. 2013. *Shamana Blue*. (www.shamanaflora.com)
- “Folk Herbalism: The Roots Revival.” Kiva Rose. (www.bearmedicineherbals.com/the-tradition)
- “Queering Herbalism Zine/Resource Guide.” *Queering Herbalism: Brown. Queer. Herbalism*. (www.queerherbalism.blogspot.com)
- “Radical Botany: Restoring the connection between native plants and humans.” (www.radicalbotany.com)
- “Radical Herbalism In Women’s Health & Childrearing.” Aviva Romm. *Birth Roots*. (www.avivaromm.com)
- “The People’s Pharmacy.” David Crow. 2010. (www.paraveda.org)
- “This is Anarcha-Herbalism: Thoughts On Health and Healing For the Revolution.” 2009. Laurel Luddite. *Back to Basics Volume 3*. 2009. (www.greenanarchy.org)
- “We are the Sum of Our Ancestors: Decolonizing Herbalism.” 2014. Toi Scott. *Decolonizing Yoga: Where Spirituality Meets Social Justice*. (www.decolonizingyoga.com)

On Transcultural Herbalism

Articles and Websites

- “African Spirits.” David Angel. *OfSpirit.com*. (www.ofspirit.com)
- “Herbalism as a Religion – (A Way of Life). Rashan Abdul Hakim. 1989. *BlackHerbals.com* (www.blackherbals.com)
- “You Can Grow Perspective On a Farm.” Ekere Tallie. 2013. *The Sage Honey: Herbal Adventures for Sweeter Family Health*. (www.thesagehoney.wordpress.com)
- California School of Traditional Hispanic Herbalism*. 2013. (www.hispanicherbs.com)
- “Interview with Curandero Charles Garcia.” Jesse Wolf Hardin. 2012. (www.bearmedicineherbals.com)
- “Chinese Herbalism in America.” Michael Tierra. 2013. *East West School of Planetary Herbology: Research Articles*. (www.planetherbs.com)
- “The Resilience of Ethnic Culture: Chinese Herbalists in the American Medical Profession.” Haiming Liu. 1998. *Journal of Asian American Studies* 1(2):173-191. (www.muse.jhu.edu)

On Medicinal Ethnobotany, Ethnopharmacology, and Ethnomedicine

Journals and Websites

- Centre for International Ethnomedicinal Education and Research*. (www.cieer.org/directory.html)
- Journal of Ethnobiology and Ethnomedicine* (www.ethnobiomed.com)
- Journal of Ethnopharmacology: An Interdisciplinary Journal Devoted to Indigenous Drugs*. (www.journals.elsevier.com)
- Native American Ethnobotany Database: A Database of Foods, Drugs, Dyes and Fibers of Native American Peoples, Derived from Plants. Directed by Daniel E. Moerman. (www.herb.umd.umich.edu)
- Institute for the Preservation of Medical Traditions. “A research centre at the interface of science, medicine, and the humanities, which bridges past and present, and inspires fresh investigations and innovative research strategies for tomorrow’s health care.” (www.medicaltraditions.org)

A Few More Names to Mention

Kenny Ausubel is editor of *Ecological Medicine: Healing the Earth*,

Healing Ourselves and author of *Seeds of Change: The Living Treasure, When Healing Becomes a Crime: The Amazing Story of the Hoxsey Cancer Clinics and the Return of Alternative Therapies*, and *The Bioneers*. Ausubel also co-founded in 1990 the annual Bioneers Conference, which continues to focus on biocultural diversity, biomimicry or finding solutions in nature, and natural medicine.

Stephen Foster is an author, photographer, and consultant who has been specializing in medicinal and aromatic plants for over thirty years. He serves on the editorial board of *HerbalGram* and *Herbs for Health*, and has authored fifteen books including several regional medicinal plant field guides, and *Herbal Renaissance: Growing, Using and Understanding Herbs in the Modern World*, a text I have used in teaching.

Kathleen Harrison is an ethnobotanist who has worked for over thirty years in Latin America, has cultivated relationships with the Indigenous Mazatec of Oaxaca, Mexico, and has established teaching gardens in Peru, Costa Rica, and Hawaii. Harrison founded the non-profit organization Botanical Dimensions in 1985 with her then-husband, Terence McKenna, where continues to serve as director as well as teaches, and makes botanical illustrations. She is especially interested the ways humans conceptualize and talk about their relationships with nature.

Tieraona Low Dog, M.D. is a clinician and educator. Former President of The American Herbalists Guild and advisory appointee to President Clinton, Low Dog has authored some thirty publications including *Complementary and Alternative Approaches to Women's Health*, and *Life is the Best Medicine*. She reveals her perspective in stating, "The division between conventional and traditional medicine is as artificial as the division between science and nature. They can be woven together in a fashion that meets our physical, emotional, and spiritual needs" (www.integrativemedicine.arizona.edu).

Gregory Tilford is author of *The EcoHerbalist's Fieldbook: Wildcrafting in the Mountain West*, *From Earth to Herbalist: An Earth-Conscious Guide to Medicinal Plants*, and *Edible and Medicinal Plants of the West*. I have used all three of these books in teaching because Tilford's work is grounded in a sense of the ethical/ecological responsibilities of wildcrafting medicinal plants, and he offers both a framework for evaluating environmental impacts and practical tools for observing and recording sites that are revisited.

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*Curriculum Vitae***Marja Eloheimo**

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EDUCATION*Degrees*

2014. Ph.D. Environmental and Medical Anthropology – Ethnobotany.
Dissertation title: “Community-Based Herbalism and Relational
Approaches to Harm Reduction in Healthcare.” Began doctoral work in
1996. ABD from 2002 due to family obligations.

Course work, graduate seminars, and directed research included, among
others: Environmental Anthropology, Ecological Anthropology,
Ethnoecology, Conservation Biology, Landscape Ecology, Botanical
Medicine (five-course series through Bastyr University), Socio-cultural
Anthropology, Field Techniques in Ethnography, and Northwest Coast
Indian Ethno-history and Oral Tradition. (Cumulative GPA 3.9)

1990. B.A. Education. The Evergreen State College, Olympia,
Washington. Thesis title: “The Shape of the Whole: Art, Cognition and
Education.” Student-taught First Grade in Orting, Washington, and inner
city high school Art in Portland, Oregon. Carried out practicum in inner
city middle school Art in Tacoma, Washington.

Teaching Certification 1991. Washington State.

Endorsements. Elementary K-8, Art K-12, English 4-12,
Psychology 4-12, Natural Science 4-12.

1978. M.A. Arts and Psychology. Antioch University West, San
Francisco, California. Created 450+ page hand-bound book of poetry and
illustrations focusing on the role of creativity in recovery from
alcoholism.

1977. Alcohol Counselor Aide Certificate, Clark College, Vancouver,
Washington.

1976. B.A. Arts, Language, and Psychology. The Evergreen State
College, Olympia, Washington. Included work in visual arts, poetry,
dance, photography, writing, Western philosophy, psychology, and
therapeutic techniques.

Other Course Work

1988. Minor in Natural Science, Centralia College, Centralia, WA. (GPA
4.0).

TEACHING EXPERIENCE

1988 to present

Adjunct Faculty, The Evergreen State College, Olympia, Washington. Teach 8, 12, and 16 credit interdisciplinary programs, and 4-credit courses with an emphasis on ethnobotany – including medicinal botany, environmental and medicinal anthropology, sustainability, gardens in community, Pacific Northwest natural history, Indigenous studies, wild and traditional foods, and comparative healing traditions. Have taught four quarters per year since spring 1994. Have taught summers since 1989.

Specifically, programs and courses have included, among others:
 Tend and Tell: Developing and Interpreting an Ethnobotanical Garden
 Introduction to Medicinal Botany
 Creating Community and Health Through Gardens
 The Practice of Community: Growing Home
 In Search of Sustainability
sayuyay Plant Project: Medicine of the Plant People
 Cultural Ecosystems: Plants, People and Place
 Issues in Ethnobotany: Biological and Cultural Diversity
 Plant Medicine Traditions: Forest, Fields, and Gardens
 Plant Medicine Traditions: From Kitchen to Community
 Plants as Food and Medicine
 Ancient, Traditional and Wild Foods
 Comparative Healing Traditions

Supervise individual learning contracts and internships in related topics.

Coordinate the Evergreen Longhouse Ethnobotanical Garden and Library, involving students in an on-campus field laboratory (culturally-oriented, habitat-based native and medicinal plant gardens) with associated environmental, cultural, and educational materials including databases, plant monographs, drawings and photographs.

Co-founded and coordinated student participation in the *sayuyay* Medicinal Plant Project, later “Gifts of the First People” Plant Project and Demonstration Gardens on the Skokomish Indian reservation. Required sensitive interface between largely non-Native college students and a Tribal Community. Worked directly with the late *subiyay*, Bruce Miller, Tribal Elder and National Heritage Award Recipient.

2011-present

Zumba Instructor, Briggs YMCA and previously Breathe Yoga Studio and Fusion. Licensed and actively teach Zumba®, Zumba Gold®, Zumba for Kids (formerly Zumbatomic®), and Zumbini™ (music- and movement-based education for young children and their caregivers).

2005

Adjunct Faculty, St. Martin’s College, Spring Semester. Successfully stepped in and completed teaching Bio 385, Ethnobotany, in Biology Department, after instructor resigned mid-semester.

- 2002 *Faculty Replacement*, University of Washington, Seattle. Spring Quarter. Taught 400-level elective in Anthropology Department, Ethnobiology.
- 1989-1996 *Public School Teacher*, Orting Elementary School, Orting, Washington. Team-taught and implemented theme-based integrated curriculum, inquiry approach, process writing, sequential art exploration, ethnobotanical nature trail development, student-oriented heritage and multicultural studies for Second and Fourth grades. Additional responsibilities: Member of CARE (Student Assistance) Team, and ESL (English as a Second Language) Committee.
- 1988 *Assistant Instructor/Co-coordinator*, University of Helsinki/Evergreen. Geography/Natural History Tour of Pacific Northwest.
- 1980-82 *Instructor*, Dovetail Institute, San Rafael, California, Dominican College, San Rafael, California, New College, San Francisco, California. Taught courses in the arts, creativity, and recovery from addiction.
- Instructor*, Clark County Juvenile Court, Vancouver, Washington. Provided alcohol education to first-offending juveniles.

WRITING/PUBLICATIONS/PRESENTATIONS

- 2013 *Presenter*, Northwest International Education Association (NIEA) Conference, Lakewood, Washington. "Food Security: A Role for Medicinal Plants."
- 2010 *Presenter*, Denver Botanic Gardens, Denver, Colorado. "Developing and Interpreting an Ethnobotanical Garden."
- 2003 *Co-Presenter*, with Skokomish Elder, *subiyay*, Bruce Miller, Society of Ethnobiology Conference, Seattle, Washington. "Gifts of the First People: An Academic (and Personal) Perspective on a Tribal-Academic Collaborative Plant Project."
- 2002 *Presenter*, Society of Ethnobiology Conference, Storrs, Connecticut. "Starting A Collaborative (Academic-Tribal) Medicinal Plant Project."
- 2000 *Presenter*, Society of Ethnobiology Conference, Durango, Colorado. "Puget Salish Access to Culturally Significant Plants."
- 1999 *Presenter*, Society of Ethnobiology Conference, Oaxaca, Mexico. "Reclaiming Access to Culturally Significant Plants: Northwest Indian Tribes and a Role for Ethnobotany."
- Consultant/Researcher/Author*, Muckleshoot Indian Tribe. "Land Exchange Ethnobotanical Resource Gathering: Places, Practices and Patterns." Report critiqued methodologies employed by the U.S. Forest Service in determining the presence and significance of Indian cultural

properties associated with plant gathering and use in the land exchange area of potential effect. It proposed a more comprehensive model, which integrated botanical evidence with cultural and other evidence, filled gaps in the existing evidence, and suggested ways to test the hypothesis generated by the model.

Writer/Photographer, National Science Foundation Undergraduate Faculty Enhancement Program/The Evergreen State College. "The Naturalist's Field Journal." Documented summer institute and created a teaching tool that describes and demonstrates the Grinnell method of maintaining a natural history field journal.

- 1998 *Presenter*, Society of Ethnobiology Conference, Reno, Nevada. "Ethnobotanical Education Grows in the Garden: Examples of Student-supported Ethnobotanical Garden Projects." (This presentation prompted the offer of a \$4,000 donation to support the work described.)
- 1996 *Presenter*, Society of Ethnobiology Conference, Santa Barbara, California. "Developing Curriculum in Ethnobotany."
- 1987-1993 *Contributor*, *Finnish-American Literary Heritage Foundation Newsletter*, Portland, Oregon.
- Contributor*, *Friends in Deed: The Story of US-Nicaragua Sister Cities* by Chilsen & Rampton.
- 1984-86 *Feature Writer*, *The*Fax* (monthly newspaper), Fairfax, California. *Advertising Director*, Sensitive Images (Graphic Design and Advertising Studio), Fairfax, California.
- 1983 *Contributor*, *Earth First! Environmental Journal*; *Pacific Sun* (weekly newspaper); Sausalito, CA, *Suomen Silta* (Finnish magazine), Helsinki, Finland.

ADDITIONAL EXPERIENCE, AWARDS, RECOGNITION AND GRANTS

- 2010 *Fellowship Recipient (Second Award)*, Evan James Fellowship. For Doctoral Studies focusing on the Pacific Northwest.
- 2009 *Grant Recipient*, The Evergreen State College, Foundation Grant for Faculty for summer research and fieldwork utilizing ethnographic method with topics in environmental anthropology.
- 2006 *Fieldwork*, Sambandh, based in the State of Odisha, India.
- 2005 *Film Contributor*, "Teachings of the Tree People," a documentary biography of the life and contributions of the late Skokomish Indian cultural leader, *subiyay* Bruce Miller with whom I worked for ten years. Produced by nationally-acclaimed Katie Jennings, previously of PBS.

- 2004 *Student Documentary Film Editor*, “Gifts of the First People,” a student film about a joint garden project located on the Skokomish Indian Reservation.
- 2002 to 2004 *Training/Apprenticeship*, Five-Element Herbalism. Two-year training program with herbalist, Joyce Netishen.
- 2000 to 2002 *Grant Recipient/Project Coordinator*, Northwest Indian Applied Research Institute. In support of the *sayuyay* Medicinal Plant Project.
- 1998 *Grant Recipient*, Elizabeth Wakeman Henderson Foundation. In support of the Longhouse Ethnobotanical Garden Project.
- 1997 *Fellowship Recipient*, Evan James Fellowship. For Doctoral Studies focusing on the Pacific Northwest.
- Honorable Mention*, NSF Graduate Research Fellowship.
- Grant Recipient*, Sierra Club. In support of the Evergreen Longhouse Ethnobotanical Garden Project.
- Project Assistant/Researcher/Volunteer Coordinator*, Washington State American Basketmakers’ Gathering, Evergreen Longhouse and Cultural Center.
- Project Coordinator*, Washington State Capital Museum Ethnobotanical Garden Education Project.
- Advisor/Grant Writer*, Chehalis Tribal Youth Garden Project.
- 1993-94 *Lecturer/Presenter*, Washington Native Plant Society.
- 1989-90 *Scholarship Recipient*, Received Paul Douglas Teacher Scholarship.
- 1984 to 2000 *Lecturer/Performer*, “Land of the Ancestors: Intimate Glimpses of Finland,” Program of slides, poetry and music. 2000, Grand Finnfest, Toronto; 1995, Long Valley Finnish Society, McCall, Idaho; 1994, Finnfest, Portland, Oregon; 1991, The Evergreen State College, Olympia, Washington; 1990, Finnish-American Literary Heritage Foundation, Portland, Oregon; 1990, Finlandia Foundation, Seattle; 1989, Finnfest, Seattle; 1986, Finnfest, Berkeley; 1984, Finlandia Foundation, New York.
- 1984-86 *Business Owner*, Sensitive Images (Graphic Design and Advertising Studio), Fairfax, California.
- Co-founder and Project Coordinator*, Fairfax-Condega Sister-City Project between Fairfax, California and Condega, Nicaragua.
- 1983 *Grant Recipient*, Paloheimo Foundation, Finlandia Foundation, Kodak and Agfa sponsored a four-month trip to Finland in order to engage in

fieldwork, specifically to photograph, write and produce a program of slides, poetry and music called “Land of the Ancestors: Intimate Glimpses of Finland.”

- 1981-82* *Co-Manager and Herbal Supplement Manager, T & T Natural Food Store, San Anselmo, California.*
- 1979-81* *Program Coordinator, Dovetail Institute (non-profit Adult Education Center), San Rafael, California.*
- 1978-80* *Student of North Indian Classical Music, Ali Akbar College of Music, San Rafael, California. Studied tabla (classical Indian drums) with Ustad Zakir Hussain and his late father, Ustad Allah Rakah, as well as vocal music with the sarod master, Ustad Ali Akbar Khan.*
- 1976-77* *Alcohol Counselor Aide, SWARF (Southwest Washington Alcohol Recovery Foundation), Vancouver, Washington. Facilitated group therapy sessions, developed and monitored treatment plans, lectured on alcoholism, taught yoga and meditation, focused on the Youth Program.*
- 1972* *Valedictorian and Member of National Honor Society, Saint Mary’s Academy, Portland, Oregon.*

LANGUAGES

Beg/Intermediate Spanish, Finnish, French

FAMILY Single mother of two daughters adopted from India

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